

2016

**Reference document**







# REFERENCE DOCUMENT



This Reference Document was filed with the *Autorité des marchés financiers* (AMF, the French financial market authority) on April 11, 2017, in accordance with article 212-13 of its General Regulations. It may be used in support of a financial transaction if it is accompanied by an offering circular signed by the AMF. This is a free translation into English of the AREVA group's Reference Document for 2016, which is issued in the French language, and is provided solely for the convenience of English-speaking readers.

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## General Comments

This Reference Document contains information on AREVA's objectives, prospects and development strategies. This information should not be interpreted as a guarantee that events and data set forth herein are assured or that the planned objectives will be met. Forward-looking statements made in this Reference Document also address a certain number of risks, whether proven or unproven, known or unknown, which remain subject to unforeseen events. Were they to translate into fact, these risks could cause AREVA's future financial results, operating performance and production to differ significantly from the objectives presented or suggested herein. In particular, these risk factors include trends in the international economic and commercial situation.

This Reference Document contains estimates of the markets, market shares and competitive position of AREVA, which are provided solely for purposes of information and are likely to vary as a function of circumstances.

In this document, the company is referred to as "AREVA". The "group" designates AREVA and its subsidiaries. A glossary defining technical terms may be found at the end of this Reference Document. NewCo is the temporary name of the entity which combines all of the operations of AREVA related to the nuclear fuel cycle, whose legal name is New AREVA Holding.

Pursuant to article 28 of the European Community regulation no. 809/2004 of April 29, 2004, the directive 2004/109/CE, as amended, and article 212-11 of the General Regulations of the Autorité des marchés financiers, the following items have been included for reference:

- AREVA's consolidated financial statements for the year ended December 31, 2014 and the statutory auditors' report on the consolidated financial statements for the year ended December 31, 2014, presented in pages 172 to 181 and pages 170 to 171 respectively of the Reference Document filed with the Autorité des marchés financiers on March 31, 2015 under number D. 15-0263; and
- AREVA's consolidated financial statements for the year ended December 31, 2015 and the statutory auditors' report on the consolidated financial statements for the year ended December 31, 15, presented in pages 170 to 179 and pages 168 to 169 respectively of the Reference Document filed with the Autorité des marchés financiers on April 12, 2016 under number D. 16-0322.

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<b>1.2. ATTESTATION BY THE PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT</b>	<b>6</b>
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## 1.1. PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

**Mr. Philippe Knoche**

Chief Executive Officer of AREVA

## 1.2. ATTESTATION BY THE PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

"I hereby attest, having taking every reasonable measure to this effect, and to the best of my knowledge, that the information contained in this Reference Document fairly reflects the current situation and that no material aspects of such information have been omitted.

I attest that, to my knowledge, the financial statements are prepared in accordance with applicable accounting standards and give a fair presentation of the assets, financial position and operating results of the company and of all consolidated companies, and that the management report of the Board of Directors, whose structure is described in Appendix 7 of this Reference Document, presents a fair picture of the business, income and financial position of the company and of all consolidated companies as well as a description of the main risks and uncertainties they confront.

I have received an end-of-engagement letter from the statutory auditors indicating that they have verified information relating to the financial position and the financial statements provided in this reference document and have read the entire report.

The end-of-engagement letter does not contain any observations.

The historical financial information presented in this document has been the subject of reports by the statutory auditors, which contain observations. Without qualifying the findings on the financial statements, the statutory auditors, in their report on the consolidated financial statements for the year ended December 31, 2016 on page 173 of this Reference Document, wish to draw attention to:

- Notes 1.1, 25 and 31, which set out the liquidity situation and the information relating to the application of the going concern principle;
- Note 1.1, which sets out the context of the closing, the implementation of the group's restructuring project, the quality issues impacting the AREVA NP sites and the signature of the share purchase agreement with EDF fixing the terms and conditions for the sale of New NP;



**1.2 Attestation by the person responsible for the Reference Document**

- Notes 1.1, 1.3.1.1, 3 and 37, which set out the accounting treatment and effects of the discontinued operations, in particular the transaction expected with EDF for the sale of New NP, and the entry of the French State into the capital of NewCo, leading to the loss of AREVA SA's control of NewCo;
- Note 24, which sets out the reasons which led AREVA, as from the second half of 2013, to apply paragraph 32 of IAS 11, and the methods of recognition applicable to the Olkiluoto 3 ("OL3") EPR construction agreement. In addition, this note specifies the conditions of completion of this agreement, in particular for the end-of-construction and testing until the reactor is put into service, the uncertainties which remain as to the end of the project and the legal risks related to the arbitration in progress;
- Notes 1.3.17 and 13, which set out the methods for valuation of the provisions for end-of-lifecycle operations, and their sensitivity to the assumptions used in terms of technical procedures, costs, outflow schedules and inflation and discount rates;
- Note 9, which sets out the valuation of the deferred tax assets of AREVA Inc., subject to the effective implementation of a legal restructuring within the framework of the sale of New NP to EDF.

The reports on the consolidated financial statements for the years ended December 31, 2014 and December 31, 2015 contain observations, are incorporated by reference and appear on page 170 of the 2014 Reference Document and on page 168 of the 2015 Reference Document."

Courbevoie, April 11, 2017

Philippe Knoche

Chief Executive Officer of AREVA

The term of office of the statutory auditors is six years.

## 2.1. STATUTORY AUDITORS

### Mazars

Tour Exaltis – 61, rue Henri-Regnault – 92400 Courbevoie – France

Represented by Cédric Haaser and Jean-Louis Simon

- First term granted during the Annual General Meeting of June 26, 1989. Term renewed in particular during the Annual General Meeting of May 7, 2013, and to expire following the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

### ERNST & YOUNG Audit

1-2 place des Saisons – 92400 Courbevoie – Paris la Défense 1 – France

Represented by Aymeric de la Morandière and Jean Bouquot

- First term granted during the Annual General Meeting of May 7, 2013 and to expire following the Annual General Meeting convened to approve the financial statements for the year ended December 31, 2018.

## 2.2. DEPUTY AUDITORS

### Mr. Hervé Hélias

Tour Exaltis – 61, rue Henri-Regnault – 92400 Courbevoie – France

- First term granted during the Annual General Meeting of May 7, 2013 and to expire following the Annual General Meeting convened to approve the financial statements for the year ended December 31, 2018.

### AUDITEX

1-2 place des Saisons – 92400 Courbevoie – Paris la Défense 1 – France

Represented by Christian Scholer

- First term granted during the Annual General Meeting of May 7, 2013 and to expire following the Annual General Meeting convened to approve the financial statements for the year ended December 31, 2018.

## SUMMARY OF KEY DATA

Pursuant to IFRS 5, the data reported for revenue, operating income, EBITDA, operating cash flow and net debt concern the continuing operations exclusively, i.e. mainly the OL3 project, bioenergy operations in the process of being discontinued, and AREVA SA funding.

<i>(in millions of euros, except workforce)</i>	2016	2015	Change 2016/2015
<b>Income</b>			
Reported revenue	10	33	-23
Gross margin	(408)	(917)	+509
Operating income	(442)	(1,287)	+845
Net financial income	(68)	(46)	-22
Share in net income of joint ventures and associates	(14)	(26)	+12
Net income from discontinued operations	(365)	(770)	+405
Consolidated net income	(665)	(2,038)	+1,373
Comprehensive income	(809)	(1,905)	+1,096
Comprehensive income attributable to equity owners of the parent	(753)	(1,825)	+1,072
<b>Cash flow</b>			
EBITDA	(684)	(630)	-54
Change in operating working capital requirement	95	166	-71
Net operating Capex	(7)	(12)	+5
Operating cash flow	(590)	(475)	-115
<b>Miscellaneous</b>			
Net cash (debt)	(1,473)	(6,323)	+4,850
Equity attributable to owners of the parent	(3,417)	(2,516)	-901
Workforce (end of period, including operations held for sale)	36,241	39,761	-8.9%
Dividend per share	-	-	-

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The realization of one or more of the risks presented below or the occurrence of one or more of the events described in this section could have a significant impact on the group's operations and/or financial position. Unidentified risks or risks that the group currently considers to be insignificant could also affect the conduct of its operations.

All identified risks are monitored within the framework of the business risk model (BRM) presented in Section 4.1 and, more specifically, in the ordinary course of the group's operating activities. The operating units (business units

of NewCo and AREVA NP since mid-2016) are responsible for leading the risk management policy in close coordination with the specialized departments. The policy involves procedures, analyses, monitoring and, whenever possible, risk transfer to the insurance and reinsurance market. The policy for each type of risk is presented in this chapter.

The group cannot however guarantee that the monitoring and follow-up implemented in connection with this policy will prove sufficient in all circumstances.

## 4.1. RISK MANAGEMENT AND COVERAGE

### 4.1.1. RISK MANAGEMENT

#### OVERALL ORGANIZATION OF RISK MANAGEMENT AND CONTROL

The purpose of the risk management policy and insurance is to protect the group's operations, performance and strategic objectives.

The Risk Committee coordinates the analysis of the group's main risks for all nuclear and renewable operations worldwide and sets up the necessary action plans for better control of them. Its composition secures the involvement of the principal functions of the company, which may provide expertise or special knowledge enabling assessment of the critical level of certain risks and their potential consequences.

The members of the Risk Committee are:

- the Chief Legal and Financial Officer (Chairman of the Committee);
- the Senior Executive Vice President of Human Resources, Communication, Property and Work Environment;
- the Senior Executive Vice President of Customers, Strategy, Innovation and R&D;
- the Senior Vice President of Safety, Health, Security and Environment;
- the Senior Vice President of Insurance;
- the Senior Vice President of Risk and Internal Audit;
- the Secretary of the Risk Committee.

The Risk Committee may call on expertise from throughout the group to accomplish its mission.

The Risk and Internal Audit Department develops methodological tools to ensure the consistent treatment of risk among the group's different entities, assists them in their use and promotes the exchange of best practices. The Risk and Internal Audit Department consolidates risk assessment for the group. In terms of financing, the Insurance Department arbitrates between retaining part of the risk and transferring it to the insurance and reinsurance markets through the group's global and comprehensive policies. This specific point is developed in Section 4.1.2. *Risk coverage and insurance.*

#### RISK MAPPING

The principal objectives of risk mapping are to:

- formally identify operational and financial risks;
- characterize these risks so as to prioritize them; and
- define and implement an action plan for managing them.

The Risk and Internal Audit Department steers this initiative by:

- establishing a common set of methodological tools and benchmarks;
- spearheading a network of risk coordinators deployed within the operating units.

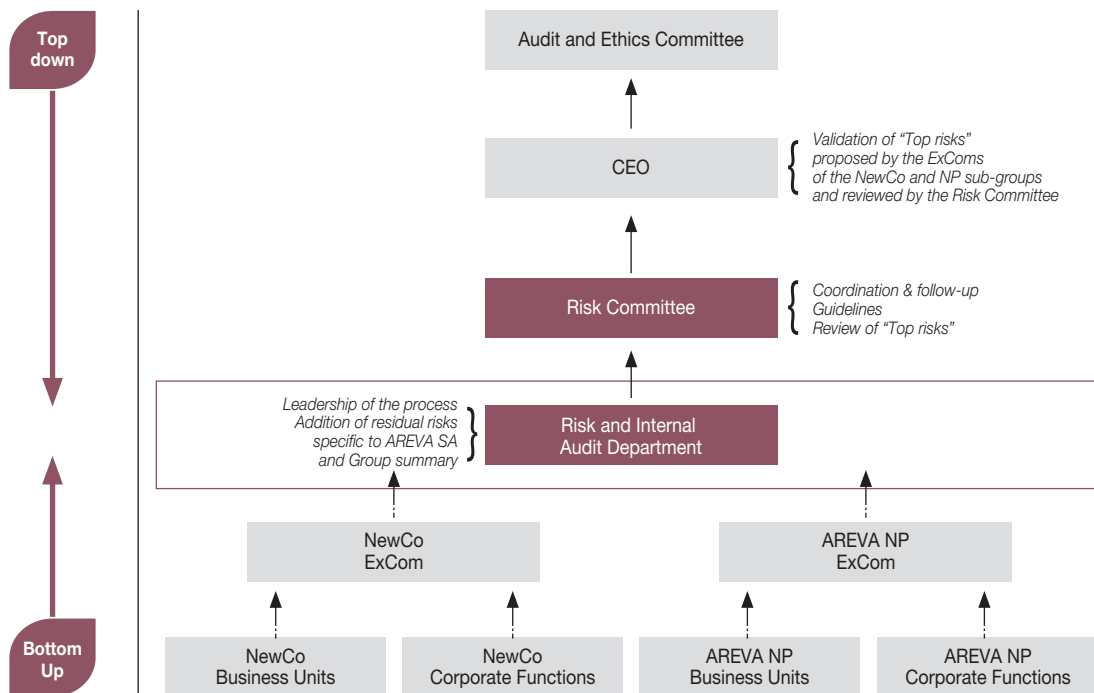
The Risk Committee is briefed annually on the risk maps and prepares a summary which is approved by the group's Chief Executive Officers before presentation to the Board of Directors' Audit and Ethics Committee. This initiative covers the entire consolidated group.

The group's multiyear audit plan builds among other things on risk mapping results, which are updated every year. The Risk and Internal Audit Department subsequently implements this plan by conducting audits.

#### RISK ANALYSIS AND CONTROL

Managing risk entails, among others:

- an ongoing and documented process of risk identification, analysis, prioritization, optimization, financing and monitoring;
- a broad scope covering all of the group's activities, both operational (construction, manufacturing, sales, projects, services, etc.) and functional (finance, legal, contractual, organizational, human resources, etc.);
- developing plans for business continuity and crisis management.

AREVA BUSINESS RISK MAPPING PROCESS SINCE JANUARY 2016 <sup>(1)</sup>

Source: AREVA.

The first stage of the risk management process is to identify the risk using a Business Risk Model (BRM) drawn up for the use of the operating units. Working from a defined number of typical risks or families of risk (BRM risk), the model lists all of the foreseeable or fortuitous situations or events which may have an impact on employee safety, on the financial performance of the business unit, of the subgroup or even of the group, as well as on its corporate image.

The BRM evolves by incorporating best practices and lessons learned.

The establishment of the risk map is the time for collecting recommendations and decision-making components concerning the implementation of action plans designed to optimize the management of each risk and render the residual risk acceptable to the group. The operating units are responsible for identifying, analyzing and prioritizing their risks, and for managing them by implementing action plans using appropriate means.

In each business unit, the risk management coordinators provide their management with a cross-business picture of risks and of how the sites and entities are managing them. The Risk Committee is then informed of the status of action plans and decides which risks affect the group's strategic objectives.

The group's commitment to transparency in risk management is shown in particular through the publication of environmental monitoring results for the principal sites and more generally through the implementation of its Nuclear Safety Charter. A measurement and reporting protocol frames the calculation and measurement of sustainable development indicators published by the group.

The operating units, supported by AREVA's specialized departments, manage risks related to nuclear safety, the environment and the physical protection of AREVA's facilities, under the regulatory oversight of national and international authorities.

### RISK MANAGEMENT RELATED TO THE GROUP'S INDUSTRIAL OPERATIONS

In terms of regulation, industrial facilities operated by AREVA are categorized by level of risk and the quantity of nuclear material or chemical substances present.

In addition to the means of preventing and countering acts of malfeasance and actions to ensure public safety in the event of an accident, the industrial safety of the facilities consists in particular of:

- protecting employees, members of the public and the environment from the harmful effects of radiation and chemicals; and
- defining and implementing measures designed to prevent accidents and limit their impacts.

(1) For the 2015 mapping process, see the 2015 Reference Document, Section 4.1.1.

### 4.1.2. RISK COVERAGE AND INSURANCE

Some risk factors, were they to materialize, could be covered by one or several of the insurance policies taken out by the group as part of its insurance programs.

To mitigate the consequences of certain potential events on its operations and on its financial position, AREVA transfers risk to reputable insurance and reinsurance companies worldwide. For example, AREVA has acquired insurance coverage for its industrial risks, its civil liability and other risks related to its operations, both nuclear and non-nuclear. The amount of the respective guarantees varies according to the type of risk and the group's exposure.

AREVA's Insurance Department leads the insurance program for the entire group. The department:

- recommends solutions to management either to retain the risk and finance it internally or to transfer it to the insurance market;
- negotiates, sets up and manages global and comprehensive insurance programs for the entire group and reports to the group's management on actions taken and costs incurred; and
- settles claims for the subsidiaries involved.

#### 4.1.2.1. WORLDWIDE GROUP INSURANCE PROGRAMS

##### Directors and officers liability insurance

Liability insurance for directors and officers serves three purposes:

- firstly, it provides liability coverage for financial risk incurred by the group's directors and officers due to damages suffered by third parties as a result of errors or misconduct in the course of their duties;
- secondly, it reimburses group companies that are legally allowed to indemnify directors and officers for claims submitted against these individuals;
- thirdly, it covers civil and/or criminal defense expenses incurred by directors and officers as a result of any claims based on errors or misconduct in the course of their duties.

The policies exclude coverage of claims based on intentional misconduct by a director or an officer, or on personal gain (financial or otherwise) to which a director or officer was not entitled. Fines and penalties levied against directors and officers are also excluded, as well as claims for losses due to pollution, asbestos or toxic mold. Liability insurance policies for directors and officers exclude claims based on the purchase of securities or assets of a company at an inappropriate price.

##### AREVA's liability

The group is covered by a "worldwide" civil liability program with limits appropriate to its size and operations. The program covers:

- operator liability related to operating activities and services performed at customer sites;
- product liability covering the post-delivery period; and
- professional liability ("errors and omissions") covering the financial consequences of damages associated with intellectual services performed by a company of the group for its own account or on behalf of a third party.

It is also covered for liability for environmental damage, for damage to property held on behalf of third parties and for product recall expenses, among others.

The program covers the monetary consequences of civil liability likely to be incurred by the operating entities due to their operations, including bodily harm, property damage and consequential damage suffered by third parties, excluding nuclear operator liability. Certain events not usually covered by insurance, such as landslides, damage from asbestos, or damage caused by computer viruses, are also excluded. Liability insurance limits vary based on available supply on the insurance market and on a reasonable assessment of the risks to which the group is exposed, as identified by the operating units and the Risk and Internal Audit Department, in particular during the risk mapping process.

##### Coverage relating to nuclear facility operations

For a description of insurance taken out related to nuclear facility operator activities, see Section 4.4.1. *Nuclear risks*.

#### 4.1.2.2. OTHER INSURANCE

The group has recourse to Coface type coverage for some large export contracts from France, such as the construction of nuclear power plants. Lastly, insurance policies are taken out for automobile liability and occupational injuries, in accordance with the legal obligations of each country in which AREVA and its subsidiaries are based.

#### 4.1.2.3. OUTLOOK AND TRENDS IN 2017

The insurance programs will be renewed in April 2017.

## 4.2. RISKS RELATED TO THE RESTRUCTURING PLAN

### 4.2.1. RISKS RELATED TO IMPLEMENTATION OF THE RESTRUCTURING PLAN

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To restore its competitiveness and stabilize its financial position, the group designed and has begun to implement a Restructuring Plan which includes among other things the subsidiarization of the nuclear fuel cycle operations (mainly the Mining, Chemistry, Enrichment and Back End operations) within the entity temporarily called "NewCo"; AREVA and NewCo capital increases in the total amount of approximately 5 billion euros; and a large-scale asset disposal plan in line with its objective of refocusing on nuclear materials management. The Restructuring Plan is detailed in Section 9.1. *Overview.*

By means of the income from the planned capital increases and asset sales in progress in particular, the objective of the Restructuring Plan is to enable AREVA to meet its requirements for cash and especially to reimburse bond debt and bank borrowings (bilateral lines of credit, RCF and bridge loan, as applicable), in 2017 and 2018 and to ensure the successful completion of the OL3 project.

Nevertheless, the group cannot give any assurance that this Restructuring Plan will be sufficient if market conditions were to continue to deteriorate (e.g. drop in the prices for uranium and for conversion and enrichment services) or if changes in legislation or regulations were to require some of the group's companies to revise significantly upwards the level of funds currently earmarked for end-of-lifecycle operations. Consequently, the group cannot guarantee that implementation of the Restructuring Plan will achieve the anticipated results in the expected period of time. If the group were to be unable to implement the Restructuring Plan effectively, or if the plan were not to produce the anticipated results, this could have a significant unfavorable impact on its results, financial position and outlook.

### 4.2.2. RISKS RELATED TO THE NON-EXECUTION OR DELAY OF THE AREVA AND NEWCO CAPITAL INCREASES

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As part of the Restructuring Plan, two capital increases are contemplated for AREVA and NewCo in the total amount of approximately 5 billion euros. The French State would participate in the reserved capital increase of AREVA in the amount of approximately 2 billion euros and in the NewCo capital increase, alongside strategic investors, in the maximum amount of 2.5 billion euros. For additional information on the terms of the capital increases, see Section 9.1. *Overview.*

Although the above-mentioned capital increases were authorized by the two companies' respective shareholders at General Meetings held on February 3, 2017, they remain dependent on the fulfillment of the conditions accompanying the European Commission's authorization, in conformance with European regulations on State aid, as described in Section 9.1. *Overview.*

The group cannot give any guarantee as to the fulfillment of the conditions accompanying the European Commission's decision or as to the date of their fulfillment.

If the conditions were not to be fulfilled within the expected time limit, the execution of the above-mentioned capital increases and the implementation of the Restructuring Plan would be compromised, which would have a significant unfavorable impact on the group's operations and financial position such that it might not be in a position to meet its cash requirements.

In particular, in the event of a significant delay in the effective execution of the AREVA and NewCo capital increases, or in the event that said capital increases are not carried out, the group could be unable to reimburse shareholder current account advances from the French State (one for AREVA in the amount of 2 billion euros, the other for NewCo in the amount of 1.3 billion euros) authorized by the European Commission in its decision of January 10, 2017.

Furthermore, the structural and/or behavioral measures accompanying the European Commission's authorization of January 10, 2017, aimed at limiting potential distortions of competition resulting from the authorized aid (compensatory measures), could reduce the benefits expected from the Restructuring Plan and have a significant unfavorable impact on the group's operations and financial position.



### 4.2.3. RISKS RELATED TO THE NON-EXECUTION OR DELAY OF THE SALE OF AREVA NP'S OPERATIONS

As explained in Section 9.1. *Overview*, AREVA, AREVA NP and EDF signed a contract on November 15, 2016 setting the terms and conditions for the sale of an interest giving EDF the exclusive control of a new entity, New NP, a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of nuclear reactor and equipment design and supply, fuel assemblies, and services to the installed base of the group, for a selling price of 2.5 billion euros for 100% of the shares of New NP, excluding possible price adjustments and supplements, and without debt assumption at the closing of the transaction. Contracts related to the OL3 project and the resources needed for project completion, along with certain contracts related to forgings at the Creusot plant, will be kept within AREVA NP in the AREVA consolidation scope.

The closing of the sale is subject to a certain number of conditions precedent. In particular, closing of the transaction in the second half of 2017 remains subject to:

- favorable findings from ASN on the results of tests concerning the primary cooling system of the Flamanville 3 reactor;
- completion of and satisfactory findings from quality audits at the Creusot, Saint-Marcel and Jeumont plants;
- authorization from AREVA NP's co-contractors; and
- approval from the competent authorities which regulate mergers and nuclear safety.

Moreover, closing of the transaction is conditioned on the transfer of AREVA NP's operations, excluding the OL3 contract and certain component contracts, to a new entity temporarily called "New NP".

No guarantee can be given as to the fulfillment of the conditions precedent or as to the date of their fulfillment. In particular, the competent authorities could condition the delivery of their authorization on compliance with commitments, injunctions or orders, and certain co-contractors could condition the delivery of their authorization on the negotiation of contractual conditions less favorable to AREVA or New NP. These commitments, injunctions, orders and/or negotiations could affect or delay the closing of the transaction, lead to a decision not to carry out the transaction, or reduce the benefits expected from the transaction, and have a significant unfavorable impact on the group's operations and on the Restructuring Plan.

### 4.2.4. RISKS RELATED TO THIRD-PARTY AGREEMENTS FOR THE CHANGE OF NEWCO CONTROL

The NewCo capital increase in the total amount of 3 billion euros will lead to the de facto loss of AREVA's control of NewCo, as the former's remaining minority interest will be approximately 40% of NewCo's capital and voting rights at the end of the transaction.

The change in the nature of AREVA's operations and the change of control is subject to the prior authorization of certain third parties, in particular banking partners for the RCF syndicated line of credit and bilateral lines of credit, contractors, suppliers, customers and/or authorities, as regards different agreements signed by AREVA or its subsidiaries or as regards applicable regulations in the countries in which AREVA or its subsidiaries conduct their operations.

Even though the change of NewCo's control has already been approved by several of AREVA's counterparties, AREVA might not succeed in securing the consent of certain third parties prior to the execution of the NewCo capital increase, or it could be led to renegotiate conditions that could be less favorable than those granted previously in connection with the securing of such consent, which could then reduce the benefits expected from the Restructuring Plan and have a significant unfavorable impact on the group's operations and financial position.

In early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and with a maturity date of January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases. In addition to the standard default and early redemption clauses in the event of predefined events, a default clause is provided in the event that certain contractual risks associated with AREVA SA's operations were to materialize above a certain threshold.

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1.250 billion euros maturing on January 16, 2018 to proceed with the NewCo capital increase and authorize de facto the loss of control. In return for this consent, the lenders of that facility receive better terms, including an additional security and early redemption clauses, in particular as regards the income from the sale of AREVA NP.

## 4.3. LEGAL RISKS

### 4.3.1. REGULATORY RISK

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The group conducts its operations under operating licenses and permits, in accordance with local laws. In particular, these operations require licenses relating to production capacities and to environmental releases from the facilities. In conducting its operations, the group must comply with applicable legislation and regulations, in particular concerning the protection of the environment, employees, public health and nuclear safety, and with its operating licenses and permits. The operator may be subject to sanctions, including administrative sanctions, in the event of an incident or lack of compliance with applicable regulations or operating permits and licenses. Such sanctions may include, among others, the temporary suspension of operations or measures to enforce compliance or to restore normal conditions. In addition, damage to the environment, to public health or to occupational safety, or the non-compliance of the group's facilities could result in liabilities for some of the group's entities with regard to third parties and government agencies.

Moreover, a strengthening of or change in legislation or regulations, particularly in areas such as environmental protection, health and nuclear security, could involve compliance enforcement of the group's facilities, which would likely have a significant impact on the group's operations or financial position. In France in particular, the French Nuclear Safety and Transparency Law of June 13, 2006 ("TSN Law") codified in the Environmental Code requires a periodic reassessment of nuclear safety which is likely to translate into considerable expense for compliance, but this would bolster the facilities' nuclear safety and ensure their long-term viability. Similarly, the order of December 12, 2005, as amended, on pressurized nuclear equipment designed for use in nuclear reactors (the "ESPN Order") strengthens

requirements and inspections to take into account nuclear safety and radiation protection requirements incumbent upon the manufacturer, which is responsible for the compliance of this equipment. This is likely to prolong the time needed by the French nuclear safety authority ASN to pronounce the compliance of the most significant pressurized nuclear equipment.

The group may also not receive on a timely basis permits or licenses to modify or expand its industrial operations for which it has applied or may apply, whether in France or abroad, possibly limiting its growth capabilities.

Furthermore, some operations, such as those of the Mining Business Unit in certain countries, are subject to special tax rules whose modification could have a negative impact on the group's financial position.

In addition, the group pays particular attention to regulations with which non-compliance could expose the group to criminal or civil penalties and significantly affect its operations, image and reputation.

#### 4.3.1.1. NUCLEAR AND ENVIRONMENTAL REGULATIONS

The group's operations are subject to constantly changing and increasingly stringent national and international regulations in the nuclear and environmental fields. The list of the group's regulated nuclear facilities (see *Glossary*) or similar facilities is presented in the table opposite.

**NUCLEAR FACILITIES FOR WHICH ENTITIES OF THE GROUP HOLD THE OPERATING PERMIT OR LICENSE**

The main nuclear facilities to date, whether classified as regulated nuclear facilities in France (INB) or their corollaries in other countries, are listed below.

Location	Business Unit	Legal entity holding the license	Description
Malvési, France	Chemistry	AREVA NC	Packaging and storage of radioactive substances
Tricastin, France	Chemistry	AREVA NC	Preparation of UF <sub>6</sub>
Tricastin, France	Chemistry	AREVA NC	Conversion of enriched uranium-bearing materials (U <sub>3</sub> O <sub>8</sub> )
Tricastin, France	Chemistry	AREVA NC	Analytical laboratory
Tricastin, France	Enrichment	Eurodif Production	Georges Besse gaseous diffusion enrichment plant
Tricastin, France	Enrichment	SET	Georges Besse II centrifuge enrichment plant
Tricastin, France	Enrichment	Socatri	Plant for uranium recovery and cleanup
Romans, France	Fuel	AREVA NP	Fuel fabrication for research reactors
Romans, France	Fuel	AREVA NP	Fuel fabrication for power reactors
Dessel, Belgium	Fuel	FBFC International SA	Fabrication of uranium and MOX fuel (undergoing dismantling)
Lingen, Germany	Fuel	ANF	Fuel fabrication
Richland, United States	Fuel	AREVA Inc.	Fuel fabrication
Maubeuge, France	Equipment	Somanu	Nuclear maintenance workshop
Veurey, France <sup>(1)</sup>	Valuation	SICN	Fuel fabrication plant (undergoing decommissioning)
	Recycling / Decommissioning		
La Hague, France <sup>(2)</sup>	& Dismantling	AREVA NC	Used fuel treatment plants and liquid effluent/ solid waste treatment facilities
Marcoule, France	Recycling	AREVA NC	MELOX MOX fuel fabrication plant

(1) Two INBs at this site are in final shutdown/dismantling status, pending decommissioning.

(2) Seven INBs at this site, including four in final shutdown/dismantling status.

Internationally, the International Atomic Energy Agency (IAEA) and the European Commission have each established a system of nuclear materials safeguards.

Other international agreements adopted under the umbrella of the IAEA govern nuclear safety in the facilities, including the Convention on Nuclear Safety (CNS) and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

With respect to the European Union, the provisions of the Euratom Treaty and its implementing provisions reinforce aspects related to nuclear materials safeguards and established a common set of rules, in particular concerning public health protection, radiation protection of workers and radioactive waste transportation. In France, regulated nuclear facilities (INB, *installations nucléaires de base*) operated by the group fall within a strict legal framework. Because of the risks or drawbacks which these facilities may present for occupational health and safety and for public health, or for the protection of nature and the environment, special authorizations are delivered for the creation, startup, modification, safety review, dismantling and decommissioning of the facilities, and govern in particular rules for nuclear safety, protection of public health and of the environment, and the monitoring of radioactive and non-radioactive releases. The license decrees required for certain operations are granted following a public inquiry and an administrative process requiring the opinion of several organizations. Procedures related to the creation, modification, final shutdown and dismantling of regulated nuclear facilities are set by decree no. 2007-1557 of November 2, 2007 pertaining to regulated nuclear facilities and, in matters of nuclear safety, to the regulation of the transportation of radioactive materials, as amended by decree no. 2016-846 of June 28, 2016. Pursuant to this amended order, the general technical rules applicable to regulated nuclear

facilities were strengthened by the order of February 7, 2012 setting the general rules pertaining to regulated nuclear facilities, of which most of the provisions became effective on July 1, 2013. Moreover, the codified provisions of the TSN Law, of law no. 2015-992 of August 17, 2015 on the Energy Transition for Green Energy ("TECV Law") and of order no. 2016-128 of February 10, 2016 containing various nuclear-related provisions, stipulate administrative and penal sanctions (articles L. 596-14 *et seq.* and articles L. 596-27 *et seq.* of the Environmental Code). In addition, each INB operator must submit an annual information report focusing in particular on the measures taken as concerns nuclear safety and radiation protection, which is made public (article L. 125-15 of the Environmental Code).

Regulated nuclear facilities are monitored closely by the French nuclear safety authority ASN, an independent administrative authority. Operations abroad are subject to the same type of rigorous control, the United States Nuclear Regulatory Commission (NRC) being one example.

In France, some facilities operated by the group are subject to regulations pertaining to environmentally regulated facilities (ICPE), depending on the operations performed or the substances involved. These facilities of the group, which may represent hazards or drawbacks for occupational health and safety, for public health, or for the protection of nature and the environment, are subject to prior reporting to the Prefecture, to a registration process, or to a licensing process. In the last case, the operating license or permit granted upon completion of a public inquiry, after consultation with various organizations, takes the form of a prefectural order accompanied by specific operating requirements.

The group is also subject to regulations pertaining to the protection of its employees, its subcontractors and the public from the hazards of ionizing radiation (radiation protection), in particular by the establishment of exposure limits.

Other national and international provisions govern:

- the protection and safeguarding of nuclear materials, of their facilities and of their transportation, such as the Convention on the Physical Protection of Nuclear Materials of October 28, 1979, the French Defense Code (articles L. 1333-1 *et seq.* and R. 1333-1 *et seq.*), the Euratom Treaty of March 25, 1957 (Chapter VII) and the Euratom Regulation no. 302/2005 of February 8, 2005, the IAEA/France/Euratom Safeguards Agreement (INFCIRC/290 of July 27, 1978), and many international agreements. Compliance with these requirements is regularly verified by inspectors from the IAEA, Euratom and the office of the Senior Defense and Security Official at the French Ministry of Environment, Energy and Oceans (MEEM);
- the safety of facilities of vital importance, as provided in the French Defense Code (articles L. 1332-1 *et seq.* and R. 1332-1 *et seq.*) and national safety directives under the supervision of the Senior Defense and Security Official at the MEEM and the prefectural authorities;
- nuclear facilities contributing to deterrence, as provided in the French Defense Code (article R. 1411-1 *et seq.*), under the supervision of the French deterrence authority;
- the transportation of radioactive materials by land per the Transport of Dangerous Goods Order of May 29, 2009 ("TDG Order" - see *Glossary*);
- the control of cross-border movements of radioactive waste, bearing in mind that the provisions of the Council Directive 2016/117/Euratom of November 20, 2006 on the supervision and control of shipments of radioactive waste and spent nuclear fuel have been transposed into the Environmental Code; see also *Regulations governing radioactive waste*, below.

Similar regulations provide for rigorous regulation of facilities and of their operating conditions by the competent bodies in the foreign countries in which the group operates nuclear facilities (Belgium, Germany and the United States).

### Regulations governing end-of-lifecycle operations

#### Regulations governing dismantling

The legal framework governing the dismantling operations carried out in France mainly derives from the codified provisions of the TSN Law, the TECV Law and the order of February 10, 2016 containing various nuclear-related provisions. In addition, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management of September 5, 1997, adopted under the auspices of the IAEA, contains provisions related to the nuclear facility decommissioning process.

As the holder of licenses and permits for operations and dismantling, the nuclear operator is the legal entity responsible for the operation and dismantling of the facilities. The operator remains responsible for the timing and methods selected to dismantle the facilities it operates, subject to the technical supervision of the French nuclear safety authority ASN, which validates each major stage of dismantling.

The decision authorizing dismantling and specifying its procedures is made by decree following a public inquiry and a process requiring the opinion of several organizations. The decree prescribing dismantling amends the decree authorizing

creation (DAC) and in particular sets the characteristics of the dismantling, its time limit for completion, and the types of operations for which the operator is responsible following the dismantling.

Depending on the particular features of each facility, dismantling operations may take several decades, encompassing work execution phases and facility monitoring phases involving practically no operation. Dismantling involves a series of operations, from the shutdown of the nuclear facility to the decision of the competent authorities to decommission the facility, at which time it can generally be put to new industrial use. In France, the group currently has 20 INBs (of which 6 are officially in final shutdown/dismantling and 2 are waiting to be decommissioned), plus 1 INBS which was declassified by a decision of the Prime Minister on July 20, 2016. The level of dismantling selected depends in particular on the expected use of the site that hosts the regulated nuclear facility. In the United States, Germany and Belgium, where the group operates four nuclear facilities, dismantling regulations are based on principles that are largely similar to those of France.

The non-regulatory aspects of dismantling are addressed in Section 4.4.1.8.

#### Regulations governing radioactive waste

In France, the waste generated by nuclear operations or by the dismantling of regulated nuclear facilities is governed in particular by articles L. 542-1 to L. 542-14 of the Environmental Code. At the international level, radioactive waste management falls under the purview of the IAEA's Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management of September 5, 1997. At the European level, Council Directive no. 2011/70/Euratom of July 19, 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste has been transposed into the French Environmental Code by the order of February 10, 2016 containing various nuclear-related provisions.

The producer or the holder of waste from nuclear operations or dismantling operations, as applicable, is obligated to process and dispose of such waste.

Article L. 542-2-1 of the French Environmental Code authorizes the treatment of foreign used fuel and radioactive waste in French facilities under certain conditions, including in particular the signature of intergovernmental agreements indicating an estimated schedule for the receipt and treatment of these substances and, as applicable, the prospects for the later use of the radioactive materials separated during their treatment. Every year, the operator submits a report with an inventory of these substances to the Minister of Energy. Article L. 594-1 of the Environmental Code provides that operators of regulated nuclear facilities must set aside provisions to cover the cost of dismantling the facilities and of managing used fuel and radioactive waste, and allocate the necessary assets to cover those provisions exclusively. In this regard, the regulations specify that the operator must account for the assets separately and that they must be sufficiently secure and liquid to meet their intended purpose. Their realizable value must be at least equal to the amount of the provisions. This earmarked portfolio of assets is protected from all creditors, except the State when it enforces compliance with rules pertaining to nuclear operations. All of these items are verified by a number of different administrative authorities, including the French national commission which assesses the funding of dismantling expenses. Furthermore, financial penalties apply in the event of a failure to comply with all of the obligations related to dismantling expenses.

#### 4.3.1.2. RULES OF BUSINESS ETHICS

The group attaches special importance to adherence to strict ethical values in connection with its operations.

The company's code of ethics was revised in 2016 as part of a program for the overall strengthening of compliance. In addition to nuclear safety, the group aims to be exemplary in the fields of:

- corruption prevention;
- compliance with competition laws and regulations;

- financial ethics and compliance;
- compliance with insider trading rules;
- compliance with regulations on the export of dual-use items (export controls).

Occasional deviations from these standards by employees, officers or representatives of the group could nonetheless occur which, depending on their severity, could have potential repercussions on AREVA's reputation and possibly financial costs if for example violations have been committed.

### 4.3.2. CONTRACTUAL AND COMMERCIAL RISKS

#### 4.3.2.1. BREACH OF CONTRACTUAL COMMITMENTS

The group is exposed to the risk of default by its customers for the payment of its products and services and/or by its suppliers for the performance of certain services or for the delivery of certain products.

Except when customers deposit funds to cover the group's expenses during the contract implementation phase, the group is exposed to the risk of a customer's inability to accept delivery or to the risk of default on payments during delivery. In such instances, the group may not be able to recover expenses incurred for the project or to reach the operating margins contemplated when the contract was signed.

In connection with certain disputes set out in Section 20.8. *Legal and arbitration proceedings* of the 2016 Reference Document, the group may also be exposed to the risk of customer payment into a frozen account for part of its products and services during the execution of certain contracts. In fact, depending on the outcome of the disputes in question, the group could run the risk of having all or part of the frozen payments withheld.

Though the group endeavors to control its exposure to contractual risk, it is not possible to guarantee that all risks of non-payment or non-execution can be eliminated.

#### 4.3.2.2. NON-RENEWAL OR TERMINATION OF CONCESSIONS RELATED TO THE GROUP'S MINING OPERATIONS

The group's mining operations involve concessions received or partnerships formed under legal systems specific to each country. Despite the relatively long terms of these partnerships or concessions, the group is exposed to the risk of non-renewal or termination of its mining concessions.

#### 4.3.2.3. LONG-TERM CONTRACTS

The group enters into long-term contracts which could limit its opportunity to take advantage of improving conditions in certain markets or result in lower profitability than anticipated.

In these long-term contracts, prices are adjusted based on general indices rather than current market prices for certain raw materials or services. This type of contract could prevent the group from taking advantage of price increases for those products or services. This is the case for certain natural uranium sales contracts, in particular, or for conversion or enrichment services.

In addition, the profitability of certain long-term contracts in which the group commits to providing deliverables at a fixed price, adjusted based only on general indices, could be affected by certain excess costs that cannot be charged to customers, including unanticipated increases for certain types of costs, technical difficulties, subcontractor default or a suboptimal group organization. The performance of this type of contract could therefore reduce the group's anticipated profitability, or even cause an operating loss.

#### 4.3.2.4. GUARANTEES GIVEN BY AREVA IN CONNECTION WITH ASSET SALES IN PROGRESS

In connection with the sale of the exclusive control of New NP to EDF, and beyond the price adjustment clauses in the share purchase agreement (upwards or downwards), AREVA had to give EDF a capped general guarantee as well as several specific guarantees, some of which are not capped.

Similarly, in connection with the sale of Adwen and the sale of AREVA TA, AREVA had to grant capped general guarantees of liabilities as well as specific guarantees.

The application of those guarantees (in an amount which could prove to be significant, particularly as concerns uncapped guarantees) could have significant unfavorable consequences for the group's operations and financial position.

#### 4.3.2.5. WARRANTIES

In accordance with the group's practices and policies, the warranties provided in the group's contracts or financing are limited in duration and capped in value, and exclude consequential or indirect damages. However, the group could under certain circumstances give warranties exceeding those limits, particularly in competitive markets.

Pursuant to the memorandum of understanding signed on July 28, 2016, EDF and AREVA signed a share purchase agreement on November 15, 2016 which sets the terms for the sale of an interest giving EDF exclusive control of an entity ("New NP") which is a wholly owned subsidiary of AREVA NP, and which will combine the industrial operations involving the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base of the AREVA group. The OL3 contract and the means needed for its completion together with the Component contracts affected by serious anomalies which might have been identified as part of the quality audit in progress are not included in this sale. In connection with that transaction, and in addition to the price adjustment clauses provided in the contract (upwards or downwards), the warranties which the group had to give could have significant consequences for the group's future financial position.

#### 4.3.2.6. EARLY TERMINATION CLAUSES

The group enters into contracts which sometimes include clauses allowing the customer to terminate the contract or reject the equipment if contract clauses concerning schedule or performance have not been met. Difficulties concerning products and services provided under this type of contract could thus result in unexpected costs.

In addition to the above-mentioned negative financial consequences, contract performance difficulties could harm the group's reputation with existing or potential customers, particularly in the nuclear sector.

#### 4.3.2.7. REQUIREMENTS CONTRACTS

Some contracts signed by entities of the group, in particular in the Chemistry-Enrichment Business Unit, are for variable quantities, depending on our customers' reactor requirements. These are known as "requirements contracts".

The estimates provided by AREVA's customers in connection with these contracts may therefore be revised downwards in certain circumstances, with a corresponding reduction in the revenue anticipated by AREVA for the contracts in question.

### 4.3.3. RISKS AND DISPUTES INVOLVING AREVA

AREVA is exposed to the risk of disputes that could lead to civil and/or criminal penalties. AREVA cannot guarantee that it is not potentially exposed to claims or investigations that could have a significant unfavorable impact on the group's image and financial performance.

#### 4.3.3.1. OLKILUOTO 3 EPR POWER PLANT (OL3)

On December 5, 2008, the AREVA-Siemens consortium initiated arbitration proceedings with the International Court of Arbitration (ICC) for delays and disruptions suffered in connection with contract performance and for the resulting additional costs incurred ("D&D Claim"). In July 2012, the court of arbitration rendered a final partial decision enjoining TVO to release 100 million euros plus interest due to the AREVA-Siemens consortium and withheld in contravention of the contractual provisions. That decision was duly executed by TVO.

As of the end of 2016, on the legal level, the pre-trial investigation phase of the legal proceeding begun in 2008 between the AREVA-Siemens consortium and TVO continues. The AREVA-Siemens consortium continues to exercise its rights in connection with the arbitration proceedings.

The consortium's claim for compensation for damages concerns a total amount of 3.5 billion euros. TVO's claim against the consortium amounts to approximately 2.3 billion euros.

In accordance with the schedule of the arbitration proceeding, a partial decision was rendered by the court on November 7, 2016. While that decision allows some of TVO's claims, it does not necessarily constitute a decision on the financial outcome of the dispute between the parties. Other intermediate decisions are expected before the final decision, not expected before the end of 2017 or early 2018.

In addition, the consortium and its counsel still believe that the allegations of intentional gross negligence set out by TVO in its claim against the consortium remain unjustified.

Concerning the OL3 project, the reader is invited to peruse the detailed information given in note 24. *Provisions for losses at completion* of Section 20.2. *Notes to the consolidated financial statements* of this Reference Document.

#### 4.3.3.2. RISKS OF DISPUTES RELATED TO ANOMALIES IDENTIFIED IN THE MANUFACTURING PROCESS OF CERTAIN COMPONENT FORGINGS AT CREUSOT

Following the announcement in late April that documentary anomalies had been found in the follow-up of equipment manufacturing processes at the Creusot plant, an audit is currently being conducted of all of the manufacturing files.

In October 2016, Greenpeace and other associations filed a complaint against EDF and AREVA with the public prosecutor's office of the High Court of Paris concerning these anomalies, in particular those affecting a steam generator of Fessenheim unit 2.

In addition, in October 2016, pursuant to article 40 of the French Code of Criminal Procedure under which any established authority and any publicly appointed official or civil servant with knowledge of a felony or a misdemeanor within the framework of his/her functions is required to "advise the State Prosecutor without delay", the Chairman of ASN referred the matter of "irregularities" in the part manufacturing files at AREVA NP's Creusot plant to the State Prosecutor. According to a judicial source, a preliminary investigation has been opened by the public health section of the public prosecutor's office of Paris pursuant to this referral.

To date, the analyses have found that no reported anomaly compromises the mechanical integrity of the parts concerned. Additional tests and analyses are in progress, in particular on an equipment item delivered to the Fessenheim 2 power plant, in order to respond to requests from the nuclear safety authority ASN following the suspension of the test certificate of one of the steam generators.

A more extensive analysis of the manufacturing files (unmarked files) is in progress and concerns more than 6,000 files. Additional identified anomalies are being dealt with in the same way. In this regard, an anomaly on a steam generator delivered to the Flamanville 3 site was the subject of characterization for purposes of responding to requests from the safety authority. This situation could result in other civil or penal implications, both in France and abroad.

Concerning the anomalies identified at le Creusot and related subjects, the reader is invited to also peruse the detailed information given in Section 9.1. *Overview* and in note 1 of Section 20.2. *Notes to the consolidated financial statements* of this Reference Document.

#### 4.3.3.3. URAMIN ACQUISITION

Following the preliminary inquiry led by the French national financial prosecutor's office, two judicial inquiries against persons unknown were opened concerning the conditions of the acquisition of UraMin on the one hand, and the presentation of the company's financial statements from 2009 to 2012 relative to this purchase on the other hand.

In response to the subpoena received from the court in December 2015, AREVA brought an independent action for damages in connection with the investigation of the UraMin acquisition.

**4.3.3.4. CFMM**

A petition for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 against the CFMM company by a partner, Mr. George Arthur Forrest, in which the petitioner challenges the decision of the General Meeting of Shareholders of June 24, 2013 to liquidate the ArevExplo RCA company. CFMM has submitted counterclaims in response to this petition. An arbitration court has been designated and the proceeding is expected to end with a decision in 2017.

**4.3.3.5. PALUEL 2**

On March 31, 2016, a steam generator fell during handling in reactor building 2 of the Paluel nuclear power station.

ASN conducted an inspection concerning this event on April 7, 2016.

In addition, a court-ordered appraisal was initiated by EDF after this event to determine its circumstances and the potential liability of the members of the consortium in charge of steam generator handling, consisting of AREVA NP and three other companies.

**4.3.3.6. BIOENERGY OPERATIONS**

In February 2016, the group made the decision to withdraw from bioenergy operations in view of AREVA's non-optimum position in that field and the difficulties of that operating segment in several projects in which AREVA was present.

The graduation cessation of these operations is in progress but will be fully effective only after AREVA has fulfilled its remaining contractual commitments. These concern the Green Innovation Project (GIFT) in the Philippines and the Commenyry Bio Energy Project (BEC) in France. Following the announcement of this cessation of operations, various claims were lodged against the Brazilian entity. The provisions set aside for commercial disputes and litigation in progress were reassessed, and adjustments were made at December 31, 2016.

**4.3.3.7. KOEBERG PROJECT**

On September 6, 2014, AREVA signed a contract with the South African utility Eskom to replace the steam generators of the Koeberg nuclear power plant. This 4.3-billion-rand project (about 300 million euros) called for the design and manufacturing of six steam generators, their installation in the power plant's two reactors, and related engineering services.

On August 27, 2014, Westinghouse submitted a complaint to the South African courts challenging the call for bids process which led to the award of said contract to AREVA.

Thrown out by the lower court, Westinghouse's claims were partially admitted by the Supreme Court of Appeal which, on December 9, 2015, annulled the decision awarding the contract to AREVA but declined the request for the substitution of Westinghouse.

Eskom and AREVA appealed that decision before the Constitutional Court of South Africa in January 2016.

On December 21, 2016, the Constitutional Court of South Africa rendered its decision in favor of Eskom and AREVA, finding Westinghouse's request for annulment of the call for bids inadmissible.

Concerning the Koeberg project, the reader is invited to peruse the detailed information given in note 24. *Provisions for losses at completion* of Section 20.2. *Notes to the consolidated financial statements* of this Reference Document.

**4.3.3.8. EMPLOYEE SHAREHOLDING**

In November 2015, the group was informed through a handout from the CFE-CGC labor union that it had "filed an action against person or persons unknown for false information" with the public prosecutor of Nanterre concerning the circumstances in which the employee share ownership plan was implemented in the first half of 2013. Since then, a certain number of employees have allegedly joined the complaint as individuals.

**4.3.3.9. MISCELLANEOUS INVESTIGATIONS**

The company is also aware of the existence of other preliminary investigations in progress led by the French national financial prosecutor's office. Since these investigations are being carried out in connection with legal proceedings against parties unknown, AREVA is not currently implicated.

**4.4. INDUSTRIAL AND ENVIRONMENTAL RISKS**

By nature, the group's operations carry risk, most notably those performed in the nuclear facilities listed in 4.3.1.1. and those performed in its other industrial facilities or during logistics or maintenance operations at its customers' sites. To prevent these risks and limit their consequences, the group has adopted risk management strategies and procedures in line with best practices. If incidents and accidents were nonetheless to occur, in particular due to security breaches or acts of malfeasance, the group could face substantial liability or significant operating cost overruns. In fact, the group's operations require processes that use various toxic chemical compounds and radioactive substances. Such events could have

serious consequences, particularly in the event of radioactive contamination and/or irradiation of the environment, of individuals working for the group or of the general public, as well as a significant negative impact on the group's operations and financial position.

If an accident should affect one of the group's plants or the transportation of hazardous and/or radioactive materials, the severity of the accident could be aggravated by various factors that are not under the group's control, such as meteorological conditions, the type of terrain, or the intervention of outside entities.

### 4.4.1. NUCLEAR RISKS

#### 4.4.1.1. RISKS OF NUCLEAR ORIGIN

Risks of nuclear origin relate to the characteristics of radioactive substances. These risks thus concern all of the group's industrial facilities in which these substances are found, whether regulated nuclear facility, regulated defense nuclear facility, environmentally regulated facility or mining operations.

Risk prevention is based on a systemic and systematic analysis of the risks specific to each facility or activity undertaken and on the definition of means for preventing events of concern, for detecting and managing incidents and accidents, and for limiting their potential consequences, based on defense-in-depth principles. These principles involve a systematic analysis of potential technical, human or organizational failures, and definition and implementation of a series of independent lines of defense to protect against the consequences of those failures.

These principles are implemented during the facility design phase, during the industrial production phase, and during cleanup and dismantling after the end of production operations.

#### Dissemination of radioactive materials which could lead to contamination

Radioactive materials in solid, liquid or gaseous form may disperse and lead to human and environmental contamination if they are insufficiently contained. Controlling this risk consists above all of limiting the dispersion of those substances from the facilities under all operating conditions, both normal and accidental, as well as after shutdown, in particular by interposing suitable containment barriers and ventilation systems.

#### Radiation

There is a risk of exposure to radiation whenever a person works in the presence of radioactive materials.

The estimated biological impacts of radiation on the human body are generally expressed in millisieverts (mSv). The annual regulatory limits are as follows:

- in the European Union, 1 mSv per year for the general public above naturally occurring radioactivity, and 100 mSv over five consecutive years for employees, not to exceed 50 mSv in any one year;
- in the United States, 1 mSv per year for the general public and 50 mSv per year for employees;
- in France, the maximum regulatory limit for employees is 20 mSv/year. AREVA applies this maximum limit to all of its employees and subcontractors in all of its facilities and operations, regardless of the country in which they are located.

Collective protection and monitoring systems are installed to limit radiation at the source and optimize the doses received to levels that are as low as reasonably achievable (ALARA). In addition and if necessary, the working time of operators is limited. The group applies the ALARA principle, which holds that every action will be taken to reduce exposure to radiation as long as it is reasonable from the technical, economic, social and organizational standpoints. The radiation protection departments continually verify compliance with this principle of optimization.

After a job study and approval by the occupational health physician, all operators and workers qualified for work in a radioactive environment receive thorough medical and radiological follow-up. Regular training sessions are held to maintain their knowledge at the appropriate level, in accordance with applicable regulations.

The results achieved (see Appendix 3. *Social, environmental and societal responsibility*) testify to the effectiveness of these practices and the good level of radiation protection control in the group.

#### Criticality

The risk of a criticality accident corresponds to the risk of an uncontrolled chain reaction with a brief and intense emission of neutrons, accompanied by radiation. This risk, should it materialize, would result in irradiation of workers or individuals located near the event, causing lesions proportional in seriousness to the intensity of the radiation received. This risk is addressed in any facility likely to receive fissile materials.

The prevention of this risk is based on limiting the factors leading to uncontrolled chain reactions. This limitation is factored into the design (e.g. equipment geometry) or operating requirements (e.g. mass limitation). In areas of facilities representing the greatest risk, prevention measures are strengthened with the use of shielding to sharply reduce the consequences of a potential criticality incident for personnel, and with the installation of a criticality accident detection, alarm and measurement system.

For transportation, nuclear safety and criticality under both normal and accidental operating conditions are verified. Transportation regulations set forth rules for storage during transit, particularly in terms of the criticality risk.

#### Thermal releases and radiolysis

Matter absorbs the energy produced by intense radiation, which can lead to increase temperatures. The energy is removed to control the temperature increase and prevent the dispersion of radioactive materials. Cooling is provided by redundant cooling systems with heat exchangers and ventilation systems.

Radiolysis corresponds to the decomposition of a hydrogenated compound (especially water) when exposed to radiation, leading to the release of hydrogen. In normal operations, the facilities are designed to limit hydrogen concentrations by flushing the equipment with air. A backup system is added if a loss of normal flushing capacity can cause concentrations to rise to the limit value in a few hours or tens of hours.

#### 4.4.1.2. INTERNAL RISKS THAT COULD LEAD TO NUCLEAR RISK

As in any industrial activity, facility operations and the presence of personnel also give rise to risk. Since such incidents could affect equipment important to nuclear safety, strong prevention measures are taken in the nuclear industry. Prevention is based on factoring the potential causes of malfunctions into the design or operating instructions and on limiting their possible consequences.

#### The most frequently encountered conventional risks are:

- risks associated with the handling and use of hoisting, transfer and positioning equipment;
- risks of fire and internal explosion;
- risks related to the use of chemical reagents or toxic raw materials such as HF or UF<sub>6</sub>;



- risks associated with the use of pressurized equipment;
- risks associated with utilities (electricity, water, steam, industrial gases, etc.).

These risks are managed using an approach similar to that used for nuclear risk management, depending on the nature of the risk and in compliance with regulatory requirements defined for each technical field: safety systems, fire containment, detection, Atex rules for explosive atmospheres, separation of incompatible chemicals, etc. These technical measures are supplemented as necessary by compliance inspections, periodic verifications and maintenance, and operator training and/or certification.

Measures are also adopted to minimize the consequences of a failure when an incident may have an impact on nuclear safety. Automatic fire detection systems are used for early alerts to employees trained to respond to and extinguish a fire start. Response means are also provided (e.g. fire department in the event of a fire start).

### The use of uranium hexafluoride (UF<sub>6</sub>) is a risk highly specific to the group's operations

Enrichment operations involve the handling of uranium in the chemical form of uranium hexafluoride (UF<sub>6</sub>), which is solid at normal temperatures and pressures and becomes gaseous when heated (sublimation at about 56°C). This gas can react when it comes into contact with water vapor in the air, forming uranium oxide and hydrofluoric acid, a compound which is highly toxic to humans, plants and animals. In view of the large quantities of UF<sub>6</sub> handled at the production sites, the inherent risks were factored into the design of the facilities (double containment barrier, automated monitoring of high-risk areas, etc.).

Other risks, such as those related to parallel activities and to human and organizational factors, are also taken into account. Prior coordination of activities by the parties involved and the establishment of a suitable organization combined with personnel training in particular help limit these risks.

#### 4.4.1.3. EXTERNAL RISKS THAT COULD LEAD TO NUCLEAR RISK

Unlike risks of internal origin, it is not always possible to act on risks of external origin related to the facility's environment. However, their origin must be taken into account to reduce and manage their consequences, particularly in terms of radiation. The desired level of protection is ensured by considering in particular unforeseen but highly improbable events in the context of each site.

#### Earthquake

Earthquakes and their possible repercussions, such as a tsunami, can cause damage that could disable nuclear safety systems.

For facilities in which nuclear materials are handled, the risk of an earthquake is factored into the design of equipment, systems and buildings. Risk analysis consists of demonstrating that no damage affecting the nuclear safety of the facility is likely to occur for the event scenario considered.

#### Airplane crash

This risk concerns the crash of an airplane or part of an airplane on a facility. Its probability of occurrence depends on the number of aircraft that could reach the site without being detected; its potential severity depends on the type of aircraft and the surface area of sensitive areas in each facility. Each site is located:

- away from controlled airspace;
- away from airspace used by military aircraft; and
- far from any airport.

Safety studies are carried out to assess the risk of an airplane crash, including the risk of deliberate attack, and to determine the means for limiting its consequences (factoring in the organization of airspace use, types of flights, known crash statistics, etc.).

Special measures are taken to protect nuclear facilities from terrorism. These measures have been strengthened under the French national security plan known as "Vigipirate". For security reasons, these measures may not be disclosed to the public.

#### Adverse meteorological conditions and flooding

This risk is factored into the design based on potential local weather conditions. Advance warning is given for any threatening weather conditions, and there are instructions for each facility concerning additional measures to be taken, such as increased monitoring or specific actions.

The possible causes of external flooding (rain, river flooding, breach of levies, tsunami) are factored into the design of the facilities and operating measures. The risk of a thousand-year flood is taken into account, in particular by locating facilities above the thousand-year flood plain.

Other risks caused by potential external events, such as the loss of power supply or utilities (water, steam, compressed air, etc.), are addressed through redundant or independent backup systems.

Following the accident at the Fukushima Daiichi nuclear power plant in Japan, in addition to measures taken in the design of the facilities or during operations, supplementary safety assessments (SSA) were carried out to evaluate the facilities' ability to withstand a malfunction. Based on these assessments, special programs to improve the level of facility protection led to work and actions (see Appendix 3, Section 2. *Environmental information* of the 2015 Reference Document). Other measures are being implemented in accordance with regulatory decisions by ASN applicable to the group's nuclear facilities.

#### 4.4.1.4. TRANSPORTATION OF RADIOACTIVE MATERIALS

To protect members of the public, property and the environment from the effects of radiation during the transportation of radioactive materials on public lands, the "defense in depth" concept applies to these operations, as it does to other nuclear operations. This concept consists of setting up a series of barriers – safety systems, procedures, technical or administrative controls, etc. – to prevent accidents and limit their consequences. The design of the shipping cask is the main component of this system. As with any nuclear activity, these operations are governed by stringent international regulations.

If the materials transported exceed a certain level of activity set by regulation, the cask must, under normal and accidental operating conditions, provide:

- materials containment;
- constant sub-critical conditions when fissile materials are transported;
- control of radiation intensity; and
- protection from the heat of the materials transported to prevent damage.

The related requirements cover cask design, fabrication, operation and maintenance.

AREVA's objective is to ensure an optimum level of safety and security during transportation. To accomplish its mission of supervising the group's transportation operations, AREVA has an organization that analyzes risks, establishes action plans and manages emergencies around the globe. Its tracking center is able to access in real time all necessary information on shipments under its supervision at any moment.

In addition, insurance is taken out for shipments in accordance with the conditions described in Section 4.4.1.9. *Special coverage relating to nuclear facility operations.*

#### 4.4.1.5. NUCLEAR SAFETY IN THE AREVA GROUP

Nuclear safety encompasses all of the technical provisions and organizational measures pertaining to the design, construction, operation, shut-down and dismantling of regulated nuclear facilities and to the transportation of radioactive materials, and designed to prevent accidents and limit their consequences.

Nuclear safety is an absolute priority for AREVA. The group formalized its commitments in the fields of nuclear safety and radiation protection in a Nuclear Safety Charter which aims to ensure a very high level of nuclear safety throughout the operation of its facilities and its services activities. The Charter is founded on the principles hereunder.

#### Organizational principles

The management of AREVA and of each of its subsidiaries have set up an organization reflecting the legal provisions of the country involved based on the prime responsibility of the operator. Each site director is responsible for nuclear safety and radiation protection at that site. He or she sets up an appropriate organizational structure to ensure that all legal and regulatory requirements for every aspect of nuclear safety and radiation protection are applied at every affected unit and facility. He or she delegates authority as regards nuclear safety and has the resources to verify implementation of this delegation independently of operating personnel.

#### Action principles

Nuclear safety applies to every stage in the facility lifecycle, from design to dismantling, and to the services operations. It builds on a nuclear safety culture shared by all personnel and maintained by regular training. In the area of radiation protection, the group is committed to maintaining the exposure of workers and the public to a level as low as reasonably achievable (see Section 4.4.1.1.). The same continuous improvement initiative applies to the reduction of impacts from liquid and gaseous effluents (see Appendix 3, Section 2. *Environmental information* of the 2016 Reference Document).

#### An organization

In the fields of nuclear safety and radiation protection, the Safety, Health, Security and Environment Department defines, leads and coordinates the group's nuclear safety and radiation protection policy; coordinates regulatory intelligence in the fields of safety and radiation protection; and provides leadership for the network of related experts. It provides the necessary support to the operating entities and steers relations with the regulators.

#### General Inspectorate for Nuclear Safety

The General Inspectorate for Nuclear Safety is placed under the responsibility of the Inspector General, who reports directly to the group's Executive Management. It proposes and implements an annual nuclear facility inspection program to prevent any risk that would potentially alter nuclear safety. To perform its duties, the General Inspectorate has:

- a corps of inspectors who perform independent verifications of the operating organization of the facilities; and
- continuous support from the nuclear safety specialists of the Safety, Health, Security and Environment Department.

The Inspector General proposes an annual inspection program which is approved at the highest level. This program ensures that the Nuclear Safety Charter is correctly applied, detects any warning signs of a potential deterioration in nuclear safety performance, and points to necessary improvements to ensure the best level of control.

#### Subcontracting

Ensuring nuclear safety, health, industrial safety and environmental protection in subcontracted activities is an ever-present concern for the nuclear industry. AREVA is dedicated to improving the formal conditions for subcontracting and for monitoring subcontracted work. These include applying internal guidelines for compliance with nuclear safety, radiation protection and environmental protection requirements as part of the procurement process. They also include definition of social certification of service providers based on the criteria of nuclear safety, occupational safety, training, professional development and employee satisfaction.

#### Reporting system

AREVA endeavors to provide reliable and relevant information enabling an objective assessment of the status of nuclear safety in its facilities. Nuclear events are ranked according to the International Nuclear and Radiological Event Scale (INES), including in countries where no such requirement exists (see Appendix 3 Section 2. *Environmental information*). The INES ranks the severity of events from 0 to 7. Level 1 or higher events are of public record.

As per its commitments, the group publishes the Annual Report of the General Inspectorate of Nuclear Safety, both in hard copy and on its website. This report presents the status of nuclear safety and radiation protection in the group's nuclear facilities in France and abroad, as observed through the program of inspections, and draws on analyses of events and on various items identified by nuclear safety specialists as areas for improvement.

In addition, pursuant to article L. 125-15 of the Environmental Code, each of the sites operating the group's nuclear facilities in France publishes an Annual Information Report concerning in particular nuclear safety and radiation protection, and makes it publicly available.

#### 4.4.1.6. PROTECTION AND SAFEGUARD OF NUCLEAR MATERIALS AND FACILITIES

In addition to the measures adopted to prevent the risks of an incident or accident and limit the consequences, sites in possession of nuclear materials must take measures to prevent the loss, theft or diversion of the materials held in the facilities, or any act that might result in their dispersal in the environment.

As is done for nuclear safety, the measures taken are based on the concept of defense in depth and rest on three interrelated pillars forming a strong and interconnected whole, which are:

- physical protection to avert, detect, prevent or delay any unauthorized access to the nuclear materials or any act of sabotage that might endanger the public;
- physical monitoring, in which movements of nuclear materials require authorization and are monitored;
- a materials accounting system distinct from physical monitoring, which provides independent control based on the daily accounting of quantities of materials held in each area of the site and of all movements of nuclear materials from one area to another.

The competent authorities, including for France inspectors reporting to the Senior Defense and Security Official of the Ministry of Environment, Energy and Oceans, regularly verify compliance with and proper application of these measures.

#### 4.4.1.7. NON-PROLIFERATION

Proliferation is the diversion of nuclear materials by a State for non-peaceful purposes.

Non-proliferation is a shared objective of all of the signatory countries of international agreements in this area, in particular the Treaty on the Non-Proliferation of Nuclear Weapons of July 1, 1968. Non-proliferation requirements relate to the physical protection of nuclear materials per the Convention on the Physical Protection of Nuclear Material; to safeguards controls per the Euratom treaty, which established a nuclear materials accounting system; and to inspection by the IAEA and Euratom.

To meet national regulatory requirements for nuclear materials safeguards and facility protection, AREVA takes every measure necessary in this field to know, at all times, the amount, type, use and location of the materials held by the group's entities.

#### 4.4.1.8. RISKS RELATED TO END-OF-LIFECYCLE OPERATIONS

As operators of regulated nuclear facilities (*installation nucléaire de base*, INB) and industrial facilities covered by legislation on environmentally regulated sites (*installation classée pour la protection de l'environnement*, ICPE), the group's legal entities have an obligation to ensure the safety and dismantling of those facilities during their final shutdown, in whole or in part; to remediate the sites; and to manage the products resulting from these operations. Similarly, operators of uranium mines have an obligation to perform closure work, safety-related work and rehabilitation of the mines after their operations have ceased.

The group plans for the dismantling of its new facilities from the beginning of the design phase. Operating experience from facility maintenance, from dismantling operations carried out for its own account or for that of other nuclear operators, and from pilot projects conducted upstream contribute to the safety of dismantling operations. Computer programs were developed to facilitate the adoption of new traceability standards, thus reducing the research necessary for characterization at the end of operations (radiological, physico-chemical, etc.) as well as the impacts of dismantling work.

In France, the law provides a mechanism for ensuring that the operators of INBs have sufficient assets to fund long-term expenses associated with the dismantling of these facilities and/or the management of used fuel and radioactive waste. In the United States, the Decommissioning Funding Plan (DFP) is updated every three years.

Future expenses associated with the end-of-lifecycle operations of nuclear facilities and with the remediation of regulated industrial facilities have been identified, and specific provisions have been constituted by the legal entities which operate those facilities. Rules related to provisions for end-of-lifecycle operations are described in Section 20.2. *Notes to the consolidated financial statements*, note 13. *End-of-lifecycle operations*. The present value of end-of-lifecycle provisions was 7.172 billion euros at December 31, 2016; earmarked assets had a market value of 6.357 billion euros at that same date, giving a coverage ratio of 89%.

Provisions for end-of-lifecycle expenditure are based on the group's estimates of future costs, which are by nature based on assumptions (see Section 20.2. *Notes to the consolidated financial statements*, note 13. *End-of-lifecycle operations*). However, it cannot be stated with certainty that the provisions currently set up will be in line with the actual costs ultimately borne by the group, which could be higher than initially estimated, due in particular to changing legislation and regulations applicable to nuclear operations and environmental protection, to their interpretation by the courts, and to developments in scientific and technical knowledge. These costs also depend on regulatory decisions, in particular concerning dismantling methods, and on the choice and cost of solutions for the final disposal of certain types of radioactive waste (see Section 20.2. *Notes to the consolidated financial statements*, Note 25. *End-of-lifecycle operations*). It is therefore possible that these future obligations and potential expenses or potential additional future liability of a nuclear or environmental nature that the group may later have to bear could have a significant negative impact on its financial position.

The main disruptive risks which could have a significant impact on the cost of end-of-lifecycle liabilities are:

- differences between the initial estimated condition of legacy facilities and waste and their actual condition, as observed during preliminary operational investigations of the facilities;
- changes in regulations or policies, particularly with respect to the target final condition of the facilities and soils after dismantling or the requalification as waste of radioactive materials currently still considered to be reusable;
- the appreciable increase in radioactive waste packaging and disposal costs, particularly for waste destined for geologic disposal (cost of the future Cigéo geologic repository) and for waste for which no final disposal method has yet been identified.

The group holds a portfolio of financial assets (equities, bonds, investment funds and third-party receivables) to fund its future end-of-lifecycle obligations. Because the coverage ratio for end-of-lifecycle liabilities was less than 100% at December 31, 2016, the group has adopted the assumption of an addition to the earmarked fund of approximately 800 million euros in 2017 in order to return to a 100% coverage ratio in 2017, in particular by means of the announced capital increase. Reaching the 100% coverage ratio will also depend on market conditions, which cannot be anticipated (discount rate and yield of earmarked funds recognized at the end of 2017).

However, despite the group's prudent management strategy for earmarked assets, outside economic factors may have an unfavorable impact on the ratio of coverage of end-of-lifecycle liabilities by earmarked assets, and thus the group's financial position. They include:

- the unfavorable behavior of financial markets, introducing the risk of a lower yield from the assets than in the assumptions; in particular, the value of the portfolio of securities could decline and/or provide lower yields than is ultimately necessary to cover expenses related to end-of-lifecycle obligations, due to the risk of volatility inherent in capital markets;

- the reduction of the discount rate or any other change in regulations related to the earmarked assets.

Lastly, although the used fuel treatment contracts call for the waste and residues from these operations to be allocated to and ultimately retrieved by the original waste producer, as the temporary holder of the radioactive waste produced by its customers, the group could be considered liable if a customer defaults or files for bankruptcy.

#### 4.4.1.9. **SPECIFIC COVERAGE RELATING TO THE ACTIVITIES OF NUCLEAR FACILITY OPERATOR**

International nuclear liability law is based on a series of principles that override general liability law. The operator of the nuclear facility causing the damage has prime responsibility. This is known as the principle of exclusive liability channeling to the operator. Its liability is objective ("no fault"), for which there are few exemptions. The operator of a nuclear facility is therefore required to compensate victims for the bodily harm and property damage they have suffered. The operator is required to maintain a financial guarantee, which is generally insurance, to cover its liability, the amount of which is capped.

This system is defined by international agreements such as the Paris Convention on Third Party Liability in the Field of Nuclear Energy of July 29, 1960, as amended, and the Brussels Supplementary Convention of January 31, 1963, as amended, and the Vienna Convention of May 21, 1963, as amended. In addition, the Common Protocol of September 21, 1988, which entered into force in France on July 30, 2014, is intended to connect the two systems established by the Paris and Vienna conventions, thus reducing common law jurisdiction in order to provide better protection to potential victims of a nuclear accident. In the United States, while not founded on an international agreement, the Price Anderson Act establishes a system to channel claims submitted to nuclear operators.

Every country in which the group operates nuclear facilities is subject to one of these legal constructions.

For purposes of information, the maximum amount of the operator's nuclear liability in France until February 17, 2016 was 91.5 million euros per nuclear accident in a nuclear facility and 22.9 million euros per accident during transportation. Moreover, in the event of an accident in a regulated nuclear facility in France, the French government would assume liability above 91.5 million euros, up to a limit of 228.6 million euros. Thereafter, the Signatory States to the Brussels Supplementary Convention would assume liability for the amount above 228.6 million euros, up to a limit of 381.1 million euros.

The protocols of amendment of the Paris Convention and the Brussels Supplementary Convention were signed on February 12, 2004 by representatives of the Signatory States. However, the amended conventions are not yet in effect. The main amendments will concern an increase in the three tiers of indemnity. The nuclear operator's liability would increase to 700 million euros per nuclear accident in a facility (70 million euros in a reduced-risk facility). This amount would rise to 80 million euros per accident during transportation. The State in which the nuclear facility responsible for the damage is located would cover the 700-million-euro to

1.2-billion-euro tier. Beyond that amount, the other Signatory States would intervene up to a limit of 1.5 billion euros. A mechanism to increase these limits would be provided by the Convention as new States ratify it.

However, without waiting for the Protocol amending the Paris Convention signed on February 12, 2004 to take effect, the French law no. 2015-992 of August 17, 2015 on the Energy Transition for Green Growth (the "TECV law") provides for the early application of the cap on the operator's nuclear liability. Thus, since February 18, 2016, the operator's liability is capped at 700 million euros per nuclear accident in a nuclear facility, at 70 million euros in a reduced-risk facility (article L. 597-28 of the French Environmental Code) and at 80 million euros per nuclear accident during transportation (article L. 597-32 of the Environmental Code).

Aside from the above-mentioned increases of the cap on nuclear operator liability, the TECV law effected an alignment of our domestic law with the scope of the Paris Convention by mentioning the natural persons or physical entities, both public and private, which operate a nuclear facility falling within the purview of regulated nuclear facility (INB) or environmentally regulated facility (ICPE) regulations.

Two of the group's INBs (Socatri and Somanu) and three of its ICPEs (STMI in Bollène, Cemo in Chalon and Cedos in Sully) appear on the list of sites benefiting from reduced liability amounts, pursuant to decree no. 2016-333 of March 21, 2016 implementing article L. 597-28 of the Environmental Code related to liability in the nuclear energy field.

#### **Description of insurance acquired**

AREVA has acquired several insurance policies in France, Germany, Belgium and the United States to cover its regulated nuclear facilities in France and abroad, and its nuclear transportation operations. These insurance policies comply with the international conventions governing nuclear operator liability, including their liability limits.

These insurance policies are reinsured by the nuclear insurance pools of various countries, including Assuratome in France, DKV in Germany, Syban in Belgium and ANI in the United States. In addition, AREVA is a member of the European Liability Insurance for the Nuclear Industry mutual insurance association (ELINI).

#### **Property and business interruption insurance for nuclear operations**

Due to the nature of the potential damage to the facilities, this type of insurance is available only through the pools mentioned above or through specialized mutual insurance companies capable of providing the necessary coverage. The limits of coverage for this type of insurance are based on the estimated replacement value or on an estimate of the maximum possible loss (MPL). Insurance coverage for some facilities can be up to 1 billion euros.

Mining operations and AREVA's US and Belgian sites are not covered by property and business interruption guarantees for the nuclear process, but rather are covered by specific programs set up locally in agreement with AREVA's Risk and Insurance Department.

## 4.4.2. CHEMICAL RISK MANAGEMENT

### 4.4.2.1. SEVESO REGULATIONS

The group operates nine sites subject to Seveso regulations, which implement European Directive 2012/18/EU concerning the control of major accident hazards involving dangerous substances, as amended. The regulations apply to facilities that may present a significant risk to public health and safety or to the environment. The sites subject to these regulations are located in France and in Germany (Lingen ANF). Four of them are subject to high-threshold Seveso regulations, three of which are in France: AREVA NC (Tricastin and Malvési sites) and AREVA NP (Jarrie site). The ANF Lingen site is a nuclear facility and also presents a high-threshold Seveso risk due to its storage of hydrofluoric acid (HF).

In accordance with the regulatory requirements, the three sites in France have set up a plan to prevent major accidents and limit their impacts on individuals and the environment. A safety management system incorporating the organization, functions, products and other resources was set up to strengthen risk management.

Similarly, hazards studies are updated on a regular basis. They are the foundation of the process designed to minimize risk from the outset, control urban development, establish emergency management plans and inform the public. Hazards studies present in particular the hazards that the facility could generate in the event of a deviation and demonstrate measures capable of reducing the probability and impacts of an accident to the lowest achievable level in view of current knowledge and practices, taking into account the vulnerability of the facility's environment.

As part of a continuous improvement process, the relevance, reliability and "stand-alone" quality of safety barriers are reviewed on a regular basis. This review applies to prevention barriers (intended to reduce the probability of an unscheduled event) and to protection barriers (intended to limit the consequences of an unscheduled event). Moreover, a dedicated working group was set up in 2004 to harmonize and share best practices from Seveso sites.

With respect to insurance, the above-mentioned facilities of AREVA NC, AREVA NP and ANF are covered by the civil liability program taken out by the group. The level of coverage is based on quantification of reasonably expected risk and guarantees available in the insurance market.

### 4.4.2.2. IMPLEMENTATION OF REACH REGULATIONS

On December 18, 2006, the European Parliament adopted the REACH regulation (Registration, Evaluation, Authorization and Restriction of Chemicals), EC no. 1907/2006. REACH establishes a policy for managing chemical substances in the European Union. The long-term objective is to find substitutes for substances that are of most concern for health and the environment. The regulation helps improve knowledge of the properties of chemical substances and the risks associated with their use.

It requires the registration of all chemical substances produced or imported in quantities of more than one metric ton per year. The data collected in this way are being used to ensure appropriate management of the risks associated with the use of each substance. In addition, each user of a substance must ensure that its use is covered by the manufacturer's and importer's registration file and that recommended risk management measures are applied.

For the substances of most concern for health and the environment, listed in Appendix XIV of the regulation, an authorization request must be submitted to the European Chemicals Agency. More than 160 substances were introduced in the process: an initial list of substances was published in October 2008 and is regularly updated. Today, 31 substances are listed in Appendix XIV. AREVA is directly concerned by only a few of these substances; a research and development program is in progress to find substitutes for them.

Several steps were taken to manage the legal, financial and technical consequences of the REACH regulation and to ensure that all of the group's entities are in compliance. In October 2006, an awareness program targeting the affected functions was deployed throughout the group and has continued since then. An internal organization was set up consisting of a REACH steering committee at the corporate level (Safety, Health, Security and Environment Department, Supply Chain Department, Legal Department, and Research and Development Department) as well as representatives of the entities and technical advisors for the various issues related to REACH. This organization, described in a group procedure, will deploy and monitor the initiative in each legal entity.

AREVA is affected by this regulation as a producer and importer of substances used in certain operations (in particular in the Mining, Chemistry, Enrichment and Fuel Business Units), and more generally as a downstream user of substances and mixtures. It should be noted that the radioactive substances covered in the Euratom directive (no. 96/29, replaced by no. 2013/59) are excluded from the scope of the REACH regulations. The group pre-registered and registered all substances produced or imported in quantities of more than one metric ton. Eleven applications for registration, including three as lead registrant, were filed before the first deadline of November 30, 2010, and six applications were filed before the second deadline in 2013.

### 4.4.3. OTHER ENVIRONMENTAL RISK

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#### NATURAL DISASTERS PREVALENT IN CERTAIN REGIONS IN WHICH THE GROUP DOES BUSINESS COULD AFFECT ITS OPERATIONS AND FINANCIAL POSITION

The location of some of the group's production sites in areas exposed to natural disasters, such as earthquakes or flooding, could weaken the group's production capacity. Following the Fukushima accident in March 2011, stress tests were carried out or are being completed on nuclear facilities in most of the countries that have them; the conditions required for their continued operation were set upon the completion of these tests.

#### OCCUPATIONAL DISEASES RELATED IN PARTICULAR TO EXPOSURE TO ASBESTOS OR RADIATION CANNOT BE RULED OUT

The group believes that it fundamentally complies with legal and regulatory provisions pertaining to health and safety in every country in which it operates and considers that it has taken the measures needed to ensure the health and safety of its own personnel and of subcontractor personnel (see Section 17. *Human Resources*). However, the risk of occupational disease cannot be excluded in principle. Yet the occurrence of disease could result in legal action against the group or in claims for compensation, either from employees or former employees, or from buyers of the group's businesses, in the event that occupational disease as the result of a previous exposure should arise in employees prior to their transfer with the business. These actions could result in the payment of damages.

The group had a limited number of reports of occupational disease in France in 2016.

## 4.5. OPERATIONAL RISKS

### 4.5.1. RISK OF INTERRUPTION IN THE SUPPLY CHAIN FOR PRODUCTS OR SERVICES

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An industrial breakdown, a work stoppage or an interruption of the supply chain in the group's manufacturing plants or at a supplier's location could delay or stop the flow of the group's products or services.

This risk is heightened by the fact that the group's different plants, in any given business, are highly integrated and interdependent, and that some of the group's suppliers could have financial difficulties or might not be able to cope with demand while complying with the group's deadlines and quality standards. A potential breakdown or stoppage of production in a plant or at a supplier's location, or an interruption of some shipments could affect all of the group's operations and cause an interruption of supplies or services.

Contracts between the group and its customers include a certain number of warranties that can trigger penalties for delays. These warranties could enter into play as a result of an industrial breakdown, work stoppage or an interruption of the supply chain, whether at one of the group's industrial units or at one of its supplier's locations.

Although the group has implemented measures to limit the impact of a potential breakdown and has covered its exposure through business interruption insurance for its industrial units, and although it selects its suppliers based on stringent criteria for quality and financial soundness, it is nonetheless still possible that an industrial breakdown, a work stoppage or an interruption of the supply chain at the group's industrial units or at a supplier's location could have a significant negative impact on the group's financial position and on its ability to respond in optimum manner to customer demand.

### 4.5.2. RISK OF DEFAULT BY SUPPLIERS, SUBCONTRACTORS, PARTNERS AND CUSTOMERS

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AREVA's suppliers, subcontractors and partners could encounter financial difficulties related to economic conditions and no longer be in a position to perform contracts entered into with the group.

Depending on the region, the economic situation could have a negative impact on the group's suppliers, subcontractors, partners and customers, whether as concerns their access to sources of funds or their ability to meet their obligations in the group's regard.

### 4.5.3. RISK ASSOCIATED WITH DEPENDENCY ON THE GROUP'S CUSTOMERS

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The group's loss of one of its main customers or a reduction in their purchases or an erosion of contract terms or conditions could have a significant negative impact on the group's operations and financial position.

AREVA has very substantial commercial relations with the EDF group. At December 31, 2016, EDF France represented about 30% of the group's revenue. AREVA is the leading supplier to the EDF group in the nuclear field, providing products and services at every stage in the nuclear fuel cycle as well as for the construction, equipment and maintenance of the EDF group's nuclear power stations. In the fuel cycle, the relationship between the EDF group and AREVA is governed by multiyear contracts.

In its operating segments, these contracts give AREVA operating visibility beyond 2020, with the regular signature of contracts covering multiple years.

In addition, the impacts of the law of August 17, 2015 on the energy transition in France (articles L. 311-5-5 and L. 100-4-5) on EDF's operations were specified in the Multiyear Energy Program approved by decree no. 2016-1442 of October 27, 2016.

The Multiyear Energy Program stipulates in particular that:

- the commissioning of the Flamanville EPR may not occur before the closure of the two Fessenheim reactors to comply with the ceiling of 63.2 gigawatts of installed nuclear power in France, in accordance with article L. 311-5-5 of the Energy Code introduced by the Energy Transition Law;
- the closure of the two Fessenheim reactors will take place during the first phase of the Multiyear Energy Program, in compliance with the requirements decreed by the nuclear safety authority ASN;
- concerning the lifecycle extension of the nuclear power plants, the Multiyear Energy Program indicates that ASN will take "a generic position at the end of 2018 on the conditions enabling authorization to extend the operation of French nuclear power plants in the 900 MW series beyond the fourth ten-year inspection, then decisions will be made reactor by reactor starting in 2019-2020, on the occasion of the fourth ten-year inspections."

The group's 10 biggest customers, including the EDF group, represented about 64% of its revenue at the end of December 2016.

### 4.5.4. RISK RELATED TO THE INFORMATION SYSTEM

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All industrial and commercial activities in the group rely on a mission-critical information system.

The group deploys resources to ensure information system security and the fluidity of its business processes.

However, faced with constantly changing threats and the growing sophistication of the attacks, it cannot guarantee that they will remain without significant impact on its operations.

Similarly, the group cannot guarantee that no technical malfunction will occur likely to cause significant disruptions.

### 4.5.5. UNSCHEDULED WORK IN THE PRODUCTION OF PRODUCTS AND SERVICES SOLD

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The group provides services and designs, manufactures and sells several products with a high unit value used in major projects, in particular the design and construction of nuclear reactors and heavy equipment, work to extend the plant operating period, and reactor maintenance. Occasionally, final adjustments may be required, products may need to be modified after manufacturing has begun or after customers have placed them in service, or services to be provided may have to be adapted. These adjustments, modifications and additional services could trigger unexpected costs for the group. Though the group has set up a rigorous management control system and a system to control product and service quality and standards, these unanticipated expenses could have a significant negative impact on the group's business or financial position.

When the group sells certain products, such as nuclear steam supply systems, or signs service contracts, customers sometimes demand schedule or performance warranties, or penalties for not meeting them. Pursuant to such commitments, the group may have to repair products delivered or correct services provided in the event of faulty design or performance. The risk is significantly increased if the repairs or services concern a standardized series of products.

#### 4.5.6. SUPPLIER CONCENTRATION IN THE PROCUREMENT CHAIN

A decrease in the supply of certain strategic components or an increase in the cost of electricity could have a negative impact on the group's production costs.

The group's operations require large supplies of specific commodities and semi-finished products, including base products, zircon ore and others. Some operations also use large quantities of electricity.

The group's large requirement for commodities and semi-finished products is such that the group could experience procurement difficulties, given the limited number of suppliers.

For all of these operations, a shortage of commodities or semi-finished products could translate into a production slowdown or even, in certain circumstances, in shutdown.

#### 4.5.7. RISKS RELATED TO ANOMALIES DETECTED IN THE FRAMEWORK OF QUALITY AUDITS OF NUCLEAR COMPONENT MANUFACTURING

As explained in Section 9.1. *Overview*, AREVA initiated a quality audit in late 2015 of nuclear components manufactured at the Creusot plant. The first phase of the Creusot audit revealed anomalies in some manufacturing files of equipment for nuclear reactors.

AREVA expanded the audit to the Chalon-Saint Marcel and Jeumont equipment manufacturing plants. As of this date, those audits have not led to a finding of any deviation such as those found at the Creusot site, and were still in progress as of the date of this document.

Unsatisfactory findings following the quality audits conducted in the Creusot, Chalon-Saint Marcel and Jeumont plants could, as indicated in Section 9.1 *Overview*, compromise or delay the execution of the sale of AREVA NP's operations to EDF and have a significant unfavorable impact on the group's financial position and operations.

#### 4.5.8. RISKS RELATED TO IMPLEMENTATION OF THE PERFORMANCE PLAN

As explained in Section 9.1. *Overview*, AREVA announced on March 4, 2015 the deployment of a performance plan to achieve 1 billion euros in operational gains in 2018 compared with 2014. This plan rests on four pillars in particular: control of payroll and compensation, productivity improvement, selectivity in purchasing, and marketing and sales strategy.

While the group is working on the successful implementation of the performance plan, no guarantees can be given as to the performance plan's achievement of the contemplated gains and cost reductions within the expected period of time. If the group were not to achieve the objectives of the performance plan on time, or if it were not to reach these objectives within the expected period of time indicated, that could have a significant unfavorable impact on the group's operations and financial position.

### 4.6. RISK RELATED TO MAJOR PROJECTS

Generally, revenue, cash flow and profitability recognized for a project may vary significantly as a function of the percentage of completion of the project involved. Furthermore, they may depend on a certain number of items such as the occurrence of unforeseen technical problems inherent in the complexity of the projects and/or relative to the equipment supplied; loss of skills or questions about technologies; and postponements or delays in contract execution. They may also be the financial difficulties of the group's customers; payments withheld by the group's customers;

the default or financial difficulties of AREVA's suppliers, subcontractors or partners in a consortium with which AREVA is jointly responsible; and additional unforeseen costs resulting from project modifications or changes in legislation. The profit margins on some of AREVA's contracts may prove to be very different from those initially anticipated insofar as costs and productivity may vary significantly during contract execution.



### 4.6.1. NEW REACTOR CONSTRUCTION CONTRACTS

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As for any new project, the construction of a new reactor model involves risks relating to its technical implementation, the manufacturing of new components, achievement of quality and performance levels, and startup schedule compliance.

Such risk could have a short-term negative impact on the group's operations and financial position.

Events related to the construction of the Olkiluoto 3 EPR power plant (OL3) illustrate this risk. A project management department is in charge of managing the risk related to the OL3 project and is in regular contact with AREVA's management.

Several specialized teams manage the various aspects of the project, whether in terms of delays, disruptions, disputes or risk. In addition to operational meetings, the different teams share regular updates to ensure coherence in project management. Work is being carried out within the group to harvest operating experience and thus improve project management in the future. For additional information on the OL3 project, see Section 4.3.3.1. *Olkiluoto 3 EPR power plant (OL3)*; Section 20.2. *Notes to the consolidated financial statements*, note 24; and Section 20.8. *Legal and arbitration proceedings*.

### 4.6.2. AREVA'S INDUSTRIAL PROJECTS

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#### **THE GROUP CANNOT ENSURE THAT INDUSTRIAL PROJECTS OR MINING PROJECTS CAN BE IMPLEMENTED WITHIN THE PLANNED BUDGETS AND SCHEDULES AND CONSISTENT WITH THE OPERATING REQUIREMENTS OF THE SITES INVOLVED**

As for any new project, the development of new mining or industrial capacities involves risks relating to its technical implementation and to start-up schedule compliance.

The group cannot guarantee that the income from mining or industrial projects will enable it to cover its operating, depreciation and amortization expenses or give the expected return on investment, particular if the competitive situation in the target market changes.

Similarly, in the case of transitions between two industrial plants, the group cannot guarantee that facility shut-down and start-up schedules will be optimized to minimize the financial and social impacts.

In addition, the group cannot guarantee that suppliers associated with the different projects will provide their products or services on time and as required in the contracts.

Such risk could have a negative impact on the group's operations and financial position.

## 4.7. LIQUIDITY AND MARKET RISKS

The group has an organization dedicated to implementing market risk management policies approved by Executive Management for centralized management of exposure to foreign exchange, commodity, rate and liquidity risks.

In the Finance Department, the Financial Operations and Treasury Management Department (DOFT) engages in transactions on financial markets and acts as a central desk that provides services and manages the group's financial exposure. The organization of this department ensures the separation of functions and the necessary human, technical, and information system resources. Transactions

handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management.

The reporting system also includes weekly reports submitted to the group's Chief Financial Officer, including a valuation of all positions and their market value. Together, these reports and reviews are used to monitor the group's counterparty risk.

### 4.7.1. LIQUIDITY RISK

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The liquidity risk is the risk that the group may be unable to meet its immediate or short-term financial commitments.

Management of the liquidity risk is provided by the Financial Operations and Treasury Management Department (DOFT), which ensures that it has sufficient financial resources available at all times to fund current operations and the investments needed for future growth and to cope with any exceptional event. The goal of liquidity management is to seek resources at the best cost and to ensure that they may be secured at any time.

In addition, the group's liquidity risk, including stress scenarios, is regularly monitored.

On December 31, 2016, AREVA received a B+ rating from Standard & Poor's for long credit with a developing outlook. On January 18, 2017, Standard & Poor's lowered that rating to B.

The group's liquidity for 2016 was ensured by draws on January 4 and 5, 2016 on available lines of credit in the amount of approximately 2 billion euros.

At December 31, 2016, the short-term borrowings of AREVA's continuing operations amounted to 831 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA guarantees NewCo's borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the NewCo capital increase, also planned in 2017.

Beyond 2017, the last significant maturity of AREVA's debt consists of the redemption of the syndicated line of credit of 1.25 billion euros in January 2018.

As mentioned previously, on January 10, 2017, the European Commission authorized rescue aid in the form of two advances from the shareholder current

account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros.

In addition, in early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and to have a maturity date of January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases.

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1.250 billion euros maturing on January 16, 2018 to proceed with the NewCo capital increase and authorize de facto the loss of control. In return for this consent, the lenders of that facility receive better terms, including an additional security and early redemption clauses, in particular as regards the income from the sale of AREVA NP.

### 4.7.2. FOREIGN EXCHANGE RISK

In view of the geographic diversity of its locations and operations, the group is exposed to fluctuations in exchange rates, particularly the euro/U.S. dollar exchange rate. The volatility of exchange rates may impact the group's currency translation adjustments, equity and income. The value of the euro in relation to the US dollar has fallen approximately 1% between December 31, 2015 and December 31, 2016.

The principal factors which may influence the group's exposure to currency risk, by business unit, are as follows:

- Mining Business Unit and Chemistry – Enrichment Business Unit: due to their geographically diversified locations (local currencies: euro/FCFA, Canadian dollar, tenge) and to their operations denominated primarily in US dollars, which is the world reference currency for natural uranium prices and for conversion and enrichment services, these business units have significant exposure to the risk of the US dollar's depreciation against the euro. The foreign exchange risk to be hedged is managed globally by business unit and is net (some requirements in different directions of the same currency are offset, providing a natural hedge). For medium/long-term exposure, the amount of the hedge is set up according to a gradual scale for a duration based on the highly probable nature of exposure, generally not to exceed five years;

- Components Business Unit: specific insurance policies are usually acquired or forward currency transactions are concluded to hedge the risk associated with the sale of heavy components (steam generators, reactor vessel closure heads) which may be billed in US dollars while production costs are incurred in euros;
- Recycling Business Unit: this business unit's exposure to foreign exchange risk is minimal, since most foreign sales outside the Eurozone are billed in euros and more of the business unit's costs are incurred in euros.

As provided in the group's policies, operating entities responsible for identifying foreign exchange risk must initiate hedges for currencies other than their own accounting currency exclusively with the group's Treasury Department, except as otherwise required by specific circumstances or regulations. DOFT thus centralizes the currency risk for all entities and hedges its position directly with banking counterparties. A system of strict limits, particularly concerning authorized foreign exchange positions and results, marked to market, is monitored daily by specialized teams which are also in charge of valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.

For more information, see Section 20.2. *Notes to the consolidated financial statements*, note 31. *Market risk management*.

### 4.7.3. INTEREST RATE RISK

The group's exposure to fluctuations of interest rates encompasses two types of risk:

- a risk of change in the value of fixed-rate financial assets and liabilities; and
- a risk of change in cash flows related to floating-rate financial assets and liabilities.

The group uses several types of derivatives, depending on market conditions, to allocate its borrowings and investments between fixed rates and floating rates, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses. The group's rate risk management policy,

approved by Executive Management, is supplemented by a system of specific limits for asset management and the management of rate risk on borrowings. In particular, the system defines authorized limits for portfolio sensitivity, authorized derivatives for managing financial risk, and subsequent positions that may be taken.

For more information, see Section 20.2. *Notes to the consolidated financial statements*, note 31. *Market risk management*.

#### 4.7.4. RISK ON SHARES AND OTHER FINANCIAL INSTRUMENTS

##### THE GROUP HOLDS PUBLICLY TRADED SHARES IN A SIGNIFICANT AMOUNT AND IS THUS EXPOSED TO CHANGES IN THE FINANCIAL MARKETS.

Publicly traded shares held by the group are exposed to the risk of volatility inherent in equity markets.

In particular, the number of shares in the investment portfolio earmarked for end-of-lifecycle operations is given at December 31, 2016.

The risk of a decrease in the price of shares and of other non-current financial assets is not systematically hedged.

The risk on shares held in the portfolio of assets earmarked for end-of-lifecycle operations is an integral component of asset management, which uses shares to increase long-term returns as part of its allocation between bonds and equities.

In addition, the group is exposed to changes in the value of other financial instruments in its portfolio, in particular bonds and investment funds held in the portfolio earmarked for end-of-lifecycle obligations.

Publicly traded shares held by the group are exposed to the risk of volatility inherent in equity markets.

For more information, see Section 20.2. *Notes to the consolidated financial statements*, note 31. *Market risk management*.

#### 4.7.5. RISKS ASSOCIATED WITH URANIUM, ENRICHMENT AND CONVERSION

##### 4.7.5.1. RESERVES AND RESOURCES

The group's uranium reserves and resources are estimates only, drawn up by the group based on geological assumptions (e.g. core drilling results) and economic assumptions; there is no guarantee that actual mining operations will produce the same results.

The group could be led to modify these estimates if there is a change in evaluation methods or geological assumptions, and/or a change in economic conditions (see Section 6.4.1.1, *Mines*).

Estimates of uranium resources and reserves are updated annually to produce data for the Reference Document for the year ended. The functioning of the Resources and Reserves Committee is described in Section 6.4.1.1. *Mines*.

It is not possible to guarantee that the projected quantities of uranium will be produced or that the group will receive the expected price for these ores, which is indexed to market performance, in accordance with the contractual terms agreed upon with the customers.

There is no assurance that other resources will be available. Moreover, uranium price fluctuations, production cost increases and declining mining and milling recovery rates can affect the profitability of reserves and require their adjustment.

In Section 6.4.1., AREVA reports 6,510 metric tons of measured and indicated uranium resources and 6,250 metric tons of inferred resources for Katco. As of the date of this document, AREVA is still waiting for confirmation of this tonnage by the Kazakh organization in charge of approving the registration of these resources in the Kazakh State's balance.

##### 4.7.5.2. PRICE MOVEMENTS OF URANIUM, ENRICHMENT AND CONVERSION

Fluctuations in the prices of uranium, uranium conversion and uranium enrichment could have a significant negative or positive impact on the financial position of the group's mining, enrichment and conversion operations.

Although the group operates mostly as a provider of processing services for uranium, of which the customers are generally owners, it remains exposed to uranium price risk in its mining operations and to uranium conversion and enrichment services price risk. Prices for natural uranium and conversion and enrichment services have fluctuated widely in the past and depend on factors that are beyond AREVA's control. These factors include demand for nuclear power; economic and political conditions in countries which produce or consume uranium, including Canada, the United States, Russia, other CIS republics, Australia, and some African countries; nuclear materials and used fuel treatment; and sales of surplus civilian and defense inventories (including for example those from the dismantling of nuclear weapons).

If the prices for natural uranium, conversion and enrichment were to remain below production costs over a prolonged period, this could have a negative impact on the group's mining operations and uranium conversion and enrichment operations.

#### 4.7.6. RISK ON OTHER COMMODITIES

The group has little exposure to price variations for in commodities other than those mentioned in paragraph 4.7.5.

#### 4.7.7. COUNTERPARTY RISK RELATED TO THE USE OF DERIVATIVES AND TO THE INVESTMENT OF CASH

##### THE GROUP IS EXPOSED TO THE CREDIT RISK OF COUNTERPARTIES LINKED TO ITS USE OF FINANCIAL DERIVATIVES TO COVER ITS RISKS AND TO THE INVESTMENT OF CASH.

The group uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks and its exposure to risks on commodities. The group primarily uses forward buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions involve exposure to counterparty risk when the contracts are concluded over the counter.

Also, the group invests the group's cash, with cash management essentially centralized in agreement with an internal policy which defines authorized investment products, and is exposed to a counterparty risk, mainly banking related.

To minimize these risks, the group's Treasury Management Department deals with diversified, top-quality counterparties based on their ratings in the Standard &

Poor's and Moody's rating systems, with a rating of Investment Grade. Moreover, an umbrella agreement, for example, is always set up with counterparties likely to deal in derivatives.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. Assuming the rating of the counterparty is not downgraded earlier, the limits are reviewed at least once a year and approved by the group's Chief Financial Officer. The limits are verified in a specific report produced by the internal control team of the Treasury Management Department. During periods of significant financial instability which may entail an increased risk of bank default and which may be underestimated by ratings agencies, the group tries to monitor advanced indicators such as the value of the credit default swaps (CDS) of the eligible counterparties to determine if limits should be adjusted.

To limit the counterparty risk on the market value of its commitments, the group has set up a mechanism for margin calls with its most significant counterparties concerning interest rate transactions (including foreign exchange and interest terms and conditions).

## 4.8. OTHER RISK

### 4.8.1. POLITICAL AND ECONOMIC CONDITIONS

#### SOME OF THE GROUP'S OPERATIONS ARE SENSITIVE TO POLICY DECISIONS IN CERTAIN COUNTRIES, ESPECIALLY AS REGARDS ENERGY.

The risk of a change in energy policy by some States cannot be excluded and could have a significant negative impact on the group's financial position. The debates on the future of nuclear power which have begun or lie ahead in various countries could evolve in a manner that is unfavorable to the group's operations, particularly under the influence of pressure groups or following events that give the public a negative image of nuclear power (e.g. accidents or incidents, violations of non-proliferation rules, diplomatic crises).

As a result of events in Japan in March 2011, the German government decided to phase out nuclear power while other European Union countries, including France, decided to perform stress tests on their facilities (see the ASN report of January 3, 2012 on the supplementary safety assessments of nuclear facilities).

More generally, events of this nature are likely to affect the positions of certain States vis-à-vis nuclear energy and could for example lead to:

- new thinking on the share of nuclear power and renewable energies in the energy mix;
- the early shutdown of certain nuclear power plants;
- the slowdown or freezing of investment in new nuclear construction projects;
- the reconsideration of programs to extend the operation of existing power plants;
- changes in policies for the end of the cycle, particularly as concerns used fuel recycling; and/or

- lesser acceptance of nuclear energy by the public.

In addition, a change in economic policy in times of financial and budgetary pressures may lead to lower support for the development of renewable energies in some countries.

#### POLITICAL RISK SPECIFIC TO CERTAIN COUNTRIES IN WHICH THE GROUP DOES BUSINESS COULD AFFECT ITS OPERATIONS AND THEIR FINANCIAL EQUILIBRIUM (E.G. POLITICAL INSTABILITY, ACTS OF TERRORISM).

AREVA is an international group with energy operations around the globe, including countries with varying degrees of political instability. Some of the group's mining operations, for example, are located in countries where political change could affect those operations. Political instability can lead to civil unrest, expropriation, nationalization, changes in legal or tax systems, monetary restrictions, and renegotiation or cancellation of currently valid contracts, leases, mining permits and other agreements. Acts of terrorism can also generate socio-political turmoil and impair the physical safety of the group's personnel and/or facilities.

For example, the mining agreements between the government of Niger on the one hand and Somair and Cominak on the other relating to the operation of uranium deposits in Niger expired on December 31, 2013. Discussions for their renewal began in 2012 and came to a successful conclusion in May 2014 as part of the strategic partnership agreement signed between AREVA and the State of Niger. In accordance with the agreement, the mining agreements of Somair and Cominak were renewed under the Nigerian law of 2006.

**THE GROUP CONDUCTS OPERATIONS ON INTERNATIONAL MARKETS CHARACTERIZED BY STRONG COMPETITIVE PRESSURES THAT COULD LEAD TO A CONSEQUENTIAL DROP IN DEMAND FOR THE GROUP'S PRODUCTS AND SERVICES.**

The group's products and services are sold on international markets characterized by intense competition on price, financial terms, product/service quality and the capacity for innovation. In some of its businesses, the group has powerful competitors that are much larger than the group or have access to more resources. Moreover, these competitors may sometimes make decisions that are influenced by extraneous considerations other than profitability or have access to financing at advantageous terms.

In addition, competitive pressures have increased as a result of the deregulation of the electricity market, which opened the door to new competitors for the group's main customers and in particular resulted in increased price volatility. Deregulation may lead to changes in prices for electricity and for products and services related to the generation, transmission and distribution of electricity and/or to lower investment in the nuclear power sector.

Nuclear power and renewable energies developed by the group are also competing with other sources of energy, in particular oil, natural gas, shale gas, coal and hydroelectricity. These other energy sources could become more attractive than the energy sources developed by the group.

Certain risks have been identified as being inherent to the Renewable Energies Business Group:

- the risks associated with the order intake process and the confirmation of key sales opportunities;
- the risks associated with the ramp-up of the supply chain and assembly lines, of internal / supplier quality control, and of the execution of first-of-a-kind projects from a technology standpoint in many countries;
- the risks related to the ability of the technologies sold to achieve the level of performance required and the impact this may have on existing contracts and on the market, in particular with the lack of a representative installed base to support planning and the establishment of the necessary provisions for defects and malfunctions over the medium and long term;
- the risks related to the safety of operations in new environments and with rising volumes; and
- the risks associated with the loss of key technical skills.

Since 2010, the group has set up a certain number of risk mitigation action plans with the objective of securing project completion and the full operational cycle of the group's products, ensuring the strength and quality of the group's value chain, and implementing all of the group's operational performance optimization processes.

**4.8.2. RISKS RELATED TO THE GROUP'S STRUCTURE****THE GROUP CANNOT ENSURE THAT ITS STRATEGIC ALLIANCES, RESTRUCTURING OR REORGANIZATION, MERGERS AND ACQUISITIONS, ASSET DISPOSALS AND CONSOLIDATION WILL BE PERFORMED AS INITIALLY CONTEMPLATED OR THAT THESE OPERATIONS WILL GENERATE THE ANTICIPATED SYNERGIES AND COST REDUCTIONS.**

The conclusion of certain asset disposal transactions may depend on conditions precedent over which in some cases AREVA has no control, such as approval by competition authorities in the relevant countries or opinions issued by certain bodies representing the group's employees. A lack or delay of approval could result in the termination of these transactions and thus have a material impact on the group's anticipated financial position and performance.

The group is involved in a variety of acquisitions, strategic alliances and joint ventures with partner companies. Although the group believes that its acquisitions, strategic alliances and joint ventures will be beneficial, a certain level of risk is inherent in these transactions, particularly the risk of overvalued acquisitions; insufficient vendor warranties; underestimated operating costs and other costs; disagreements with partners (particularly in joint ventures); potential integration difficulties with personnel, operations, technologies or products; lack of performance on initial

objectives; or third-party challenges to these strategic alliances or mergers and acquisitions, based on their impact on those parties' competitive positions.

In addition, minority shareholders in certain AREVA subsidiaries, such as Eurodif (see Section 25.2.2. *Main shareholders' agreements concerning AREVA's equity interests*), could restrict the group's decision-making ability.

Until it was amended on January 14, 2016, decree no. 83-1116 of December 21, 1983, as amended, relating to the Société des participations du CEA (AREVA) stipulated that the CEA was obliged to hold more than half of AREVA's capital.

Since January 14, 2016, that decree requires that the French State, or the Commissariat à l'énergie atomique et aux énergies alternatives, or the other public institutions of the State, or the companies in which they hold a majority share, directly or indirectly, singly or jointly, are required to hold more than half the capital of the company.

At December 31, 2016, the CEA held 54.37% of AREVA's capital, representing 57.02% of the voting rights. It has the power to make most of the decisions during General Meetings of shareholders, including those relating to the appointment of members of the Board of Directors and those relating to the distribution of dividends.

### 4.8.3. INDUSTRIAL RISKS RELATED TO CLIMATE CHANGE

The risk of a natural disaster as a result of climate change is identified in the group's business risk model. It is estimated to be of very low impact in terms of frequency and severity. Action plans to strengthen the resilience of certain facilities were nonetheless implemented at the industrial sites, in particular following the supplementary safety assessments (SSA) conducted after the Fukushima accident. These assessments factored in the latest scientific knowledge on global warming, on the impacts on water resources and on extreme climate phenomena, using extremely conservative assumptions.

Concerning the fight against climate change, AREVA has implemented a proactive policy since 2000 aimed at reducing the environmental footprint of its operations, and more specifically at acting simultaneously on the five known mechanisms of biodiversity erosion. The main actions undertaken involve combatting climate change, managing the risks related to changes in land use (disturbance of natural habitat and release of CO<sub>2</sub> stored in the soil), managing the potential impacts of releases and other industrial pollution, preventing the proliferation of invasive species, and working towards the sustainable use of natural resources:

- in 2014, the first ten-year assessment indicated a 66% reduction in greenhouse gas emissions at constant revenue, an 89% reduction in energy consumption, a 91% reduction in water consumption, and a 48% reduction in unrecycled waste. These reductions are consistent with our low-carbon product offering, which

is in line with customer expectations (e.g. Vattenfall, EDF, etc.). In fact, lifecycle analysis shows that one nuclear kilowatt-hour produced by our customers from fuel supplied by AREVA emits only four grams of CO<sub>2</sub>, making it the best environmental performance in the market, all energies combined;

- in June 2016, the change of process at the Comurhex II Malvési plant eliminated releases of nitrous oxides (N<sub>2</sub>O), thus reducing the group's greenhouse gas emissions by nearly 20% on a full-year basis.

One of AREVA's defining features is its development of a pioneering, competitive position in the circular economy through its fuel cycle operations. Its industrial tools in the back end of the cycle enable it to recycle energy recovered from the plutonium contained in used nuclear fuel into fresh MOX fuel. Industrial know-how on this scale is unique in the world. It significantly reduces environmental impacts across the entire uranium lifecycle, in particular during the mining stage, which has the biggest impact in terms of footprint.

Factoring extreme risks into the supplementary safety assessments (SSA) represented an expense of 260 million euros for studies and facility reinforcements; reducing the environmental footprint (actions taken) represented a gain of 170 million euros per year on the group's operating costs, mostly consisting of energy savings.

### 4.8.4. HUMAN RESOURCES RISK

#### THE GROUP MIGHT NOT BE ABLE TO FIND THE NECESSARY EXPERTISE TO CARRY OUT ITS OPERATIONS.

In some fields, the group has to turn to outside experts when it does not have expertise internally for the successful completion of its projects. The group cannot guarantee that it will find the necessary skills for the successful performance of some operations, which could have a significant negative impact on those operations and on the group's financial position.

The group cannot guarantee that it will be able to call up the necessary resources for its development in due time or under satisfactory conditions.

In connection with the group's development, reorganization or restructuring, it continues to be likely that labor protests will disrupt its operations and impact its financial position.

Lastly, in 2016, the group was forced to carry out a "Voluntary Departure Plan" whose potential consequences on the availability of skills in the short and medium terms continue to be difficult to assess at this time.

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## 5.1. HISTORY AND DEVELOPMENT OF THE ISSUER

### 5.1.1. LEGAL AND COMMERCIAL NAME OF THE ISSUER

The legal name of the company is AREVA.

### 5.1.2. PLACE OF REGISTRATION OF THE ISSUER AND REGISTRATION NUMBER

AREVA is registered under number 712 054 923 with the Business Registry of Nanterre.

Business code (APE): 741J (company management).

Business registration number (Siret): 712 054 923 000 57.

### 5.1.3. DATE OF INCORPORATION AND LENGTH OF LIFE OF THE ISSUER

The French decree no. 83-1116 of December 21, 1983 establishes the Société des participations du Commissariat à l'énergie atomique, the former name of AREVA.

AREVA was registered on November 12, 1971. The statutory term of the company is 99 years from its date of registration, unless extended or the company is dissolved beforehand.

### 5.1.4. ADDITIONAL INFORMATION

#### CORPORATE STRUCTURE OF AREVA AND APPLICABLE LEGISLATION

AREVA is a business corporation with a Board of Directors<sup>(1)</sup> (*Société anonyme à Conseil d'administration*) governed by Book II of the French Commercial Code, by decree no. 83-1116 of December 21, 1983, as amended, and by order no. 2014-948 of August 20, 2014 on governance and transactions on the share capital of public corporations.

#### REGISTERED OFFICE

The registered office is located at AREVA Tower, 1 place Jean Millier, 92400 Courbevoie, France.

(1) On January 8, 2015, AREVA's shareholders decided to change the form of governance from that of a Supervisory Board and an Executive Board to that of a single Board of Directors.

### 5.1.5. IMPORTANT EVENTS IN THE DEVELOPMENT OF THE ISSUER'S BUSINESS

Two major nuclear energy industry companies majority-held directly and indirectly by CEA-Industrie were combined to form AREVA on September 3, 2001:

- Cogema (Compagnie générale des matières nucléaires), established in 1976 to acquire the majority of CEA's production department operations: mining, uranium enrichment and used fuel treatment; and
- Framatome, established in 1958, one of the world's leading companies in the design and construction of nuclear reactors, in nuclear fuel and in the supply of services relating to those operations. In 2001, Framatome established Framatome ANP as a joint company of AREVA (66% interest until March 2011) and Siemens (34% interest until March 2011), thus merging the nuclear operations of those two groups.

AREVA was thus formed from the corporate structure of CEA Industries. It kept the Euronext Paris SA listing of 4% of its share capital.

Cogema and Framatome took the trade names AREVA NC and AREVA NP in 2006.

Several findings were brought forward in 2015:

- AREVA no longer has a sufficient capital base to carry the risk of a new reactor construction project alone across the full scope of a power plant;
- the competitiveness of the group's products in the new builds market must be reinforced;
- there are overlapping areas of expertise between AREVA NP and EDF for the nuclear island, although AREVA NP still has its own areas of expertise which may be offered to its entire international customer base on a long-term basis;
- AREVA NP has a variable level of risk management available to it for the different design and construction work packages of a power plant construction or modernization project. As project manager and operator of complete power plants, EDF has skills that are synergistic with those of AREVA NP for the management of some of those risks, opening up the opportunity for a business combination between them.

These points confirmed that AREVA NP should refocus its scope of responsibility on new build projects in its core business: the primary cooling system and the instrumentation and control system.

In 2016, to restore its competitiveness and stabilize its financial situation, the group designed and has started to implement a restructuring plan, consistent with the "2016-2020 roadmap" presented to the market on June 15, 2016.

The principal components of the group's restructuring plan are:

- subsidiarization of the nuclear fuel cycle operations within New AREVA Holding ("NewCo"), a wholly owned subsidiary of AREVA;
- subsidiarization of the operations in the AREVA NP consolidation scope (including the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base) within a subsidiary wholly owned by AREVA NP ("New NP"), whose sale to EDF and third-party investors is scheduled for 2017;

- capital increases for AREVA and NewCo in the total amount of approximately 5 billion euros; and
- asset disposals to withdraw from certain operations.

Since July 1, 2016, as part of the restructuring plan, the group was reorganized into two separate managerial scopes, NewCo and AREVA NP:

- NewCo combines all of the operations of the nuclear fuel cycle. It conducts its operations in mining, uranium chemistry and enrichment, used fuel treatment and recycling, logistics, dismantling and nuclear waste management;
- AREVA NP's operations must be sold to EDF according to the memorandum of understanding signed on July 28, 2016. The contract signed on November 15, 2016 between AREVA and EDF sets the terms for the sale in 2017 of an interest giving EDF exclusive control of an entity ("New NP") which is a wholly owned subsidiary of AREVA NP, and which will combine the industrial operations of the design and supply of nuclear reactors and equipment, of fuel assemblies and of services to the installed base of the AREVA group. The OL3 contract and the means needed for its completion together with the Component contracts affected by serious anomalies which might have been identified as part of the quality audit in progress are not included in this sale. In addition, the two companies are contemplating combining their engineering resources in the field of the design and construction of new nuclear islands and their related operational instrumentation and control systems for projects in France and abroad via the plan to create a joint company, NICE, in which EDF would hold 80% and New NP 20%.

Through its subsidiary AREVA TA, the Group also supplies services for the design, construction and maintenance of nuclear marine propulsion reactors and nuclear research facilities. It is also involved in the renewable energies sector, particularly in the fields of bioenergy and energy storage. Nevertheless, in line with its objective of refocusing on the nuclear fuel cycle operations, most of these operations are scheduled to be sold or shut down.

At the end of the implementation of the restructuring plan, AREVA's main mission will be to complete the Olkiluoto 3 EPR reactor project ("OL3") in Finland with the necessary resources, in compliance with its contractual obligations. Another of AREVA's goals will be to support the asset disposal process in progress, to close out the remaining renewable projects, and to carry certain contracts relating to forgings in the Creusot plant, and to reimburse bank borrowings (bilateral lines of credit and RCF) in 2017 and 2018.

### IMPORTANT EVENTS IN THE DEVELOPMENT OF THE ISSUER'S BUSINESS

For earlier main events, please refer to previous AREVA Reference Documents.

#### 2013-2015

On January 18, 2013, AREVA signed a five-year syndicated line of credit agreement with 19 banks for 1.25 billion euros to replace the previous undrawn syndicated line of credit, which expired in 2014.

On June 2, 2013, AREVA launched the first employee shareholding program since the company was established; following this transaction, 36% of the employees in France, the United States and Germany held approximately 1.2% of the group's share capital at December 31, 2013.



On August 29, 2013, AREVA launched a new seven-year, 500-million-euro bond issue maturing on September 4, 2020 with an annual coupon of 3.25%.

On March 12, 2014, AREVA priced and launched a 750-million-euro bond issue with an annual coupon of 3.125% maturing in nine years, on March 20, 2023.

On April 1, 2014, Advanced Nuclear Fuels GmbH, an AREVA subsidiary, sold its fuel cladding production plant in Duisburg, Germany.

On May 7, 2014, AREVA finalized the sale of Euriware and of its subsidiaries to the Cap Gemini group.

On June 30, 2014, AREVA finalized a financing project for the Société d'Enrichissement du Tricastin (SET). A ten-year loan in the amount of 650 million euros was established with a group of ten international banks.

On August 1, 2014, on the occasion of the publication of its half-year results, AREVA announced the decision to terminate the Solar Energy business upon the completion of current construction projects, unless it received a full takeover bid.

On October 7, 2014, AREVA announced new measures to strengthen its balance sheet and manage its debt.

On October 22, 2014, in view of Mr. Luc Oursel's unavailability, the Supervisory Board decided to confer the same powers to Mr. Philippe Knoche as those of the Chairman of the Executive Board until the next General Meeting of shareholders.

On October 31, 2014, AREVA finalized the sale of the Control Command Transport (CCT) business to Alstom via its subsidiary AREVA TA.

On November 18, 2014, in the framework of planning and forecasting activities performed regularly by the Executive Board, AREVA suspended its financial outlook for the years 2015 and 2016, pending the conclusion of these activities.

On December 1, 2014, AREVA finalized the sale of the Aerospace Integration business to AIP Aerospace via its subsidiary AREVA TA.

On March 4, 2015, during the publication of the group's 2014 results, which were impacted by a net loss of 4.8 billion euros and negative equity, AREVA announced the implementation of a competitiveness plan, the establishment of social dialogue and the preparation of a financing plan.

On March 9, 2015, AREVA and Gamesa signed final agreements and closed the deal to create Adwen, a joint venture in the field of offshore wind.

On April 14, 2015, following the AREVA GmbH Supervisory Board meeting, AREVA announced that it was opening discussions between management and labor on a plan to transfer operations from the Offenbach site (700 employees) to the Erlangen and Karlstein sites by mid-2016.

On June 3, 2015, the President of the French Republic announced a series of guidelines for the redefinition of the French nuclear industry, including in particular the signature of a comprehensive strategic partnership agreement with AREVA which, if it were to be signed, would lead EDF to become the majority shareholder of AREVA NP, and a capital increase in which the French State will participate is announced.

On June 29, AREVA announced that it had begun the process of selling its Canberra subsidiary, which specializes in nuclear measurement systems and instrumentation.

On July 30, during the publication of its half-year 2015 results, AREVA confirmed financing requirements of approximately 7 billion euros which could be covered by several internal sources of financing, the implementation of a program of asset sales, and additional measures to strengthen liquidity and equity. Moreover, in addition to the measures in the financing plan, the group announced the need for a significant capital increase to give AREVA a financial profile enabling it to refinance all of the company's medium-term requirements.

On October 19, 2015, AREVA announced the signature of a proposed agreement on employment by the CFDT, CFE-CGE, FO and UNSA-SPAEN labor unions.

On October 20, 2015, AREVA announced the presentation by management of documents describing the reorganization plans for New AREVA and AREVA NP, together with their impacts on employment, to the Works Committees and Central Works Committees.

On November 2, AREVA and its Chinese partner CNNC signed a memorandum of understanding in Beijing on possible cooperation involving an equity component and an industrial component.

On December 24, 2015, AREVA announced that, following analysis of offers, the AREVA Board of Directors had selected the Mirion-Charterhouse offer to acquire its subsidiary Canberra.

## 2016

For the main events of 2016, see Sections 6.4. *Operations* and 9.1.3. *Highlights of the period*.

## 5.2. CAPEX

Pursuant to IFRS 5, reported data concern the continuing operations exclusively, i.e. mainly the OL3 project; bioenergy, in the process of being shut down; and funding of AREVA SA. All of the financial items related to operations sold, discontinued

or held for sale are presented on a specific line of the statement of income, the statement of cash flows and the statement of financial position. In this regard, the data reported in 2015 were restated.

### 2015

The continuing operations had gross CAPEX of 13 million euros in 2015. Net of disposals, CAPEX amounted to 12 million euros in 2015.

Operations sold, discontinued or held for sale had gross CAPEX of 794 million euros in 2015. Net of disposals, CAPEX amounted to 776 million euros in 2015.

In 2015, the bulk of capital expenditures related mainly to the continuation of strategic and priority investments begun in previous years: Georges Besse II to a large extent, along with mining development and Comurhex II.

## 2016

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The continuing operations had gross CAPEX of 7 million euros in 2016.

Operations sold, discontinued or held for sale had gross CAPEX of 828 million euros in 2016. Net of disposals, CAPEX amounted to 830 million euros in 2016.

In 2016, industrial CAPEX fell in connection with the end of large mining projects and the completion of the Georges Besse II plant, which reached its full production capacity in 2016. However, buybacks of minority interests were also carried out in the amount of 132 million euros.

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## A FEW FUNDAMENTAL CONCEPTS FOR AN UNDERSTANDING OF NUCLEAR POWER

Since the beginning of this century, energy has been a centerpiece of many of our society's challenges, which may be summed up as the need to continue to produce and consume energy without threatening the climate. If the share of fossil fuels in the global energy mix is to be reduced from its current level of more than 80%, low-carbon energy sources that do not affect the climate must be developed, including nuclear power, capable of producing massive quantities of electricity on demand, and renewable energies.

### Using fission energy in nuclear power plants

A nuclear power plant is an electric generating station with one or more reactors. Like all conventional thermal power plants, each reactor unit consists of a steam supply system that converts water into steam, among other things. The steam drives a turbine, which in turn drives a generator, producing electricity.

A "nuclear reactor" is an industrial facility that produces heat from the energy released by the fission of combustible atoms during a controlled chain reaction. A "nuclear steam supply system" is the combination of equipment used to produce steam from fission energy. A "nuclear island" is the system encompassing the nuclear steam supply system and the fuel-related facilities, as well as the equipment required for the system's operation and safety. A "conventional island" consists of the alternating current turbogenerator coupled to the nuclear island, along with the equipment required for its operation. A nuclear power plant thus consists primarily of a nuclear island and a conventional island. The reactor is enclosed in a solid, leaktight building

meeting nuclear safety requirements. The three main components needed to sustain, control and cool the fission process in the reactor core are fuel, a moderator and a coolant. The combination of these three components determines the reactor type or model. Several combinations have been tested, but only a few of them have gone beyond the prototype stage to commercial operation.

### A heat source and a cooling source

Like all other thermal power plants, a nuclear power plant has a heat source (the nuclear steam supply system with its fuel core and heat exchangers) and a cooling source designed to condense steam after it has passed through the turbine. That is why power plants are usually built near the sea or a river – the water is used to cool the steam. Some power plants are also equipped with cooling towers in which cooling water is dispersed like rain so that it will evaporate, improving the efficiency of cooling and reducing the environmental impacts (reduced withdrawal of water and elimination of thermal releases to rivers).

### A moderator and a coolant

During the fission process, neutrons are released at very high speed. As they strike light atoms (hydrogen contained in water) and slow down, they react much more with the uranium-235 atoms. That is how "thermal neutron" or "slow" reactors function. The level of uranium-235 enrichment required for the chain reaction is much lower than for "fast" reactors. In water reactors, the water is used as a moderator, i.e. to slow the neutrons released by nuclear fission, but it also serves as a coolant, i.e. the fluid that circulates in the reactor core to extract heat.

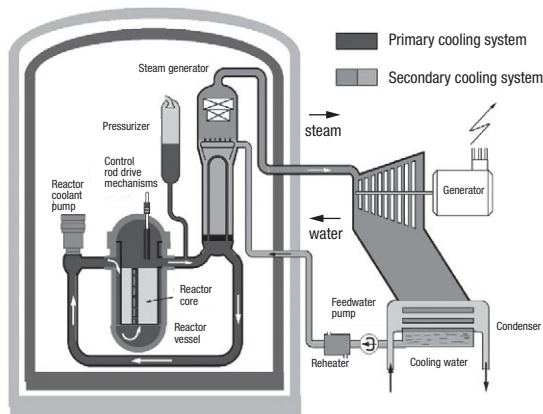
### The world's most prevalent reactor: the pressurized water reactor

In light water reactors, the fuel is low-enriched uranium. The water in the primary cooling system bathes the reactor core, consisting of tubes containing the fuel, which heats up as a result of the fission reactions.

In pressurized water reactors (PWR), the water is heated by the tubes containing the fuel and transfers its heat via heat exchangers to a secondary cooling system, where the water is converted into steam. The nuclear steam supply system consists of the reactor core and the steam generators, together with the pressurizer, the reactor coolant pumps, and the hot and cold legs connecting the pumps. The primary cooling system is separate from the secondary cooling system, which produces steam to drive the turbo-generator, making radioactive containment that much stronger.

PWR reactors have a triple barrier system to prevent the release of radioactive fission products. The primary barrier in this system consists of the metal tubes containing the fuel. The secondary barrier consists of the separate primary and secondary cooling systems. The third barrier is comprised of the nuclear steam supply system enclosed in a concrete containment building capable of containing hazardous products in the event of a leak. All of the reactors in the French nuclear reactor fleet are PWRs, which represent the majority of reactors in service around the world.

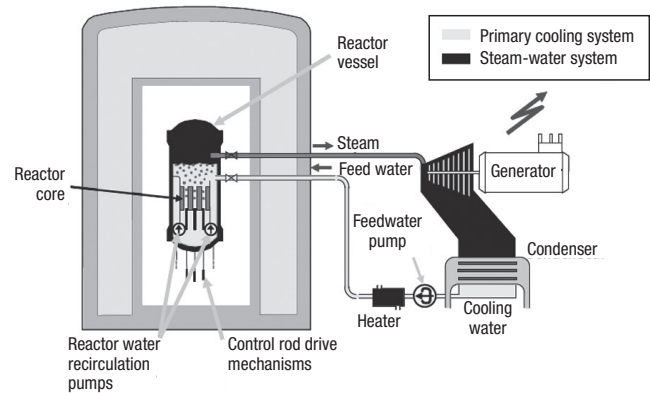
### PRESSURIZED WATER REACTOR



Source: AREVA.

Boiling water reactors (BWR) are generally comparable to PWRs. The main differences are that the water boils when it comes into contact with the fuel, and there is only one steam system. The fuel core releases its heat to the water passing through it, which vaporizes at the top of the vessel containing the core. The resulting steam drives the turbine, then cools when it comes into contact with the cold source and is liquefied in the condenser before it is recirculated to the reactor vessel. Thus, in a BWR, the water is in a closed cycle in which the steam produced in the reactor core expands directly into the turbine.

### BOILING WATER REACTOR



Source: AREVA.

AREVA is active in both of these reactor systems.

### Difference between generation II and generation III reactor systems

Nuclear reactor technologies are classified in terms of generation. The timeline for the different generations corresponds to the date at which the related technologies become mature. Most of the reactors currently in service around the world are generation II reactors consisting mainly of PWRs and some BWRs. AREVA's generation III reactor models are based on evolutionary technology with additional features which factor in operating experience from previous generations of reactors, particularly in terms of nuclear and industrial safety.

### Renewable energies

Renewable energies – hydropower, biomass, wind, solar, geothermal and ocean energies – do not consume natural resources for their operations. Their efficiency is contingent on their location (dam site, wind, sunshine, etc.). Some of these energy sources are spread out and intermittent, which makes them less suitable for centralized baseload power generation. Others are more flexible and allow relatively high power densities to be achieved.

Since the group is refocusing on operations related to the nuclear fuel cycle, AREVA has decided to gradually withdraw from the renewable energies segment. AREVA's operations in renewable energies are presented in Section 6.4.3.2. *Renewable Energies operations.*

## 6.1. MARKETS FOR NUCLEAR POWER AND RENEWABLE ENERGIES

### 6.1.1. NUCLEAR POWER AND RENEWABLE ENERGIES IN THE GLOBAL ENERGY LANDSCAPE

#### 6.1.1.1. THE CHALLENGES OF THE ENERGY SECTOR

##### Strong growth in demand for electricity

Global economic growth is relatively stable; it has risen slightly since 2012 (about 2.4% per year, according to the World Bank), but growth is unevenly distributed regionally. However, world demand for energy has continued to grow, including in industrialized countries. Several macro-economic indicators suggest that economic growth in industrial countries will remain weak in the medium term. Emerging markets, on the other hand, will continue to expand and offer the most promising growth opportunities for the energy sector.

On the whole, global demand for energy is set to increase, led by world population growth, more widespread access to energy, and long-term economic growth.

According to the New Policies Scenario <sup>(1)</sup> of the *World Energy Outlook (WEO)* published by the International Energy Agency (IEA) in November 2016, world primary energy consumption is expected to grow from 13.684 gigatons of oil equivalent (Gtoe) in 2013 to 17.9 Gtoe in 2040, translating into average annual growth of 1%. According to the report, it is China and India along with emerging countries and developing countries that are expected to account for the majority of the added demand.

World electricity consumption, which averaged 3.2% from 2000 to 2014, has grown a bit more than world primary energy consumption. According to the IEA's New Policies Scenario, world power generation in 2040 is estimated at 34,250 TWh, compared with 20,557 TWh in 2014, giving average annual growth of 2%. Almost all of this growth originates in non-member countries of the Organization for Economic Cooperation and Development (OECD). In China, however, electricity consumption jumped from 2000 to 2014, with an average annual growth rate of almost 11%; this growth is expected to decelerate sharply in the coming years, with an average annual growth rate of 2.4% from 2014 to 2040.

On the supply side, oil, gas and coal continue to be the preferred energy sources. In 2014, oil constituted 31.3% of global primary energy, while coal represented 28.6% and natural gas 21.2%. In the United States, technologies deployed on a large scale by the oil and gas industry are facilitating the development of oil and shale gas production. However, the hydraulic fracturing technique used in non-conventional gas production is a cause for environmental concern. The energy policies being implemented by several countries are looking to reverse this trend. The fight against greenhouse gas emissions (GHG) and the security of fossil fuel supply issue have become major concerns for the public, businesses and governments alike. The latter are devising measures to conserve energy and policies to promote renewable energies and diversify their portfolios of energy technologies. A number of countries

are currently considering the possibility of using nuclear power and renewable energies and/or increasing their contributions to bolster their security of energy supply, enhance competitiveness and cost predictability, and reduce CO<sub>2</sub> emissions in order to ensure sustainable economic growth.

##### Energy and global warming

##### United Nations Framework Agreements

Since the United Nations Framework Convention on Climate Change was created in Rio in 1990, the world's governments have become involved in the subject of global warming. The objective is to limit the average temperature increase on Earth to 2°C in relation to the pre-industrial era. The Conference of the Parties (COP), a meeting of all governments, is held at the end of each year in a different country. A first major agreement for a reduction of greenhouse gas emissions over the 2008-2012 period was reached in 1997 when historically industrialized countries signed the Kyoto Protocol in Japan.

The second agreement, known as the Paris Agreement, was signed during the 2015 United Nations Climate Change Conference (COP 21) held in Paris in December. It entered into force on November 4, 2016, having been ratified by more than 100 countries totaling close to 75% of the world's greenhouse gas emissions. The new agreement concerns both developed and developing countries. It calls for attempts to limit the average temperature increase to 1.5°C to significantly reduce its risks and impacts. At the Convention's request, the Intergovernmental Panel on Climate Change (IPCC) will publish a report in 2018 specifying the emissions level to reach this ultimate goal.

Achieving the objective of the Paris Agreement will occur principally through the mechanism of the Nationally Determined Contributions (NDC) communicated by each party specifying their emissions reduction intentions in the energy sector. To date, 189 countries covering 98.8% of global greenhouse gas emissions have submitted their contributions. The Paris Agreement calls for an update of the NDCs every five years and an increased ability to adapt to climate change. It also calls for the availability of a Green Climate Fund, which was set up in 2009 during the Copenhagen Conference and provisioned at the level of 7.4 billion euros in 2014 through contributions from the United States, Japan, the United Kingdom, Germany and France. A floor of 100 billion dollars per year by 2020 has been set to help the most vulnerable countries adapt to climate change and support low-carbon investment projects. The Agreement also encourages bilateral and multilateral sources of public and private funding, which have already been created in the form of, for example, the Green Climate Fund and the Global Environmental Facility.

(1) In addition to national policies and measures decided in mid-2015, the IEA's New Policies Scenario includes greenhouse gas reduction statements communicated at the Framework Convention on Climate Change. Other reductions are expected to be necessary in order to limit the impact of climate change to a temperature increase of 2°C. The 450 Scenario in the report confirms that new nuclear and renewable energy facilities would be required to meet this goal.

### Are the current reduction intentions sufficient?

The United States and China – the largest producers of GHG from energy, accounting for more than half of all emissions – committed in 2014 to future reductions. The United States established the Clean Power Plan in 2015 under President Obama's leadership. This plan calls for reductions of 17% in 2022, 26-28% in 2025, and 32% in 2030 compared with 2005 levels in the power generation sector. Each state will have to meet a reduction objective set by the Federal government, which differs from state to state.

In 2014, China stated that it was committed to using 20% non-fossil fuels in its energy mix by 2030 while limiting its coal consumption.

The European Union, which was a pioneer with its Energy-Climate policy, has already committed to a 20% reduction of its GHG emissions by 2020 compared with 1990 levels. The reduction to be met by 2030 is 40%.

The compilation of the Nationally Determined Contributions (NDC) submitted in 2015 shows that the desired objective cannot be achieved: the temperature increase would range from +2.7°C to +3.5°C by 2100. The countries' intended contributions currently cover only half of the requirements.

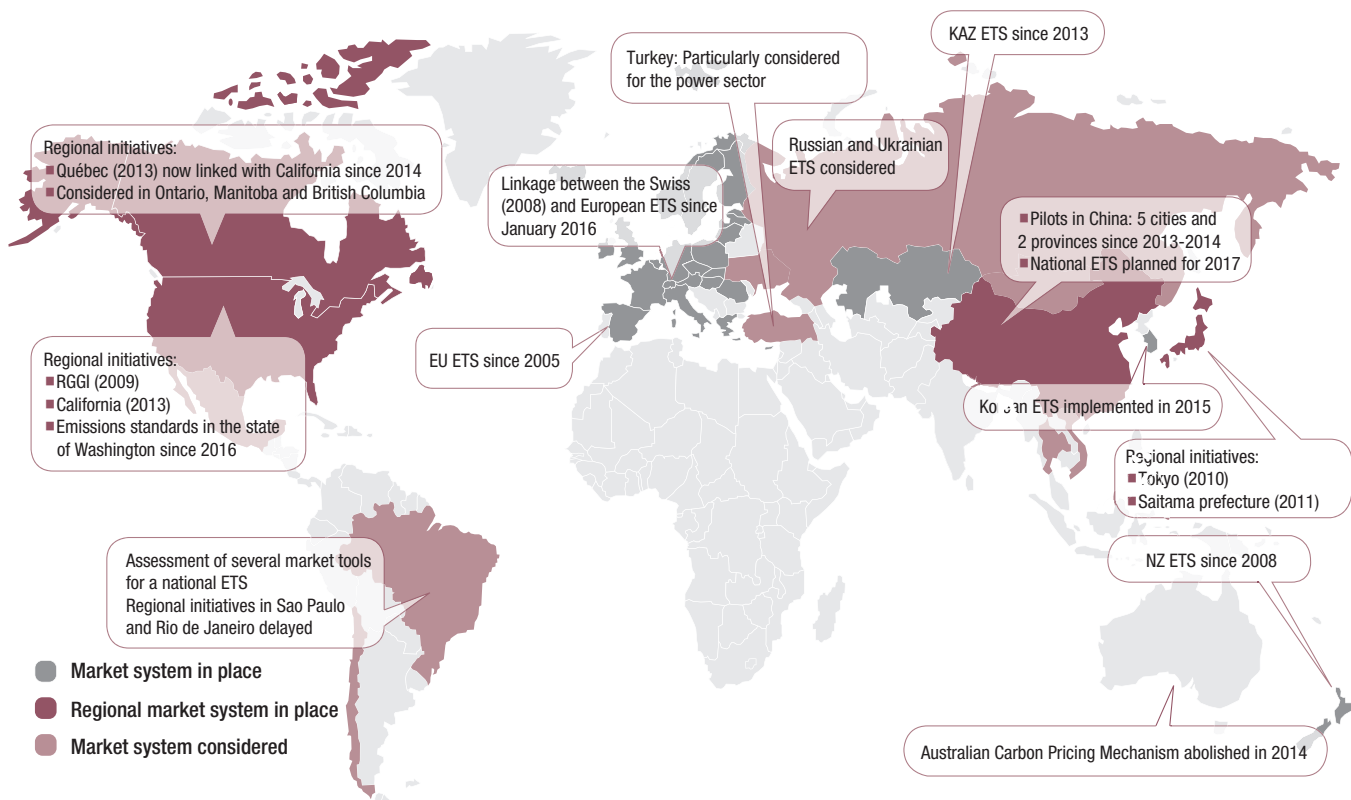
To achieve the +2°C objective, carbon emissions would have to be limited to 42 billion metric tons in 2030, yet forecasts put those emissions in the range of 55-60 billion metric tons of CO<sub>2</sub>.

Carbon dioxide emissions and the generation of electricity have increased proportionately since the 1990s. In the New Policies Scenario to 2040 of the IEA-WEO 2016, which includes the NDCs of the different countries, there is a gap between those two numbers. Whereas power generation rises nearly 67% over the period, energy-related CO<sub>2</sub> emissions grow by only 11%, thanks to energy efficiency and less use of coal. This scenario leads to a long-term temperature increase of 2.7°C (Source: WEO 2016).

The logical conclusion of all these debates is that no source of energy should be ignored in the mix, in particular nuclear power, recognized as one of the means to fight climate change.

To change the direction of the emissions curve, several States have decided to assign an economic value to carbon and have created emissions trading markets. Currently, a global market for emissions permits does not exist. However, the emissions avoided by projects connected with the Clean Development Mechanism (CDM) of the Kyoto Protocol may be exchanged between States.

### STATUS OF THE LEADING EMISSIONS TRADING SYSTEMS (ETS)



At the global level, more than 40 countries have set up or scheduled economic instruments to monetize carbon, whether through emission trading systems or taxes. The map shows the largest emission trading markets, which are in varying stages of maturity.

- In January 2005, Europe set up a system for capping CO<sub>2</sub> with the emissions trading system (ETS). The EU-ETS is one of the first such systems in the world and currently remains the largest, with the 28 Member States of the European Union in addition to Norway, Iceland and Liechtenstein. It is one of the most mature systems.

## 6.1 Markets for nuclear power and renewable energies

- In 2013, Kazakhstan also initiated an emissions trading system. Ukraine is contemplating an emissions trading system, as is Russia. In Turkey, the power sector could be subject to quotas.
- Federal laws in the United States, such as the Energy Independence and Security Act, the Energy Improvement and Extension Act, and the American Recovery and Reinvestment Act, provide financial support to companies which invest in the carbon-free energy sector or local sources of energy with high added value. Three voluntary carbon emissions trading exchanges – the Regional Greenhouse Gas Initiative in 2009, the Midwestern Greenhouse Gas Accord in 2007 and the Western Climate Initiative in 2007 – have been established in 38 states and provinces of the United States, Mexico and Canada. In 2008, Quebec joined the Western Climate Initiative and is collaborating with California.
- In Latin America, Brazil is considering various market tools, and two initiatives in São Paulo and Rio de Janeiro are pending. Mexico and Chile are also considering an emissions trading system.
- In China, a trial phase began in 2013-2014 with the launch of seven pilot projects in five cities (Chongqing, Beijing, Shanghai, Shenzhen and Tianjin) and two provinces (Guangdong and Hubei). On December 10, 2014, the National Commission for Development and Reform of China (NDRC) published the first legal fundamentals for a national carbon quota exchange system, which should be launched in 2017. Once in operation, this market will be the largest in the world.
- In Japan, a new energy plan is under discussion to curtail the growth of carbon-emitting energies, and there are already two local initiatives. In South Korea, an emissions trading system was launched in January 2015. However, the volumes traded are very low.
- A similar program has also existed in New Zealand since 2008. Australia had initiated an emissions trading system but abolished it 2014.

The price of carbon has always been relatively low in these markets (less than 30 euros per metric ton of CO<sub>2</sub>) and did not have a significant impact on greenhouse gas reductions. In Europe, prices for the European Union Allowance (EUA) have stagnated since 2013 at around 4-9 euros per metric ton of CO<sub>2</sub>, due to a quota surplus. Other factors may have played a part in observed emissions reductions, such as the impact of policies which support renewable energies, the economic situation, and energy efficiency. In the European Union, a reform of the CO<sub>2</sub> emissions market is under study. Several tools are being considered to give carbon real value, including cancellations of quotas or the creation of a large reserve to limit the quantity put on the market.

### It is necessary to plan for the depletion of fossil energy resources

The global availability of energy resources will not dampen the growth in energy demand by 2040 and beyond. However, a large amount of capital funding is required to exploit these energy resources and many factors will determine the rate at which this occurs, such as the uncertainty of the economic outlook, the investment climate and the availability of financing, geopolitical factors, climate change policies, technology advances, and changes in legal, tax and regulatory frameworks.

In the absence of a strong climate policy, the gradual depletion of hydrocarbon resources is a major threat to global energy supply. The price of oil has gone through several changes since the 1970s. The price fell after prices for all fossil fuels peaked widely in 2008, then climbed in 2010 to approximately 100 US dollars per barrel. Since the end of 2014, surplus production, particularly in the United States, led to a decrease in the price per barrel to 50 US dollars. According to the IEA's New Policies Scenario, the average world price would reach 124 US dollars in 2040. In this scenario, the difficulty of finding oil substitutes for transportation and industry means increased consumption.

For the medium to long term, it is difficult to forecast changes in the availability of fossil fuel resources (oil and natural gas). Uncertainties about reserves, production costs and environmental standards (shale gas, bituminous sands, deep offshore oil and arctic resources) may prove very restrictive for production.

In addition, oil and gas resources are unevenly distributed around the globe. To take an example, three countries – Iran, Russia and Qatar – hold more than half of the world's natural gas reserves.

Consequently, relying on the massive use of fossil resources to meet demand for energy would be the source of serious problems in terms of security of supply, with uncertainties as to volumes available and prices, in addition to the geopolitical risks.

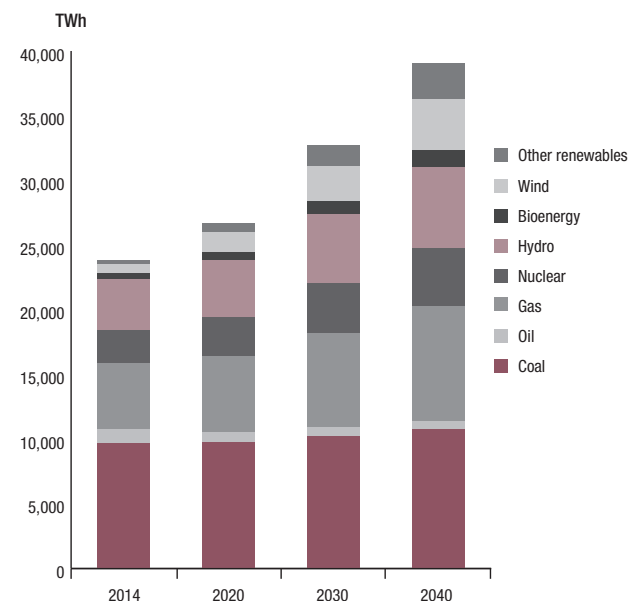
Oil is used mainly for transportation, while natural gas and coal are used for industry, power generation and heat production. China is a big consumer of coal, which accounts for a substantial share of its energy mix.

### The need for investment and a change in the global power generation mix

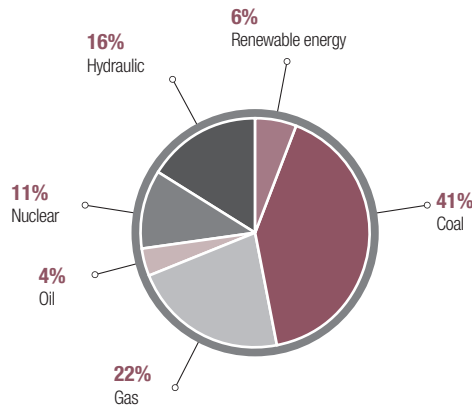
Massive capital spending in the electricity sector and a radical change in the power generation mix are required for the reasons outlined above: rising demand for electricity, urgent efforts to prevent climate change, and declining fossil resources.

In the WEO 2016 New Policies Scenario, the contribution of low-carbon technologies to electricity production rises from about 33% in 2014 to 48% in 2040. That increase is due to the inroads made by renewable energies, but also to the greater contribution of hydropower. Nuclear power's contribution increases only slightly. In reality, nuclear power production would climb by approximately 79% to around 4,532 terawatt-hours (TWh) by 2040, when a significant share of the existing reactor fleet would have to be replaced. Wind energy would increase more than fivefold by 2040.

### GLOBAL ELECTRICITY MIX IN THE IEA'S NEW POLICIES SCENARIO



Source: AIE, WEO 2016.

**WORLD ELECTRIC POWER GENERATION IN 2014**

Source: IEA, WEO 2016.

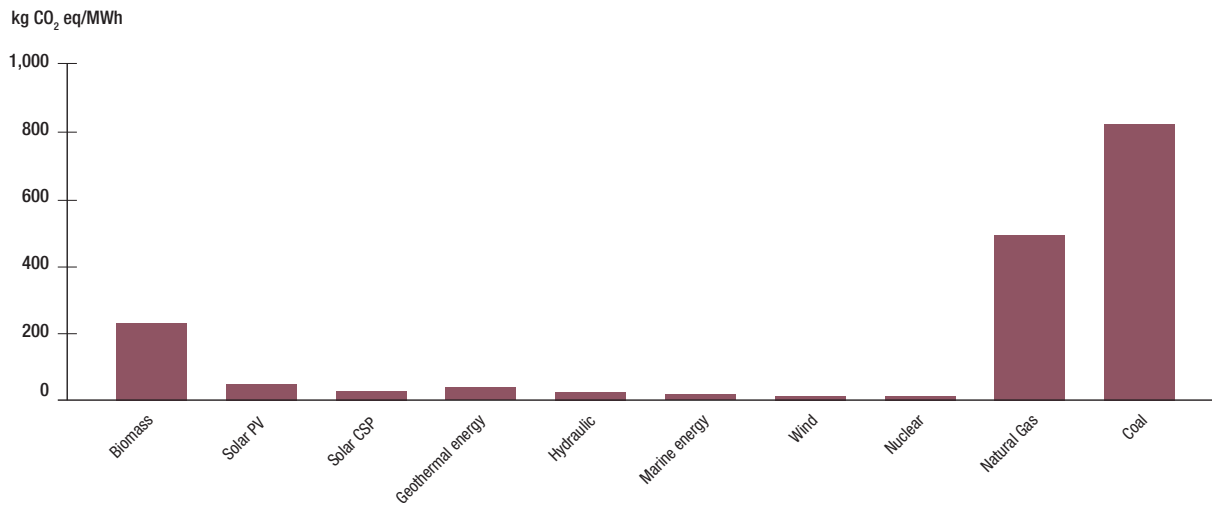
**6.1.1.2. NUCLEAR ENERGY**

Nuclear power offers many advantages on the environmental, economic, strategic and operational levels:

- it helps combat climate change;
- it creates significant added value locally as well as a large number of highly qualified jobs that cannot be delocalized;
- it is competitive compared with other sources of baseload electricity;
- it offers stable production costs with less uncertainty concerning the price of the electricity produced;
- it ensures security of supply: nuclear fuel is easy to store and uranium resources are well distributed around the world, unlike oil and gas reserves, which are concentrated in Russia and the Middle East;
- it is a solution for limiting trade deficits for countries that import fossil energies, and it preserves the reserves of exporting countries by limiting their domestic use;
- it offers heightened operational and safety performance, particularly with the new generation III reactors developed by AREVA, the EPR and ATMEA1 reactors <sup>(1)</sup>.

**Nuclear power helps combat climate change**

Nuclear power is already making a strong contribution to the fight against climate change. The figure below shows that greenhouse gas emissions from nuclear power are as low as those from renewable energies.

**GREENHOUSE GAS EMISSIONS (GHG) BY POWER GENERATION SOURCE ACROSS THE ENTIRE OPERATING CYCLE**

Source: IPCC, literature review, 2014.

(1) The ATMEA1 reactor is being developed in collaboration with Mitsubishi Heavy Industry.



6.1 Markets for nuclear power and renewable energies

On a global scale, nuclear power has already avoided the release of approximately 57 billion metric tons of CO<sub>2</sub> since 1971, equivalent to almost two years of global emissions at current levels (*source: WEO 2015*).

Faced with the climate issue, nuclear power is increasingly proving to be an essential component of the energy mix, producing baseload electricity that supports sustainable economic and social development.

**Competitiveness of nuclear power**

Nuclear power generation costs are not very dependent on the price of uranium. The percentage of raw materials in the total cost of nuclear power (at net present value) is minimal, and the impact of a doubling of uranium prices on the full cost of power generation in new power plants is only about 5%.

Conversely, the price of fossil energies has a very strong impact on the cost of the electricity generated in thermal power plants fueled with coal and especially natural gas. In fact, natural gas fuel represents 70 to 80% of the total cost of the electricity generated by a combined cycle gas turbine. The price of carbon is also an important component in the cost structure of gas-fired power plants, and even more so for coal-fired plants, but it has zero impact on the cost of nuclear power.

Short-term gas and oil prices can fluctuate widely as they are subject to financial, economic and geopolitical risk: a very high level of uncertainty about production costs (deep offshore, shale gas, etc.), economic environment (financial crisis followed by an economic crisis), and financial speculation in the commodity markets.

Nonetheless, the consensus is that there is a long-term upward trend due to rising demand, the shift from coal to natural gas and the depletion of conventional resources. Regional imbalances exist, however, especially for natural gas.

Fluctuations in supply and demand therefore remain the key determining factors in fossil fuel price trends.

While gas prices are high in Europe and Asia, this source of energy has become very cost effective in the United States thanks to the shale gas made available by new technologies such as hydraulic fracturing and horizontal drilling. Still, substantial uncertainties remain as to its price volatility, its competitiveness in other regions, potential reserves, and the acceptability of the potential environmental consequences of its extraction, such as ground pollution and the significant use of fresh water resources.

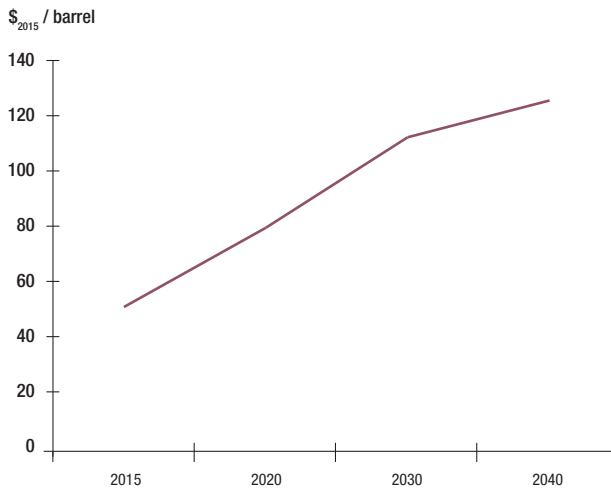
In Europe, shale gas production may appear attractive in view of the region's growing dependency on imported gas. However, there are several obstacles to developing shale gas on a large scale: the difficulty of accessing the deposits in some cases, the lack of harmonization in the regulatory systems of European countries, and much higher development costs than in North America.

In Europe, carbon prices remained low in 2016, in particular because planned EU-ETS<sup>(1)</sup> reforms will take several years to be put into practice. However, increasingly stringent commitments in terms of emissions reductions are expected to push carbon prices up in countries where a regulated carbon market has already been established, while in other countries, carbon restrictions appear to be unavoidable in the medium to long term.

Thus, the volatility observed in commodity markets and the uncertainty surrounding the price of carbon make it difficult to predict the cost of electricity generated with gas or coal.

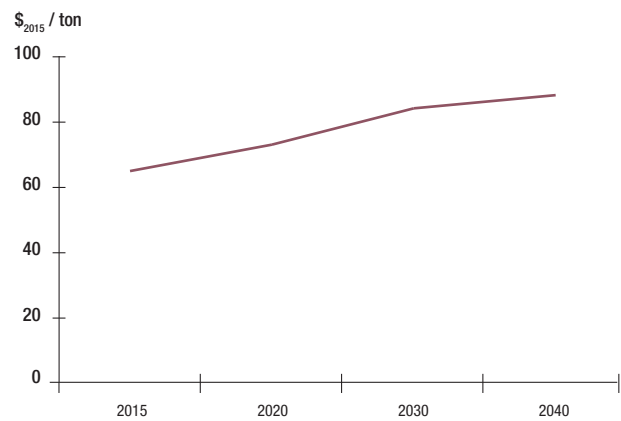
For countries that export fossil energy, nuclear power helps secure current and future income for national budgets: the resource extracted can be used to generate cash from exports rather than using it to produce electricity locally.

**OIL PRICE SCENARIO**



Source: WEO 2016.

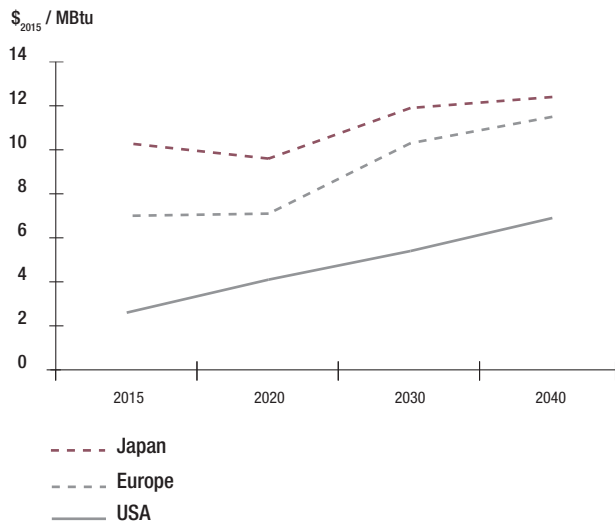
**COAL PRICE SCENARIO**



Source: WEO 2016.

(1) European Union Emission Trading System: the European system to trade emission quotas.

## GAS PRICE SCENARIOS



Source: WEO 2016.

A long-term view of the energy sector shows that nuclear power is a competitive source of electricity, offering stable and predictable costs.

The data and results of the latest assessment of nuclear power generating costs performed jointly by the International Energy Agency and the Nuclear Energy Agency of the OECD entitled *Projected Costs of Generating Electricity* (2015 edition) shows varying levels of competitiveness of new nuclear projects, depending on the region:

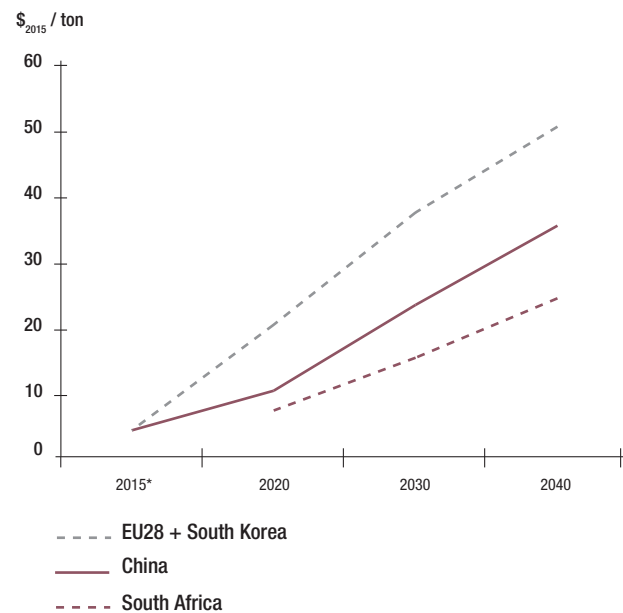
- in China, new nuclear projects are clearly competitive;
- in Europe, the total cost of new nuclear projects is comparable to that of other baseload electricity generation technologies (gas, coal);
- in the United States, the prices for fossil fuels and/or carbon would have to be high to restore the competitiveness of new nuclear projects.

The amount of capital expenditure (CAPEX) required for new nuclear units is very high, representing several billion dollars, and accounts for 60% or more of the cost of the kilowatt-hour. Equipment costs vary as a function of their location, as do those of labor. Such construction requires special financing, part capital and part debt. Added to the high cost of CAPEX are interest during construction and provisions for contingencies. The total cost is therefore sensitive to the interest rate contracted for the debt.

For operating reactors, decisions to extend their operating period are highly dependent on market conditions and demand forecasts, in addition to social and political factors.

In the United States, the Nuclear Regulatory Commission has granted permission to extend the operating life of 83 units up to 60 years. US utilities predict that fuel and maintenance costs will go down in the coming years to cope with the reduced market price for electricity. In fact, reactors operating in deregulated markets are more at risk than those that operate in regulated markets. In 2013, five reactors had already shut down in the United States due to market conditions (two in California, two in Florida and one in Wisconsin), and a dozen others are threatened with shutdown in the short term. Five reactor uprating projects have been cancelled.

## CARBON PRICE SCENARIOS



\* For EU28.

Source: WEO 2016.

The State of New York, however, decided to grant financial support to nuclear power production through subsidies over a period of twelve years (six times two years) in order to meet its reduction commitments. This will avoid the shutdown of a few units. A similar plan is in progress in Illinois, and other states could adopt the same approach.

In Sweden, due to the relatively low market price of electricity and despite the recent exemption of the tax on nuclear power for the operator, 4 of the 10 reactors will be closed by 2020.

### Nuclear power improves national security of electricity supply

Another major advantage of nuclear-generated electricity lies in the security of supply it provides. Unlike hydrocarbon reserves, which are concentrated in certain regions, uranium resources are well distributed around the world. The principal proven uranium resources are located in Australia (29%), in North America (15%), in Africa (18%), in China and Mongolia (7%), in Kazakhstan (13%) and in Russia (9%), with the remaining 4% found in Eurasia (source: *Uranium 2016: Production and Demand*, IAEA® OECD 2016).

### With the latest generations of reactors, nuclear power offers enhanced safety and operating performance

AREVA's line of reactors offers a range of capacities, from 1,100 MWe to 1,650 MWe, and of technologies. These reactors meet the most recent requirements in terms of:

- nuclear safety: designs that drastically reduce the possibility of a serious accident and ensure that there would be no offsite environmental consequences by maintaining containment integrity (corium catcher to confine the molten core, prevention of a hydrogen explosion or steam inside the containment building, ability to withstand a large commercial aircraft crash), as confirmed by the safety regulators' certification and by the necessary measures to ensure continuity of cooling;

6.1 Markets for nuclear power and renewable energies

- competitiveness: reduction in fuel consumption and operating costs, high availability (92%) over a 60-year period of operation, thus maximizing power generation; and
- environmental protection: reduction in the quantity of used fuel and final waste.

6.1.1.3. RENEWABLE ENERGIES

Renewable energies contribute to energy self-sufficiency as regards fossil resources while limiting greenhouse gas emissions.

They also currently benefit from support mechanisms in several countries: favorable electric rates, production quotas, green certificates, etc. Many countries are committed to expanding the percentage of renewable energies in their production, leading one to assume that such policies will be pursued.

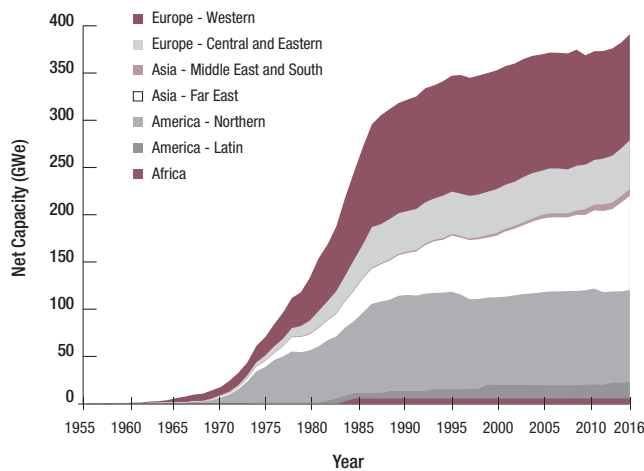
In some regions, the competitiveness of certain renewable technologies is already in line with that of more conventional sources of energy, thanks to technology enhancements, economies of scale, the learning curve and the growing size of facilities. The acceleration in market consolidation observed recently in many segments of this market should also contribute to an increase in their competitiveness in the short term.

6.1.2. NUCLEAR ENERGY MARKETS

The first commercial nuclear power programs were launched in the mid-1960s in the United States and in the early 1970s in Europe. In the 1970s, with fears of fossil fuel shortages rising (oil shock), several countries decided to reduce their dependency on imported energy by launching the development of nuclear power programs. The 1970s and 1980s saw a sharp rise in these programs, as shown below. Strong initial growth slowed when the public became concerned after the accidents at Three Mile Island in 1979 and Chernobyl in 1986. As a result, whereas

399 reactors had been built over the 1970 to 1990 period, installed capacity rose by only 22.9% over the 1990 to 2016 period. As the vast programs initiated in North America and Western Europe subsided, the growth of the global reactor fleet picked up in Eastern Europe and Asia. Following the Fukushima accident in Japan caused by a tsunami in March 2011, the installed fleet strengthened the security of cooling water supply in the event of an accident and set up new safety measures to cope with such events.

WORLD INSTALLED NUCLEAR GENERATING CAPACITY (IN NET GWE)



Sources: IAEA PRIS Database.

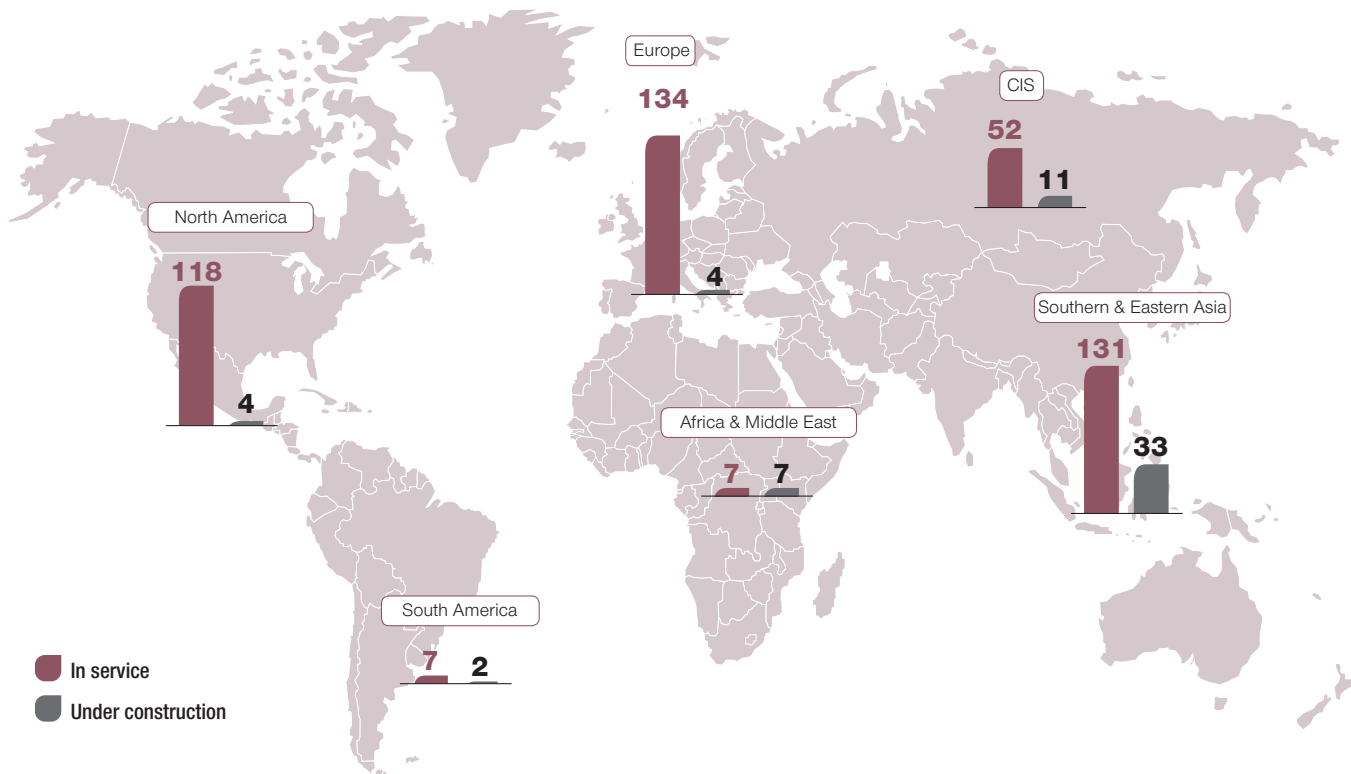
Global installed nuclear generating capacity is estimated at 391 GWe in 2016, slightly more than in 2015.

The figure above shows the breakdown of global installed nuclear generating capacity.

At December 31, 2016, a total of 449 reactors representing 412 GWe (391 GWe net) were in service in 31 countries, including the world's largest energy consuming regions.

With about 41% of the global fleet, the installed base in Europe and the Commonwealth of Independent States (CIS) is preminent, ahead of North America, which represents about 26% of the fleet. However, most of the medium-term growth potential for nuclear power (2017-2018) is located in Asia (China, South Korea and India) and, to a lesser extent, in the countries of the CIS, as shown in the figure below.

### REACTORS IN OPERATION OR UNDER CONSTRUCTION WORLDWIDE AT YEAR-END 2016



Sources: IAEA and WNA, restated by AREVA.

Nuclear power continues to grow around the world, led mainly by China, Russia, South Korea and India, as well as by a number of countries which are examining the nuclear option as a new component of their energy mix. According to the IAEA and the World Nuclear Association (WNA), 60 reactors were under construction worldwide at the end of 2016 (compared with 66 at the end of 2015); 165 reactors were in project or on order (compared with 158 at the end of 2015, 181 at the end of 2014, 170 at the end of 2013, 165 at the end of 2012 and 152 at the end of 2011); and more than 300 more are planned in the coming years.

Three main types of reactors are involved:

- light water reactors, which represent about 82% of the global fleet and may be further divided into two categories: most are pressurized water reactors (PWR), which represent practically all of the new builds, while the remainder are boiling water reactors (BWR). There were 368 light water reactors in service in 2016, including 57 VVER reactors, a Russian-designed PWR;
- Canadian-designed heavy water Candu reactors, of which there were 49 in operation at the end of 2016.

Other types of reactors in service include Russian-designed light water graphite reactors (RBMK) and breeder reactors, but their number and power rating are marginal on the international level.

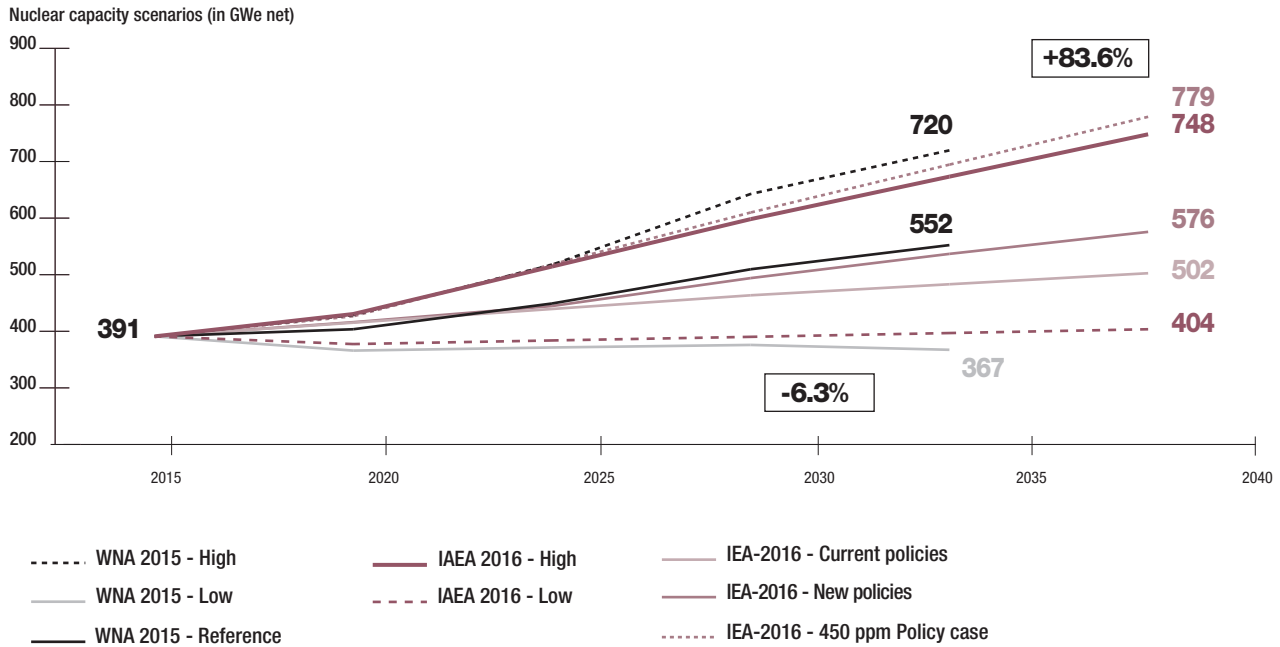
### OUTLOOK FOR INSTALLED NUCLEAR GENERATING CAPACITY

Nuclear power's recognized advantages include its competitiveness and cost predictability, security of supply, and the reduction of greenhouse gas emissions. These advantages are expected to lead to the modernization and optimization of existing reactors to further increase their safety and possibly available capacity. They are also expected to contribute to new reactor construction to replace or expand installed generating capacity worldwide, and thus to be a potential source of long-term growth for all nuclear fuel cycle operations.

With the prospect of increasing reliance on nuclear power over the years to come, especially in emerging countries, the International Atomic Energy Agency (IAEA) is seeking to promote the establishment of a new framework to respond effectively to demand from different countries while still limiting the risks of proliferation. For example, the IAEA is leading the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) to anticipate the specific needs of developing countries and to help emerging countries acquire the necessary infrastructure for a nuclear power program. At the same time, the IAEA is working to establish mechanisms to guarantee fuel supply and related services so that nuclear facilities which are sensitive in proliferation terms do not come into being. Lastly, following the Fukushima accident, the IAEA adopted a multi-disciplinary Nuclear Safety Action Plan to further improve nuclear safety in global nuclear power production.

6.1 Markets for nuclear power and renewable energies

**SCENARIOS FOR THE GLOBAL NUCLEAR REACTOR FLEET (IN NET GWE)**



Sources: IAEA, WNA, International Energy Agency.

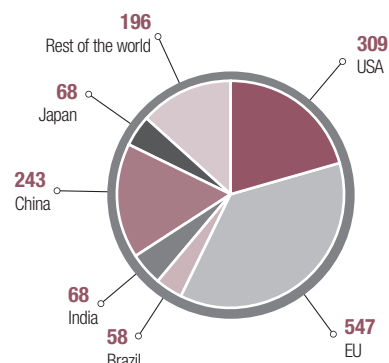
In France, the law on the energy transition and green energy adopted by Parliament in July 2015 sets a ceiling on installed capacity in France of 63.2 GWe and sets an objective for reducing nuclear's share of power production to 50% by 2025. Methods of implementation are still being defined at this time.

**6.1.3. RENEWABLE ENERGIES MARKETS**

Each year since 2008, renewable energies' share of new generating capacity coming on line in the United States and Europe has grown more than that of fossil energies. While renewable energies, excluding hydropower, accounted for less than 5% of the electric power mix in 2011, national governments have often set a target of 15% to 20% of the mix by 2020.

As shown on the chart below, more than 60% of the electricity from renewable sources was produced in Europe or in the United States in 2014.

**ELECTRICITY GENERATION FROM RENEWABLE SOURCES\* BY REGION IN 2014 (TWH)**



\* Excluding hydropower.  
Source: IEA, WEO 2016.

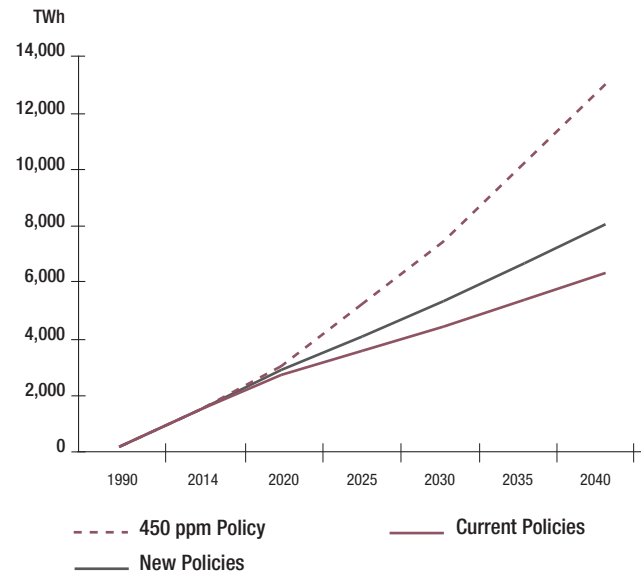
Europe is particularly dynamic when it comes to developing renewable energies. For example, the European Union has set a goal of a 27% share of final energy consumption from renewable energies by 2030.

North America is also in a growth mode in this area. Legislation passed in more than half of the US states calls for renewable energy sources to contribute 12% or more to total electricity generation by 2020. Three markets were created in recent years to trade carbon emission permits, particularly for the power sector, under a voluntary system.

China, India and other emerging countries, which are setting goals for reduced carbon intensity, are potential growth markets for these energies. Both China and India have ambitious objectives for building renewable energy capacities in their respective five-year plans. In addition to low construction costs, these countries often have good access to renewable energy resources, such as biomass in Brazil and India.

The New Policies Scenario of the IEA's *World Energy Outlook 2016* foresees very strong worldwide growth of electricity generation from renewable sources, for a combined total excluding hydropower of 4,925 TWh per year by 2040.

WORLD RENEWABLE ELECTRICITY GENERATION\* (TWH)



\* Excluding hydroelectric power.

Source: IEA, WEO 2016.

## 6.2. AREVA'S CUSTOMERS AND SUPPLIERS

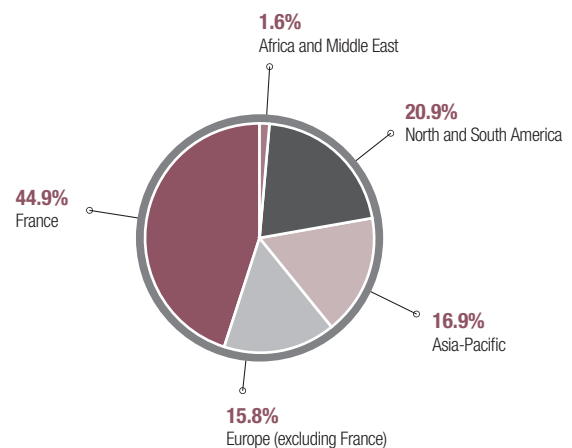
### 6.2.1. CUSTOMERS

AREVA's consolidation scope is destined to evolve substantially over the course of 2017, and the company should lose the control of its two main subsidiaries, NewCo and New NP.

Nonetheless, at December 31, 2016, the group's global data for customers should be brought back to reported revenue and to that of the operations sold, discontinued or held for sale pursuant to IFRS 5 (see Section 9.2.2. *Reconciliation of main aggregates of 2016*).

REGIONAL DISTRIBUTION OF CUSTOMERS BY REVENUE

REVENUE OF THE COMBINED ENTITIES OF THE GROUP



Source: AREVA.

AREVA's customers are chiefly electric utilities, energy services companies, public entities (agencies in charge of the back end of the nuclear fuel cycle, research centers, etc.) and local public sector or economic players.

Geographically, most of the group's customers are located in Europe, the United States, Latin America and Asia.

The EDF group is AREVA's leading customer, representing about 30% of its revenue in 2016. The group's 10 biggest customers, including the EDF group, represented about 64% of its revenue at the end of December 2016. A discussion of backlog may be found in Section 9.

## NUCLEAR

The nuclear businesses have a limited number of customers. The contracts are generally large, amounting to as much as several billion euros. In addition to the EDF group, the principal customers are utilities such as Duke and Exelon in the United States, ETN in Brazil, Engie, RWE and E.ON in Europe, and CGN, CNNC, KHNP and Tepco in Asia. Customers are diversified geographically, with a strong historical presence in Europe and customer growth in Asia.

AREVA has long-term contractual commitments from its customers in the different segments of the nuclear fuel cycle. This is the case in several businesses, such as Chemistry, Enrichment and Recycling, and in the Mining operations, which have service agreements with most of the world's nuclear utilities. The Reactors and Services operations sign contracts for services and equipment replacement for the installed reactor base.

In addition to contracts with the nuclear utilities, with more than 90% of their reactors served by AREVA in 2016, the group's entities have significant contracts with governmental and para-governmental entities such as the Commissariat à l'énergie atomique et aux énergies alternatives in France (CEA, the French atomic energy commission), the United States Department of Energy (DOE), the Nuclear Decommissioning Authority of Great Britain (NDA), the French naval shipyards DCNS and the Direction générale de l'armement (French defense procurement agency, DGA), among others.

In line with market practices, a certain number of warranties are given to customers for performance, late penalties, liability for failure to deliver, etc. The warranties and the risks associated with these warranties are described in Sections 20.2. *Notes to the consolidated financial statements for the year ended December 31, 2016* and 4. *Risk factors*.

## RENEWABLES

Customers are public or private utilities, independent energy infrastructure project developers, local and regional economic development groups, and industry. These customers are located in a wide range of geographic areas on five continents.

The group's involvement in the renewable energies sector particularly includes the fields of bioenergy and energy storage. Nevertheless, in line with its objective of refocusing on the nuclear fuel cycle operations, most of these operations are scheduled to be sold or shut down.

## 6.2.2. SUPPLIERS

External purchases are made chiefly by the NewCo and AREVA NP operations.

### NEWCO CONSOLIDATION SCOPE

External purchases represented a volume of approximately 1.6 billion euros in 2016 (NewCo consolidation scope, excluding Nuclear Measurements), divided between contracted construction (civil engineering, finishings, ventilation, piping, scaffolding, insulation) and cross-business purchases.

Cross-business purchases are divided among the following categories:

- travel;
- energy and corporate services;
- engineering and consulting;
- human resources and communication services;
- moving, maintenance operational readiness;
- transportation;
- chemicals, raw materials (metals);
- forgings, boilers, drums and hoisting;
- cleanup-dismantling, gas, waste;
- electricity, instrumentation and control, maintenance;
- mechanical, machining, equipment, machinery;
- information technology and telecommunications.

### AREVA NP CONSOLIDATION SCOPE

External purchases represented a volume of approximately 1.4 billion euros in 2016, divided at the corporate level among several categories:

- intellectual, technical and engineering services;
- instrumentation and control;
- non-production purchases: energy, facilities management, travel, consulting services and human resources.

They also included purchases led by the business units in the following categories:

- civil engineering and finishings;
- raw materials and semi-finished products;
- forgings, boilers, piping and welding;
- mechanical accessories, components and equipment;
- logistics, handling and storage;
- production services;
- other corporate services.

For all categories, orders exceeding 5 million euros are reviewed by an AREVA NP sourcing committee.

## 6.3. OVERVIEW AND STRATEGY OF THE GROUP

### 6.3.1. OVERVIEW

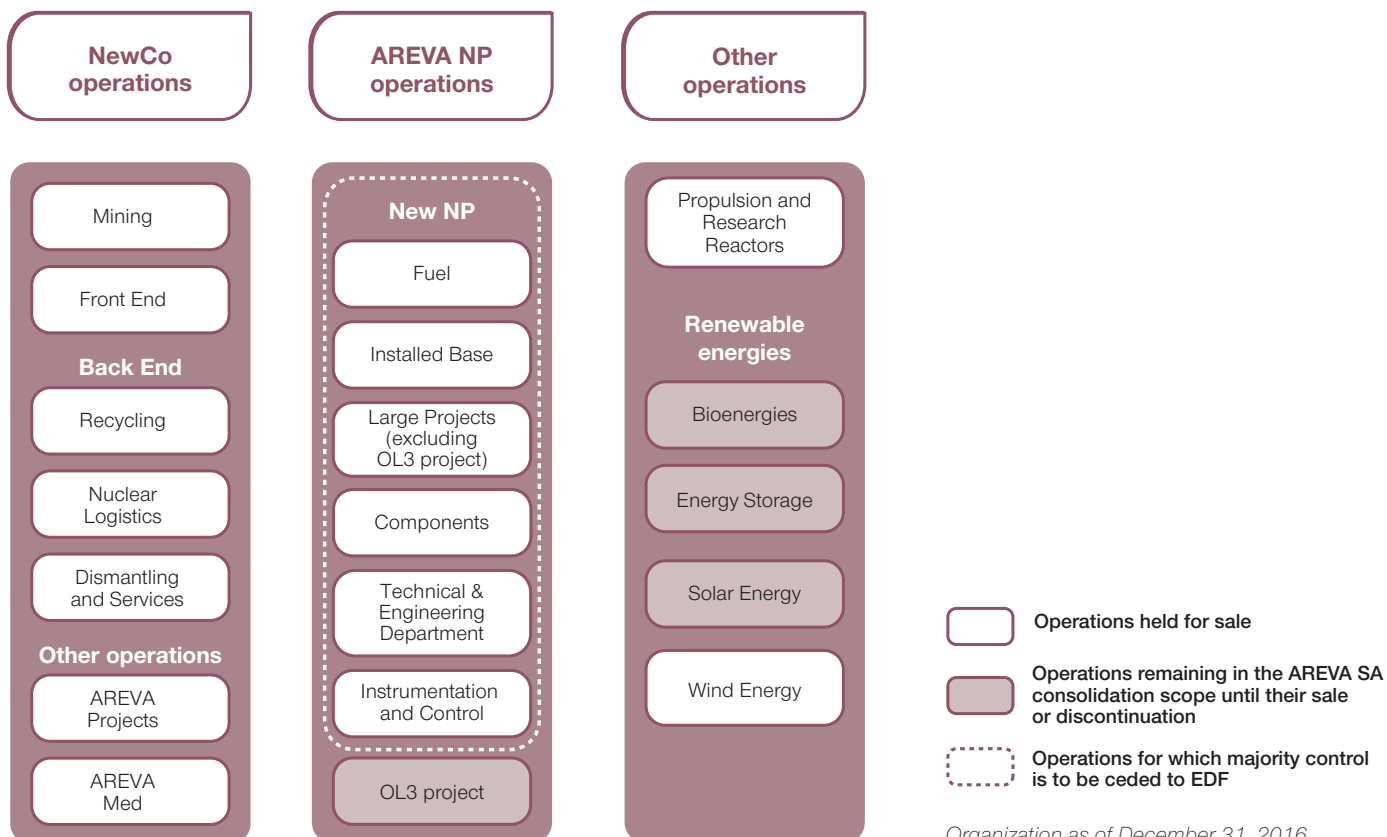
AREVA conducts its operations in the energy market, where global demand is propelled by the combined effects of demographic dynamism – particularly in emerging countries – and long-term economic growth, leading to access to energy for as many people as possible. Against that backdrop, nuclear power has several advantages to secure its position in the global energy mix: it is one of the few energies to limit carbon dioxide emissions, avoid the ups and downs of fossil energy markets, and meet demand for base load electricity.

Consistent with the divisions for the redefinition of the French nuclear industry, AREVA's consolidation scope was divided into separate scopes in 2016:

- New AREVA Holding, temporarily called NewCo, which combine all of the nuclear fuel cycle operations: mining, uranium chemistry and enrichment, used fuel recycling, logistics, dismantling and nuclear waste management;

- the AREVA NP operations, which cover the activities of fuel assembly design and fabrication as well as the design, supply, construction, servicing and upgrading of nuclear steam supply systems. In 2017, EDF should take a majority interest in these operations lodged within New NP (except for the OL3 contract) according to the memorandum of understanding and share purchase agreement signed in July and November 2016 respectively;
- other operations held for sale or remaining in the AREVA SA consolidation scope until they are sold or completed, including the OL3 contract.

#### SCOPE OF AREVA OPERATIONS AT DECEMBER 31, 2016



Source: AREVA.

Organization as of December 31, 2016



At December 31, 2016, the following operations meet the criteria in IFRS 5 for classification as "operations sold, discontinued or held for sale" and no longer contribute to the key financial indicators reported by AREVA:

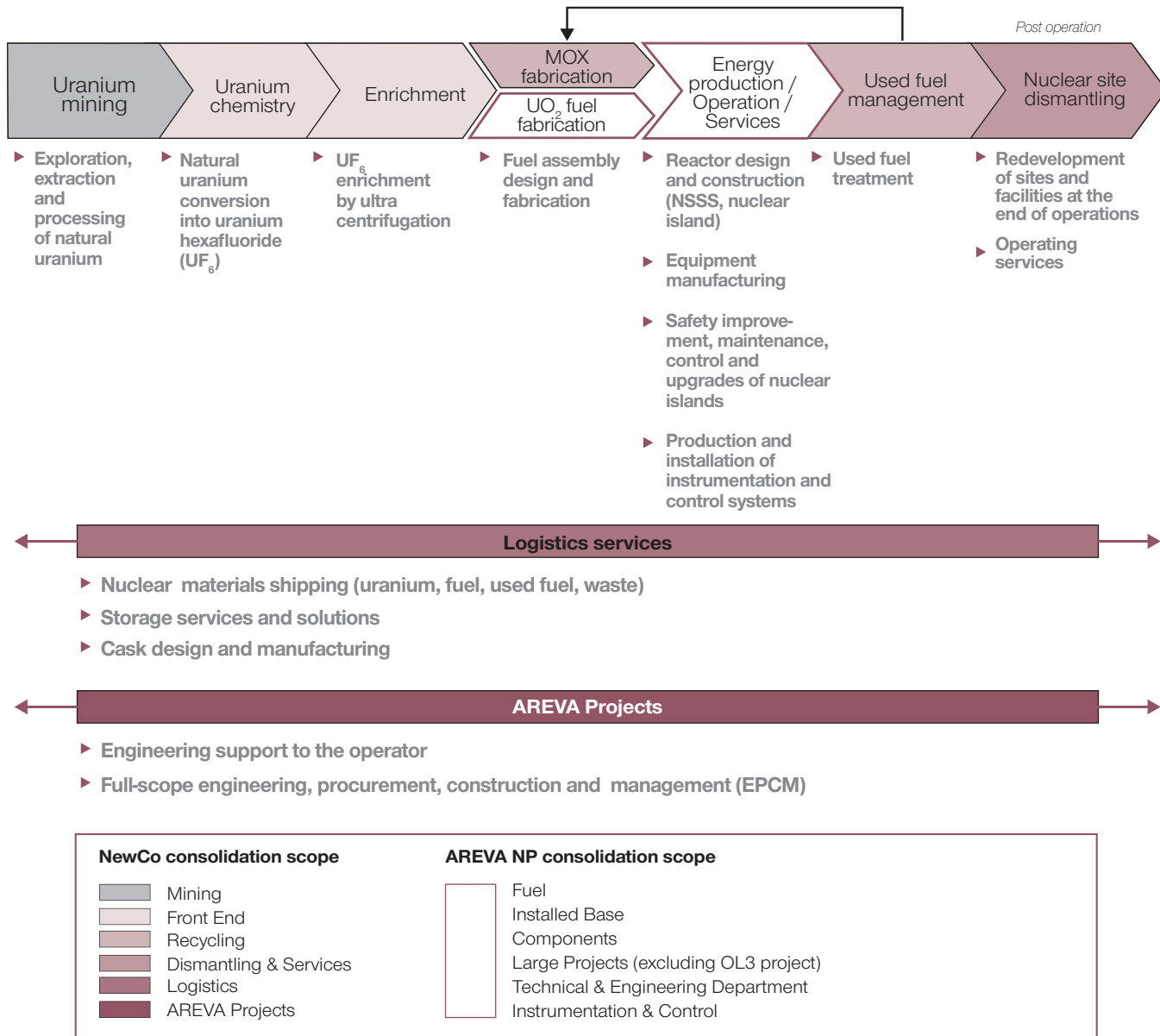
- New AREVA Holding, temporarily called "NewCo";
- AREVA NP (excluding the OL3 contract), corresponding to the "New NP" consolidation scope;
- Nuclear Measurements (Canberra);
- Propulsion and Research Reactors (AREVA TA);
- Solar Energy;
- Wind Energy (Adwen).

The bioenergy operations, which are to be discontinued, do not meet the criteria set by the accounting standards for classification in discontinued operations because of two ongoing contracts.

Details on the adoption of IFRS 5 are given in Section 9.2. *Situation and activities of the company and its subsidiaries by business segment during the year and in note 3 of the Notes to the consolidated financial statements.*

**THE GROUP'S BUSINESSES**

The group's operations in the nuclear power sector concern the following segments:



Source: AREVA.

### NEWCO OPERATIONS

Refocused on all of the nuclear fuel cycle operations, NewCo conducts operations in mining, in the front end with uranium chemistry (conversion) and enrichment, in the back end with used fuel treatment and recycling, logistics and dismantling, and in Corporate and other operations:

- present on five continents, the Mining operations include exploration for new deposits, mining and milling of the uranium ore, and site rehabilitation after the operating period. AREVA is currently a leader in uranium production and has a diversified portfolio of operating mines in Canada, Kazakhstan and Niger and projects under development or in operation in Africa, Canada and Mongolia;
- the Front End operations (Chemistry and Enrichment) combine all of the operations related to uranium chemistry, in particular uranium conversion and enrichment services. NewCo is a major player in these operations, backed by the renewal of its Comurhex II conversion plant and Georges Besse II enrichment plant;
- the Back End operations combine the following:
  - the Treatment and Recycling operations offer solutions consisting mainly of treating fuel that has been used in reactors in order to reuse recoverable materials. The group's technological and industrial lead in this field make it a major player in markets in the back end of the nuclear fuel cycle and enable it to comply with the highest standards of nuclear, industrial and occupational safety,
  - the Logistics operations combine two main businesses: the design and manufacturing management of casks and specialized equipment for the shipment and/or storage of nuclear waste and materials, and the organization and execution of shipments of nuclear waste and materials and the management of the logistics chain, including that of the related equipment fleet,
  - the Dismantling and Services operations offer customers tailor-made solutions covering the entire value chain of its two operating segments: nuclear facility dismantling and services to nuclear operators;
- the Corporate function and other operations of NewCo mainly cover two groups of operations:
  - the operations of AREVA Projects, which concentrates nuclear fuel cycle engineering expertise for the group's facilities and for external customers. Services range from engineering for operator support to full engineering, procurement, construction and management (EPCM) assignments,
  - the operations of AREVA Med, which develops new therapies to fight cancer.

### AREVA NP'S OPERATIONS

The consolidation scope of AREVA NP, within the future company temporarily called "New NP", combines the following operations:

- the Fuel Business Unit designs and fabricates nuclear fuel and provides related services for pressurized water reactors (PWR) and boiling water reactors (BWR);
- the Large Projects Business Unit (excluding the OL3 project) is involved in every phase of the design of nuclear steam supply systems and nuclear islands. Within AREVA NP, it is in charge of submitting proposals for new reactor projects and for executing those projects in terms of engineering and resources;
- the Component Business Unit's primary activity is the design and manufacture of mechanical and welded components for the nuclear island: heavy equipment and mobile equipment, including the large forgings and castings needed for their manufacturing;
- AREVA's Installed Base Business Unit offers customers a range of products and services to reduce the costs of operations and maintenance, enhance the safety and performance of their nuclear power plants, and prolong their operating period;
- the Instrumentation and Control Business Unit designs and supplies instrumentation and control systems and electrical systems during the construction and upgrading of nuclear reactors;
- the Technical and Engineering Department supports AREVA NP's operations regarding the design of nuclear steam supply systems and provides expertise to the different business units by developing key products and technologies in its laboratories and test centers, in response to the expectations of AREVA NP's customers.

The OL3 contract management operations, which will remain with AREVA NP, are tasked with completing the Olkiluoto 3 EPR reactor project in Finland with the necessary resources and in compliance with its contractual obligations. These operations are included in AREVA SA's continuing operations.

### OTHER OPERATIONS

Other operations combine two major areas:

- the Propulsion and Research Reactors operations carried by AREVA TA consist of the design, production and maintenance of nuclear reactors for marine propulsion for the French Navy and of the supply of related fuel, services and equipment. These operations are held for sale;
- as part of the group's refocusing on operations related to the fuel cycle, the strategy for the streamlining of and withdrawal from the renewables operations launched in 2013 accelerated in 2016. These operations – Bioenergies, Energy Storage, Wind Energy and Solar Energy – are destined to be sold or discontinued.

### 6.3.2. STRATEGY

Since the Fukushima accident in 2011, the group is facing a deteriorated market situation due to:

- the shutdown of reactors in Germany and the slow restart of reactors in Japan;
- excess capacity in the uranium, conversion and enrichment markets;
- the reduction in the maintenance budgets of power generating companies.

Energy demand fundamentals confirm the growth prospects for the nuclear market. According to available estimates, if the objectives of COP 21 are to be met, world nuclear generating capacity will have to double by 2040, led by the Asian market in particular.

The fundamentals of the nuclear market have changed in recent years:

- in mature nuclear markets (Europe and the United States), AREVA's traditional customers are under heightened economic pressure, which is passed on to suppliers. Profitability requirements and power plant aging are creating new demand in the utilities market;
- markets in the front end of the cycle (mining, chemistry, enrichment) have faced significant price reductions since 2011. Prices are expected to rise as supply and demand readjust and in response to the need to attract investment in new capacity;
- the management of environmental and financial issues in the back end of the cycle may open new growth opportunities for industrial companies over the medium term. For all countries with a significant nuclear power program, sustainable management of the back end of the cycle is becoming a priority and requires decisions on capital expenditure (whether in recycling, logistics or cleanup);
- in the new builds market, competition is becoming more pronounced, with some competitors benefitting from the growth of their essentially captive domestic markets (in particular South Korea and Russia) and from financial support for their projects. In addition, the redefinition of the French nuclear industry was undertaken because AREVA no longer has a sufficient capital base to carry the risk of a new reactor construction project alone, and because the operations of AREVA NP and EDF have overlapping skills in the nuclear island.

Given this situation, it has been decided to:

- combine the nuclear fuel cycle operations within NewCo;
- sell AREVA NP's operations to EDF (except for the OL3 contract) and to third-party investors. These activities, combined with New NP, should optimize the performance of the French nuclear industry and its global reach;
- launch a plan to create a joint entity between New NP and EDF devoted to the design and construction of nuclear islands for new reactors. This business combination will underpin an ambitious export policy and the future replacement of the French nuclear fleet.

#### NEWCO

In the next ten years, NewCo wants to be a leading player in the production and recycling of nuclear materials, in waste management, and in dismantling. NewCo will offer its customers innovative solutions and technologies in response to their challenges. It will become a competitive, profitable group across all of its businesses.

NewCo will remain an internationally positioned group servicing the French nuclear industry and its international customers, and will develop in the most dynamic regions of the nuclear markets, such as Asia.

These goals are expressed through three major priorities:

- create value for our customers by offering them competitive products, technologies and services that meet their current and future needs;
- put operational excellence at the heart of our daily management, relying on:
  - a simple organization and a short decision-making process,
  - management methods anchored in respect for standards, accountability, teamwork and presence in the field;
- foster innovation in every field (industrial, technological, commercial and organizational), in existing markets as well as new markets calling for nuclear materials and isotopes.

To meet these challenges, NewCo has real assets:

- an uncompromising culture of safety;
- a unique customer portfolio in the nuclear field;
- recognized industrial expertise and renewed facilities;
- benchmark technologies and expertise that is unique in the world;
- men and women recognized for their skills, their commitment and their ability to meet challenges.

#### NEW NP

In the next ten years, New NP's goal is to be a leading supplier of the nuclear steam supply system, equipment, services and fuel, with high levels of safety and performance.

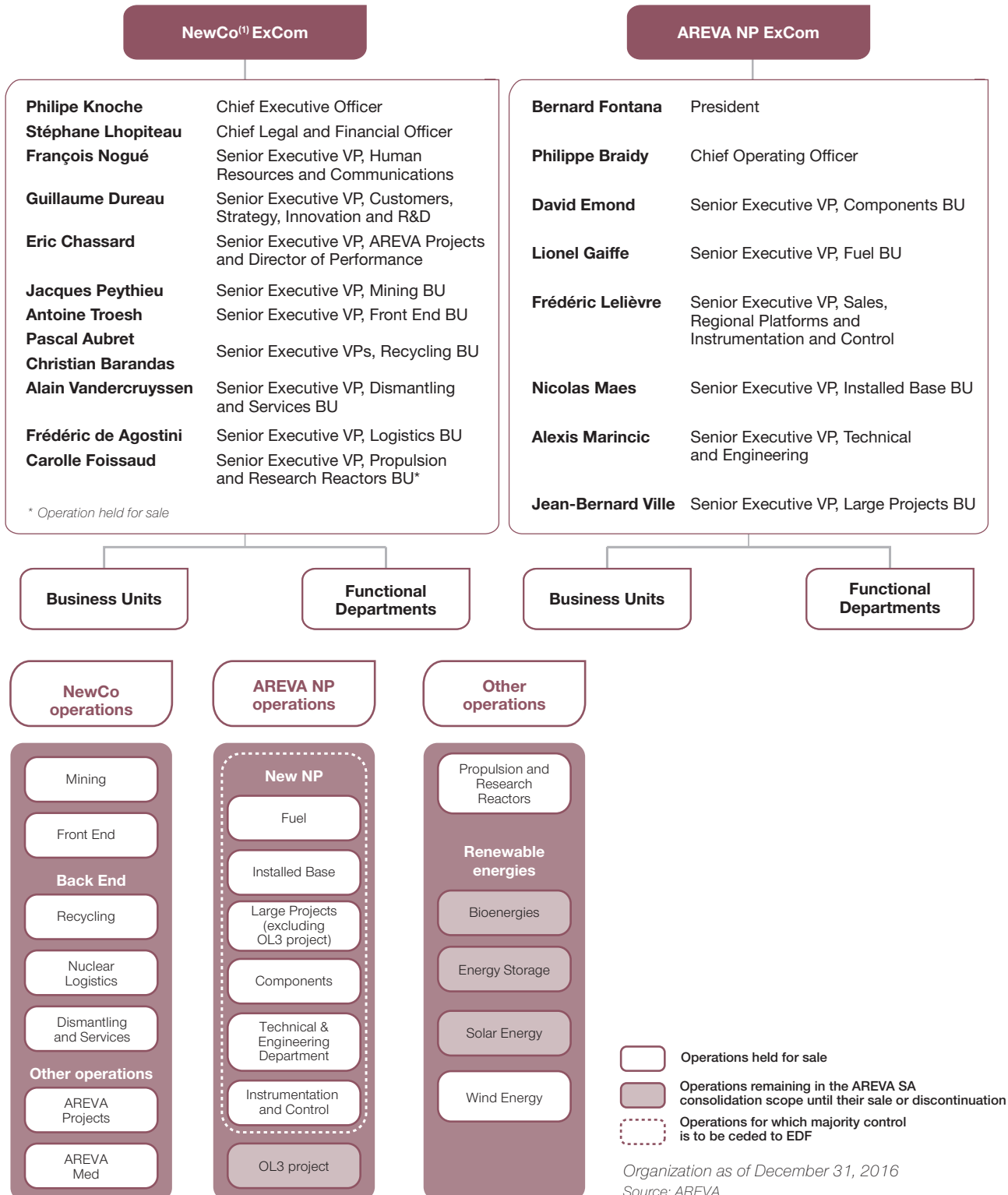
New NP's future development will have three major thrusts:

- offering innovative solutions and value-adding technologies contributing to safety enhancement and the achievement of its customers' economic and societal objectives;
- being a leader in commercial and operational excellence, both for manufacturing and for project execution, ensuring a high level of safety;
- ensuring the professional skills of its employees and maintaining their commitment in a demanding and rewarding work environment.

This development will occur within the context of the sale of a majority interest in New NP's operations to EDF and the plan to create a joint entity devoted to the completion of nuclear islands for new reactor projects. This plan should enable the development of industrial synergies with EDF while complying with applicable regulations on competition, and would preserve the integrity of New NP's skills in nuclear steam supply systems.

### 6.3.3. OPERATING ORGANIZATION

Since July 1, 2016, AREVA has been organized into two separate operating entities, NewCo<sup>(1)</sup> and AREVA NP, each with an Executive Committee.



(1) NewCo: temporary name of the entity which combines all of the operations of AREVA related to the nuclear fuel cycle, whose legal name is New AREVA Holding.

## 6.4. OPERATIONS

### 6.4.1. NEWCO'S OPERATIONS

Refocused on all of the nuclear fuel cycle operations, New AREVA Holding, temporarily called "NewCo", operates in Mining, in the Front End, in the Back End of the Cycle and in other areas. Pursuant to the IFRS 5 accounting standard, these operations are consolidated in "operations sold, discontinued or held for sale" due to the loss of AREVA SA's control of NewCo once the capital increase of the latter has been carried out, and therefore no longer contribute to the key financial indicators reported by the group.

#### 6.4.1.1. MINING

##### Key figures

	2016	2015
Revenue* (in millions of euros)	1,451	1,447
Operating income (in millions of euros)	183	183
Workforce at year end**	3,449	3,536

\* Contribution to consolidated revenue.

\*\* Workforce consistent with the breakdown by operation shown in Chapter 17, Employees.

##### Businesses

The group's mining operations involve uranium, a metal which in its natural state contains two main isotopes: more than 99% is non-fissile uranium-238, while fissile uranium-235 accounts for 0.7%. The latter is used after enrichment to make fuel for nuclear reactors.

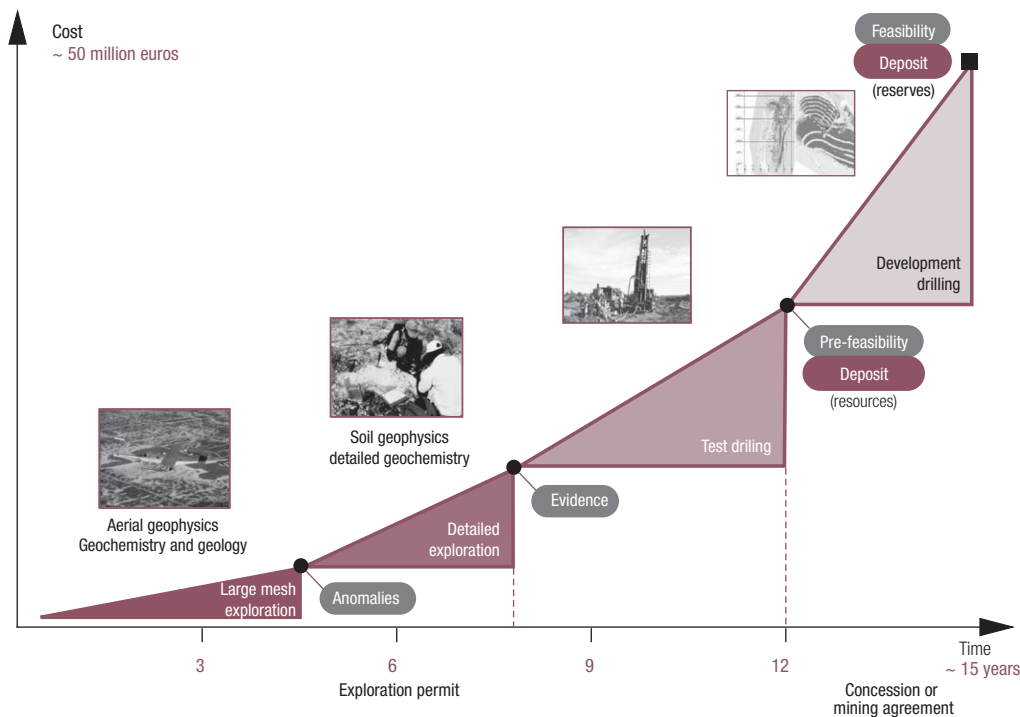
The company holds the AREVA group's key interests in mining operations in the following key operating businesses:

- exploration: seeking new deposits for the future;
- mining projects: mine development and construction;
- operations: extraction of uranium ore using various mining techniques, and ore processing (chemical concentration of natural uranium);
- site rehabilitation after operations: rehabilitation of mine sites following applicable environmental standards.

AREVA Mines is in charge of marketing the uranium extracted by the mining companies.

Mining operations cover long cycles requiring substantial capital expenditure over several years before mining operations themselves begin, the first deliveries of uranium are made and the first income is received. Then cash flow increases before once again falling off in the final years of operation, followed by rehabilitation of the sites operated.

#### BUSINESS MODEL OF A URANIUM DEPOSIT, FROM EXPLORATION TO MINING FEASIBILITY\*



\* Duration given for information purposes only; may vary considerably depending on context.  
Source: AREVA.

The first phases of exploration consist of detecting surface or subterranean mineral indices using aerial or ground geophysics (gravimetry, electromagnetics, radiometry) as well as surface geological surveys. AREVA selects targets for their promising geological history. This is followed by test drilling which, if the results are positive, is used to develop an initial estimate of the deposit's resources.

Once the attractiveness of the deposit has been confirmed, the drilling grid is tightened to refine the estimate of resources and confirm their mining feasibility, both technically and economically.

This work, which requires an exploration permit that eventually confers mining rights, take an average of 10 to 15 years.

Once the technical and economic feasibility of mining projects has been demonstrated, mining facilities are built and uranium ore is mined in an open pit, an underground mine, or by in-situ recovery (see *Glossary*), depending on the characteristics of the deposit.

- Whether for open pit or underground mines, the extracted ore is milled and leached, usually with acidic solutions. Leaching may be static (heap leaching) or dynamic. In the processing plant, the uranium is extracted from the resulting solutions using solvent extraction techniques or by fixation on ion exchange resins. The purified uranium is then precipitated and dried to produce a uranium concentrate called "yellowcake". This product is packaged and shipped to the conversion plant of the customer's choice.
- The in-situ recovery technique is used when the confinement and permeability properties of the deposit allow the uranium to be dissolved directly in the ground. In that case, oxidizing solutions are pumped into the ore bed between injection wells and producing wells. The resulting solution is pumped to the surface and processed in the same manner as for open pit or underground mines.

Mining rehabilitation is an important activity that calls for specific mining and civil engineering techniques and involves many areas of expertise. The purpose of this activity is to minimize the residual environmental impacts of the mining sites with a view to sustainable development.

The environmental impacts of mining operations must be monitored and limited throughout the development and production cycle.

## Operations and highlights

Key events in 2016 in the Mining Business Unit were as follows:

- in April, Katco produced its 30,000<sup>th</sup> metric ton of uranium. Its operations began in 2004 and reached 4,000 metric tons of uranium per year starting in 2013;
- in June, AREVA received the regulatory permit from the Canadian government to increase the production of uranium concentrates at the McClean Lake mill up to 24 million pounds of U<sub>3</sub>O<sub>8</sub>;
- in July, AREVA was authorized to transfer the mining licenses from Cogegobi to the operating company AREVA Mines LLC. The process for activating the AREVA Mines LLC joint venture, enabling the transfer of 34% of the state company Mon-Atom, is in progress;
- in July, AREVA published its Responsible Growth Report for the mining operations on a dedicated website for the second time (<http://www.rse-mines.areva.com>). This report is audited by an independent third party to confirm AREVA Mines' alignment with the guidelines of the International Council on Mining and Metals (ICMM), including the ten sustainable development principles. It also meets the standards of the Global Reporting Initiative (GRI), an internationally recognized non-financial reporting benchmark.

The Cigar Lake mine in Canada confirmed its ramp-up this year, ahead of forecasts, with 17 million pounds of uranium concentrates produced in 2016.

Good progress was also made in 2016 on the competitiveness plan set up in early 2015 to cope with the deteriorated market conditions.

By controlling its production costs and the level of its capital expenditure, the Mining business maintained good operating and financial performance in 2016, despite a context of falling prices.

In 2016, AREVA produced 8,432 metric tons of uranium in AREVA's equity share, corresponding to 10,739 metric tons of uranium in financial consolidation share:

- Somair produced 2,164 metric tons of uranium (on a 100% basis) (AREVA's share: 63.4%);
- Cominak produced 1,313 metric tons of uranium (on a 100% basis) (AREVA's share: 34%);
- Katco produced 4,002 metric tons of uranium (on a 100% basis) (AREVA's share: 51%);
- McArthur River/Key Lake produced 6,944 metric tons of uranium (on a 100% basis) (AREVA's share: 30.2%);
- Cigar Lake produced 6,665 metric tons of uranium (on a 100% basis) (AREVA's share: 37.1%).

**2016 PRODUCTION IN METRIC TONS OF URANIUM (MTU)**

Country	Site	Financial consolidation share 2016 MTU	Type <sup>(1)</sup>
Canada	McArthur River	2,097	UG
Canada	Cigar Lake	2,473	UG
<b>Total</b>	<b>Canada</b>	<b>4,570</b>	
France	Lodève	3	NA
<b>Total</b>	<b>France</b>	<b>3</b>	
Kazakhstan	Katco	4,002	ISR
<b>Total</b>	<b>Kazakhstan</b>	<b>4,002</b>	
Niger	Cominak <sup>(2)</sup>	-	UG
Niger	Somaïr	2,164	OP
<b>Total</b>	<b>Niger</b>	<b>2,164</b>	
<b>TOTAL</b>		<b>10,739</b>	

(1) Type of operation: ISR: In Situ Recovery; OP: Open Pit; UG: Underground; n.d.: not defined.

(2) Cominak has been consolidated under the equity method since January 1, 2014.

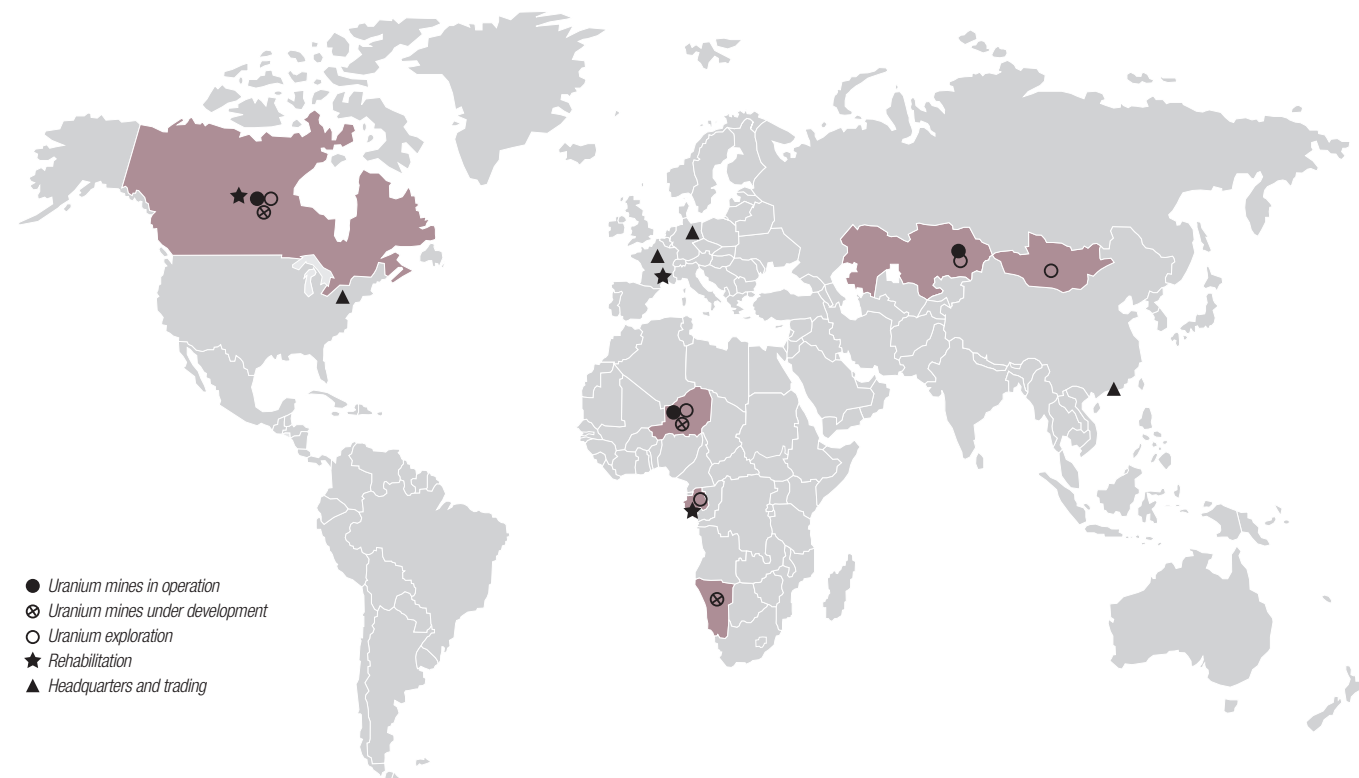
Source: AREVA.

**Human and industrial resources**

AREVA's diversified portfolio of mining assets and resources is an important factor in security of supply for utilities seeking long-term guarantees of uranium supply.

The Mining business has staff in several countries. The uranium production sites are located in three countries: Canada, Niger and Kazakhstan.

**MAIN SITES OF THE MINING BUSINESS GROUP**



Source: AREVA.

### Canada

AREVA has been present in Canada through its different mining operations for more than 50 years.

In Canada, AREVA's production comes from the McArthur River and Cigar Lake mines operated by Cameco. These sites are located approximately 700 kilometers north of Saskatoon in Saskatchewan Province. AREVA is conducting a major exploration program in this uranium-rich province, where it also holds majority interests in several deposits: a 70% interest in McClean Lake, a 51% interest in Shea Creek, a 69.16% interest in Midwest, and a 65.01% interest in Kiggavik.

Additional studies are required to determine the development schedules for these deposits, which will depend on uranium market conditions.

#### MCARTHUR RIVER

McArthur River is operated as a joint venture by Cameco, which holds a 69.805% interest (AREVA's share: 30.195%). Together with Cigar Lake, McArthur River has the world's largest mining production capacity. The deposit was discovered in 1988 and mining began in December 1999.

Located more than 600 meters below the surface, and in view of the very high-grade uranium it contains, the deposit cannot be mined with conventional methods. The miners are protected from direct contact with the ore by the use of special mechanical mining methods (raise boring and long hole stoping), and the ground is frozen to prevent water infiltration. The mined ore is processed at the Key Lake mill, about 80 kilometers south of the deposit. The mill is operated by Cameco, which holds an 83.33% interest (AREVA holds 16.67%). McArthur River and Key Lake have a combined capacity of 7,700 metric tons of uranium per year (20 million pounds of  $U_3O_8$ ; for information, 1 kilogram of natural uranium equals approximately 2.6 pounds of  $U_3O_8$ ).

#### CIGAR LAKE

Cigar Lake is owned by a joint venture consisting of Cameco Corporation (50.025%), AREVA (37.1%), Idemitsu Uranium Exploration Canada Ltd (7.875%) and Tepco Resources Inc. (5%). The deposit is operated by Cameco. Cigar Lake is the world's richest uranium deposit. The ore is processed in the McClean Lake mill operated by AREVA.

AREVA discovered the deposit in 1981 and helped develop the mining method. In view of its location 450 meters below the surface and the very high-grade uranium it contains, the deposit cannot be mined with conventional methods. Freezing techniques are used to strengthen the ground and prevent water infiltration. The selected mining method involves removing the ore by high-pressure jet boring. All infrastructure drifts are located in more solid rock under the deposit to position equipment, drill to freeze the ground, and mine it by jet boring.

With more than 17 million pounds of uranium concentrates produced in 2016, production ramp-up at the Cigar Lake mine continues to achieve production levels exceeding the forecasts, despite the highly innovative nature of the techniques used.

At full capacity, Cigar Lake should produce 6,900 metric tons of uranium per year (18 million pounds of  $U_3O_8$ ), a level which should be reached starting in 2017, just three years after the restart of the Cigar Lake mine.

#### McCLEAN LAKE

AREVA operates McClean Lake and is a 70% owner alongside Denison Mines Ltd (22.5%) and Overseas Uranium Resources Development Company Ltd of Japan (Ourd, 7.5%).

The first uranium production at the McClean Lake open pit mine began in 1995, and uranium concentrate production began at McClean Lake's Jeb mill in 1999. Mining operations were stopped in early 2009. The mill was designed to process very high-grade ore (> 15%); its capacity was raised in order to receive all of the ore

from Cigar Lake. Under an agreement signed in 2011 between the partners of Cigar Lake and McClean Lake, the Jeb mill processes all of the ore from the Cigar Lake mine. The mill was restarted in October 2014 for that purpose, and its ramp-up to nominal capacity is in step with that of mining production, i.e. 18 million pounds of uranium concentrates per year (6,900 metric tons of uranium).

In June 2016, AREVA received the regulatory permit from the Canadian government to increase the production of uranium concentrates at the McClean Lake mill up to 24 million pounds.

### Niger

Exploration teams from the CEA detected the presence of uranium in Niger at the end of the 1950s. The uraniumiferous area is located west of the Air granitic body near the city of Arlit.

Close to 1,800 people work at Somair and Cominak, not including subcontractors. Along with jobs, the operating companies provide health, social and educational services to the local communities in this isolated area.

Cominak and Somair have delivered uranium to their customers without interruption since operations began in the 1970s.

AREVA also owns the Imouraren project (see below), one of the world's largest deposits with 174,196 metric tons of uranium in reserves after application of the ore yield with a grade of 700 ppm.

In accordance with the strategic partnership agreement signed between the State of Niger and AREVA on May 26, 2014:

- the mining agreements for Somair and Cominak were renewed until the end of 2018 within the framework of the Nigerien mining law of 2006 (with neutralization of the value-added tax);
- a Joint Strategy Committee was set up and will determine the schedule for the start of production of Imouraren as a function of the market trend, since current uranium prices do not allow the deposit to be operated profitably;
- AREVA will provide financial support to local infrastructure and development projects:
  - funding of part of the Tahoua-Arlit road renovation,
  - funding of the construction of an office building to house the headquarters of the mining companies,
  - strengthening of an agricultural development program in the Irhazer Valley of northern Niger

#### SOMAIR

Société des mines de l'Air (Somair, the mining company of the Air) was established in 1968. The company is operated by AREVA, which owns 63.4% of the shares; the remaining 36.6% is held by Société du patrimoine des mines du Niger (Sopamin, the Nigerien government's mining company).

Somair has operated several uranium deposits near the city of Arlit since 1971. The ore is extracted from open pit mines and heap leached or processed mechanically at the head end of the Arlit mill. In both cases, the uranium solutions are treated in the mill's downstream process. Given the current characteristics of the ore processed, capacity is in the range of 2,000 and 2,200 metric tons per year.

#### COMINAK

Cominak (Compagnie Minière d'Akouta) is 34% owned by AREVA, which operates it. The other shareholders are Sopamin of Niger (31%), Ourd (25%), and Enusa Industrias Avanzadas SA of Spain (Enusa, 10%). The ore is extracted underground and is then processed in the site's mill, for a capacity of approximately 1,400 metric tons of uranium per year (3.6 million pounds of  $U_3O_8$ ).



**IMOURAREN PROJECT**

Located 80 kilometers south of Arlit, this deposit was discovered in 1966 and constitutes one of the largest deposits in the world today (reserves of 174,196 metric tons of uranium after recovery). The feasibility study was completed in December 2007 and submitted in April 2008. AREVA received the mining permit for the deposit in early January 2009. The Imouraren SA mining company was established, with AREVA NC Expansion (86.5% AREVA and 13.5% Kepco/KHNP) holding a 66.65% interest and Sopamin and the government of Niger holding the remaining 33.35%.

In view of market conditions, production startup work has been suspended. The site, equipment and facilities are currently mothballed, and all demobilization operations together with implementation of the restructuring plan were completed in the first quarter of 2015.

The project will restart when uranium market conditions permit. A strategy committee set up by the State of Niger and AREVA regularly reviews these conditions.

**Kazakhstan**

Katco was established in 1997 to develop and mine the Muyunkum and Tortkuduk deposits in southern Kazakhstan, approximately 250 kilometers north of Shymkent.

The shareholders are AREVA (51%) and the Kazakh company Kazatomprom (49%), the national natural uranium producer of Kazakhstan.

Industrial development of the two sites, located approximately 60 kilometers apart, started in April 2004 after the signature of agreements between the two shareholders. The in-situ recovery (ISR) technology was chosen to solubilize the uranium directly in the rock.

In 2008, Katco received a permit to raise production to 4,000 metric tons of uranium per year; it has maintained this level since 2013. Since 2015, Katco has continued studies and work aimed at bringing the South Tortkuduk deposit into production;

this deposit is located between two deposits currently in production. The request to register South Tortkuduk resources and reserves in the State of Kazakhstan's records is under review and constitutes the first stage of development of this deposit.

**Namibia**

AREVA has owned 100% of the Trekkopje deposit in Namibia since its acquisition in 2007. In 2012 and 2013, a pilot phase demonstrated the feasibility of the selected technical solutions and confirmed the production cost objectives. Nonetheless, the deterioration of uranium market conditions prompted AREVA to mothball the project in October 2012.

**Mongolia**

For more than 15 years, AREVA has successfully conducted mineral exploration work in the Sainshand basin at two sites, Dulaan Uul and Zoovch Ovoo.

Following an initial feasibility study, mining licenses were granted for the Dulaan Uul and Zoovch Ovoo deposits in June 2015 to Cogegobi, the subsidiary of AREVA Mongol<sup>(1)</sup> that will lead AREVA's exploration operations.

In 2016, these mining licenses were transferred to AREVA Mines LLC, which will be held by AREVA Mongol1 (66%) and by Mon-Atom (34%), a public company under the supervision of the State Properties Commission. Subject to the upcoming activation of the joint venture, these licenses will enable the start of detailed technical and economic studies, in particular the creation of a pilot site at Zoovch Ovoo using the in-situ recovery (ISR) technology.

**Gabon**

In Gabon, exploration work resumed a few years ago at AREVA's former mining sites and continued in 2016.

(1) The shareholders of AREVA Mongol are CFMM, a wholly owned company of AREVA Mines (66%), and Mitsubishi Corporation (34%).

**AREVA'S EQUITY INTERESTS IN URANIUM PROJECTS**

Country	Site	Type*	Operator	AREVA's equity share (%)	Financial consolidation** (%)
Canada	Cigar Lake	UG	Cameco	37.10%	37.10%
Canada	Dawn Lake	NA	Cameco	23.09%	23.09%
Canada	Key Lake	OP/UG	Cameco	16.67%	16.67%
Canada	Fox Lake	NA	Cameco	21.76%	21.76%
Canada	Kiggavik-Sissons Schultz	OP/UG	AREVA	65.01%	65.01%
Canada	McArthur River	UG	Cameco	30.195%	30.195%
Canada	McClellan Lake	OP	AREVA	70.00%	70.00%
Canada	Midwest	OP	AREVA	69.16%	69.16%
France	AREVA Mines	NA	AREVA	100.00%	100.00%
Kazakhstan	Katco	ISR	AREVA	51.00%	100.00%
Mongolia	Zoovch Ovoo	ISR	AREVA	43.56% <sup>(1)</sup>	100.00%
Mongolia	Dulaan Uul	NA	AREVA	43.56% <sup>(1)</sup>	100.00%
Namibia	Trekkopje Project	OP	AREVA	100.00%	100.00%
Niger	Arlit Concession	NA	AREVA	100.00%	100.00%
Niger	Cominak	UG	AREVA	34.00%	-
Niger	Imouraren	OP	AREVA	57.66%	100.00%
Niger	Somaïr	OP	AREVA	63.40%	100.00%
Central African Republic	Bakouma	OP	AREVA	100.00%	100.00%

\* Type of operation: ISR: In Situ Recovery; OP: Open Pit; UG: Underground; n.d.: not defined.

\*\* Share of production consolidated in AREVA's financial statements in 2016.

(1) After activation of the AREVA Mines LLC joint venture, expected in 2017.

Source: AREVA

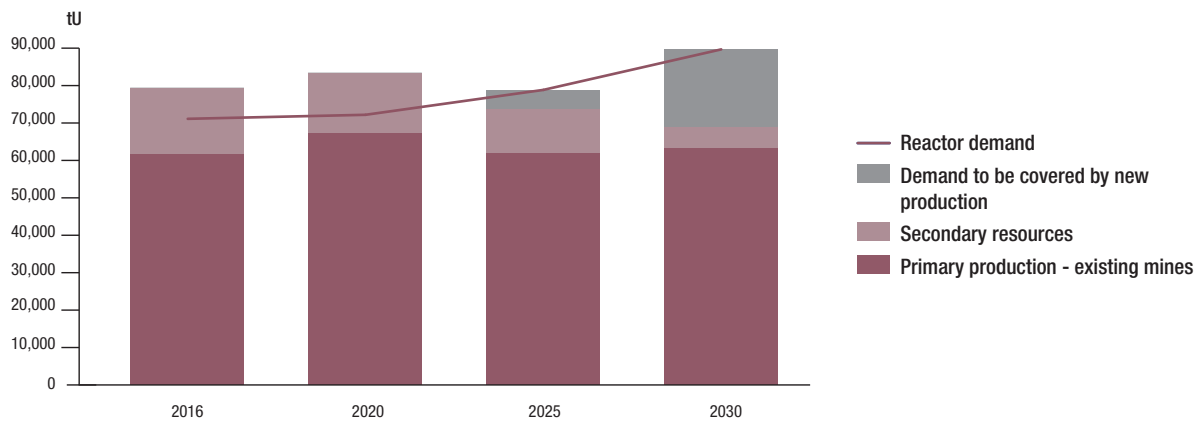
**Market and competitive position****Market**

Reactor requirements amounted to approximately 63,500 metric tons of uranium in 2016 (requirements expressed in natural uranium equivalent; source: UxC Q4 2016), slightly up compared with 2015.

Supply consists of:

- mining production, which was approximately 61,900 metric tons of uranium, a small 2% increase compared with 2015 (source: AREVA analyses);
- secondary resources estimated at a total of 17,700 metric tons according to UxC coming from materials produced by used fuel recycling; the marketing of uranium inventories of the US (DOE) and Russian governments; re-enriched depleted uranium; and low-enriched uranium from enrichment companies.

**WORLD SUPPLY AND DEMAND IN 2016**



Source: UxC Q4 2016.

**Estimated global production in 2016**

**TOP TEN URANIUM PRODUCING COUNTRIES**

Rank	Producer	Production (MTU)	% *
1	Kazakhstan	24,700	40%
2	Canada	14,000	22%
3	Australia	5,900	9%
4	Niger	3,500	6%
5	Namibia	3,500	6%
6	Russia	3,000	5%
7	Uzbekistan	2,400	4%
8	China	1,600	3%
9	United States	1,100	2%
10	Ukraine	1,000	1%
<b>TOTAL TOP 10</b>		<b>60,700</b>	<b>98%</b>
	Other	1,200	2%
	<b>Global production</b>	<b>61,900</b>	<b>100%</b>

Source: Annual reports from the different companies (rounded to the nearest 100 metric tons) and AREVA estimates.

\* Rounded to 100 bp.

**TOP TEN URANIUM PRODUCERS**

Rank	Producer	Available share of production* (MTU)	% **
1	Kazatomprom	12,000	19%
2	Cameco	10,500	17%
3	AREVA	9,300	15%
4	ARMZ/Uranium One	7,900	13%
5	BHP Billiton	3,200	5%
6	Rio Tinto	2,400	4%
7	Navoi	2,400	4%
8	CNNC	2,100	4%
9	Paladin	1,400	2%
10	CGNPC	1,300	2%
<b>TOTAL TOP 10</b>		<b>52,500</b>	<b>85%</b>
	Other	9,400	15%
	<b>Global production</b>	<b>61,900</b>	<b>100%</b>

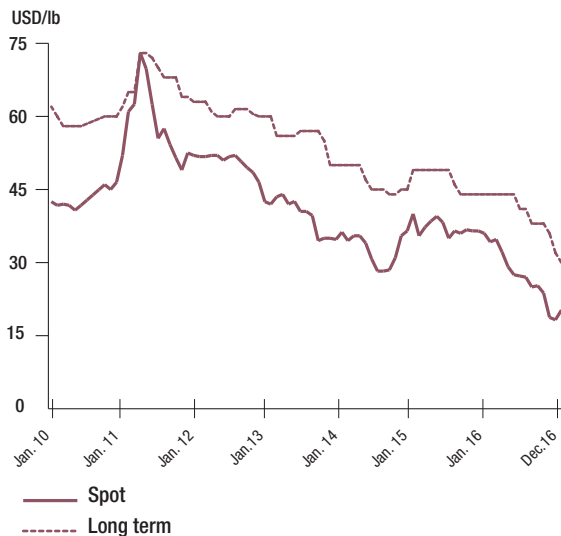
Source: Annual reports from the different companies (rounded to the nearest 100 metric tons) and AREVA estimates.

\* Quantity of uranium likely to be sold/distributed to producers by their respective mining joint ventures.

\*\* Rounded to 100 bp.

In 2016, AREVA produced 9,300 metric tons of uranium (in available share of production).

### URANIUM PRICE INDICATORS 2010-2016 (IN CURRENT US DOLLARS)



Sources: UxC, Uranium market outlook Q4 2016.

The spot market, which covers approximately 15% of uranium supply, varied between \$18 and \$34 per pound, ending the year at \$20 per pound (-40%). These historically low levels are explained by an imbalance between supply and demand which was accentuated in 2016 by the drop in Chinese imports. The long-term indicator, which reflects the signature of multi-year contracts for deliveries starting a few years from now, fell in 2016, ending the year at \$30 per pound versus \$44 per pound at the end of 2015.

With market indicators in decline since Fukushima, producers have announced numerous project postponements, closures and/or the mothballing of producing mines, and reduced production, particularly Cameco and Paladin in 2016. This restructuring is expected to continue in the coming years.

Longer term, the market is still expected to grow, with demand 25% higher in 2025 than in 2015 according to the World Nuclear Association (WNA), led in particular by the restart of the Japanese reactors and growing reactor requirements from the Chinese nuclear program. Rising demand is expected to raise market prices and enable new projects to be launched.

## Resources, reserves and production sites

### Uranium

The mineral reserves of AREVA's deposits totaled 181,875 metric tons of uranium at December 31, 2016 (AREVA's equity share), versus 181,189 metric tons of uranium at December 31, 2015 (AREVA's equity share).

The volume of the best-known resources (measured and indicated resources) was 124,756 metric tons of uranium at December 31, 2016 (AREVA's equity share), versus 98,641 metric tons of uranium at December 31, 2015 (AREVA's equity share). The volume of inferred resources available to AREVA totaled 151,123 metric tons of uranium at December 31, 2016 (AREVA's equity share), versus 178,205 metric tons of uranium at December 31, 2015 (AREVA's equity share).

### ESTIMATING METHODS

AREVA's resources and reserves are estimated based on data gathered by the group's teams or taken from audited reports. An internal group department is in charge of these estimates.

The mission of the Resources and Reserves Committee, which reports to Management, is to validate the schedule for updating resources and reserves; to validate the resources and reserves reported by AREVA each year; and to ensure that the means, organization, and internal and external estimating methods enable a comprehensive and objective estimate of resources and reserves, in accordance with international practices.

In Canada, the group's reserves are the subject of independent estimates or audit reports by the shareholders of the companies operating the mines.

In 2010, AREVA decided to conform to international standards for the classification of its resources and reserves. At December 31, 2016, 100% of its resources and 99% of its reserves were in conformance.

### Definition of resources

**Mineral Resources:** Concentrations whose form, quantity and grade or quality are such that they present reasonable prospects for economic recovery. The location, quantity, grade, geological characteristics and continuity of the mineral resources are known, estimated, or interpreted based on specific geological evidence and data. Mineral resources are subdivided into resources that are measured, indicated and inferred.

**Measured Resources:** Share of mineral resources for which the characteristics<sup>(1)</sup> are known such that they can be estimated with a high level of confidence to enable appropriate application of technical and economic parameters to support production planning and assessment of the economic viability of the deposit. The estimate is based on detailed, reliable information and a sufficient volume of information to confirm both the continuity of the geology and the grades.

**Indicated Resources:** Share of mineral resources for which the characteristics<sup>(1)</sup> are known such that they can be estimated with a sufficient level of confidence to enable appropriate application of technical and economic parameters to support mining operation planning and assessment of the economic viability of the deposit. The estimate is based on detailed, reliable information and a sufficient volume of information to issue a reasonable assumption on the continuity of the geology and the grades.

**Inferred Resources:** Share of mineral resources for which the quantity and grade can be estimated based on geological evidence and limited sampling, and which can be reasonably used for assumptions of geological continuity and grades, without however verifying them.

### Definition of reserves

**Mineral Reserves:** Economically and technically recoverable share of measured or indicated mineral resources, as demonstrated by at least one preliminary feasibility study or mining project. The study includes adequate information about mining and processing operations, metallurgy, economic aspects and other relevant factors demonstrating that mining is profitable at the time the report was written. Mineral reserves include dilution factors and the allowance for mining losses which may be incurred during mining operations.

**Proven Mineral Reserves:** Economically and technically recoverable share of measured mineral resources.

**Probable Mineral Reserves:** Economically and technically recoverable share of indicated mineral resources and, in some cases, of measured mineral resources.

(1) Tonnage, grade, density, form and physical characteristics.

**Significant changes in relation to 2015 (AREVA's equity share)**

Aside from the depletion of production, the following changes (AREVA's equity share) occurred:

- a significant increase in resources at the Zoovch Ovoo deposit in Mongolia, with 12,836 metric tons of uranium classified in indicated resources and 60,809 metric tons of uranium classified in inferred resources at December 31, 2016, versus 50,000 metric tons of inferred resources at December 31, 2015.

As a reminder, historical estimates of resources for the Midwest deposit in Canada, which were done before the adoption of international standards, totaled about 10,000 metric tons of uranium (AREVA's equity share). This deposit, which has good potential, will require additional work to establish a resource estimate that conforms to international standards.

**MINERAL RESERVES IN THE GROUND IN METRIC TONS OF URANIUM (MTU) (YEAR-END 2016 ESTIMATES)**

Country	Site	Proven			Probable			Total reserves				
		Ore KT	Grade %oU	Metal MTU	Ore KT	Grade %oU	Metal MTU	Ore KT	Grade %oU	Metal MTU	Recovery %	Metal (after application of yields) MTU
Canada	Cigar Lake	210	168.45	35,306	404	117.37	47,395	613	134.82	82,701	98.50%	81,460
Canada	Key Lake	67	4.26	287	0	0.00	0	67	4.26	287	98.70%	283
Canada	McArthur River	1,185	81.19	96,203	563	81.73	45,983	1,747	81.37	142,186	98.70%	140,338
Canada	McClellan	88	3.00	262	1	43.20	22	88	3.23	284	95.71%	272
<b>Canada</b>	<b>Total</b>	<b>1,549</b>	<b>85.23</b>	<b>132,059</b>	<b>967</b>	<b>96.60</b>	<b>93,399</b>	<b>2,516</b>	<b>89.60</b>	<b>225,458</b>	<b>98.62%</b>	<b>222,353</b>
Kazakhstan	Katco	0	0.00	0	13,170	0.74	9,743	13,170	0.74	9,743	85.64%	8,344
<b>Kazakhstan</b>	<b>Total</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>13,170</b>	<b>0.74</b>	<b>9,743</b>	<b>13,170</b>	<b>0.74</b>	<b>9,743</b>	<b>85.64%</b>	<b>8,344</b>
Niger	Cominak	1,284	3.16	4,058	1,375	3.38	4,643	2,659	3.27	8,702	93.10%	8,101
Niger	Imouraren	0	0.00	0	306,048	0.70	213,722	306,048	0.70	213,722	81.51%	174,196
Niger	Somair	521	0.70	364	2,253	1.26	2,841	2,774	1.15	3,205	78.30%	2,510
<b>Niger</b>	<b>Total</b>	<b>1,805</b>	<b>2.45</b>	<b>4,422</b>	<b>309,676</b>	<b>0.71</b>	<b>221,206</b>	<b>311,481</b>	<b>0.72</b>	<b>225,629</b>	<b>81.91%</b>	<b>184,807</b>
<b>TOTAL</b>		<b>3,355</b>	<b>40.68</b>	<b>136,481</b>	<b>323,813</b>	<b>1.00</b>	<b>324,348</b>	<b>327,168</b>	<b>1.41</b>	<b>460,830</b>		<b>415,504</b>

Source: AREVA.

Country	Site	AREVA's equity share MTU
Canada	Cigar Lake	30,222
Canada	Key Lake	47
Canada	McArthur River	42,375
Canada	McClellan	190
<b>Canada</b>	<b>Total</b>	<b>72,834</b>
Kazakhstan	Katco	4,255
<b>Kazakhstan</b>	<b>Total</b>	<b>4,255</b>
Niger	Cominak	2,754
Niger	Imouraren	100,439
Niger	Somair	1,591
<b>Niger</b>	<b>Total</b>	<b>104,785</b>
<b>TOTAL</b>		<b>181,875</b>

For reserves, this share is expressed in concentrates, i.e. after taking into account mining and milling recovery.

Source: AREVA.

**MINERAL RESOURCES IN THE GROUND IN METRIC TONS OF URANIUM (MTU) (YEAR-END 2016 ESTIMATES)**

Country	Site	Measured			Indicated		
		Ore KT	Grade %U	Metal MTU	Ore KT	Grade %U	Metal MTU
Canada	Cigar Lake	1	40.24	52	236	137.70	32,456
Canada	Dawn Lake	0	0.00	0	184	37.47	6,886
Canada	Fox Lake	-	-	-	-	-	-
Canada	Kiggavik	0	0.00	0	10,418	4.70	48,953
Canada	McArthur River	44	36.95	1,607	17	15.20	254
Canada	McClellan	82	30.23	2,479	242	14.13	3,424
Canada	Midwest	0	0.00	0	463	4.81	2,227
<b>Canada</b>	<b>Total</b>	<b>127</b>	<b>32.64</b>	<b>4,139</b>	<b>11,559</b>	<b>8.15</b>	<b>94,200</b>
Kazakhstan	Katco	0	0.00	0	23,972	1.01	24,162
<b>Kazakhstan</b>	<b>Total</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>23,972</b>	<b>1.01</b>	<b>24,162</b>
Mongolia	Zoovch Ovoo	0	0.00	0	63,649	0.20	12,836
<b>Mongolia</b>	<b>Total</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>63,649</b>	<b>0.20</b>	<b>12,836</b>
Namibia	Trekopje Project	-	-	-	-	-	-
<b>Namibia</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Niger	Arlit Concession	-	-	-	-	-	-
Niger	Cominak	-	-	-	-	-	-
Niger	Imouraren	-	-	-	108,668	0.58	62,584
Niger	Somaïr	0	0	0	21,021	1.43	30,042
<b>Niger</b>	<b>Total</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>129,689</b>	<b>0.71</b>	<b>92,626</b>
CAR	Bakouma	-	-	-	-	-	-
<b>CAR</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Gabon	Bagombe	-	-	-	-	-	-
<b>Gabon</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL</b>		<b>127</b>	<b>32.64</b>	<b>4,139</b>	<b>228,869</b>	<b>0.98</b>	<b>223,824</b>

(1) Katco is waiting for approval, expected to be received in 2017, of the registration of 6,580 MTU of measured and indicated resources and 6,445 MTU of inferred resources in the State's schedule of resources and reserves at December 31, 2016.

(2) AREVA's share of resources in Mongolia is calculated taking into account the acquisition of an interest in the operating company by the Mongolian State company Mon-Atom, expected to occur in 2017, in accordance with Mongolia's nuclear law.

**Mining site rehabilitation**

Since the start of the group's mining operations, several hundred million euros have been spent on the dismantling of facilities and on the rehabilitation of mining sites in France, Gabon, the United States and Canada. The purpose of this rehabilitation work is to ensure that residual environmental impacts are as low as reasonably achievable.

Measured + indicated			AREVA's equity share	Inferred			AREVA's equity share
Ore KT	Grade %U	Metal MTU	Measured + indicated MTU	Ore KT	Grade %U	Metal MTU	Inferred MTU
237	137.16	32,508	12,060	129	62.36	8,013	2,973
184	37.47	6,886	1,590	46	8.68	396	91
-	-	-	-	387	67.74	26,195	5,700
10,418	4.70	48,953	31,826	731	2.82	2,059	1,339
60	30.92	1,861	562	96	44.12	4,231	1,278
324	18.21	5,903	4,132	38	10.07	382	267
463	4.81	2,227	1,540	9	180.65	1,662	1,149
<b>11,686</b>	<b>8.41</b>	<b>98,339</b>	<b>51,710</b>	<b>1,435</b>	<b>29.93</b>	<b>42,938</b>	<b>12,797</b>
23,972	1.01	24,162 <sup>(1)</sup>	12,323	17,456	0.81	14,112 <sup>(1)</sup>	7,197
<b>23,972</b>	<b>1.01</b>	<b>24,162</b>	<b>12,323</b>	<b>17,456</b>	<b>0.81</b>	<b>14,112</b>	<b>7,197</b>
63,649	0.20	12,836	5,591 <sup>(2)</sup>	255,395	0.24	60,809	26,488 <sup>(2)</sup>
<b>63,649</b>	<b>0.20</b>	<b>12,836</b>	<b>5,591</b>	<b>255,395</b>	<b>0.24</b>	<b>60,809</b>	<b>26,488</b>
-	-	-	-	250,000	0.10	26,000	26,000
-	-	-	-	<b>250,000</b>	<b>0.10</b>	<b>26,000</b>	<b>26,000</b>
-	-	-	-	12,845	1.59	20,403	20,403
-	-	-	-	340	2.77	942	320
108,668	0.58	62,584	36,085	4,394	0.66	2,879	1,660
21,021	1.43	30,042	19,047	13,844	1.64	22,653	14,362
<b>129,689</b>	<b>0.71</b>	<b>92,626</b>	<b>55,132</b>	<b>31,423</b>	<b>1.49</b>	<b>46,877</b>	<b>36,745</b>
-	-	-	-	17,974	2.03	36,475	36,475
-	-	-	-	<b>17,974</b>	<b>2.03</b>	<b>36,475</b>	<b>36,475</b>
-	-	-	-	2,000	2.71	5,420	5,420
-	-	-	-	<b>2,000</b>	<b>2.71</b>	<b>5,420</b>	<b>5,420</b>
<b>228,996</b>	<b>1.00</b>	<b>227,963</b>	<b>124,756</b>	<b>575,683</b>	<b>0.40</b>	<b>232,631</b>	<b>151,123</b>

Site monitoring continues after rehabilitation, in particular checks of air quality, surface water and groundwater quality, bio-indicators and the food chain. The monitoring provided under the mining sites' post-closure management plans is of variable duration, depending on the pace of improvement and the stabilization of chemical and radiological parameters. These plans are discussed with national administrations and local stakeholders. This period is specific to each site's characteristics as well as to the expectations of local stakeholders. Experience to date indicates that this period is generally not less than ten years. For sites located in emerging countries and/or countries where there are strong expectations for local economic support, AREVA also leads societal initiatives designed to generate income and create jobs for communities affected by mine closures.

#### **Relations with customers and suppliers**

The backlog amounted to 9.480 billion euros at the end of 2016. This backlog continues to be diversified among customers in different uranium-consuming regions.

#### **Suppliers**

The uranium sold comes from the mineral resources of the companies in which AREVA has an equity interest, or from uranium bought on the market.

#### **Development outlook and challenges**

In a post-Fukushima environment, and despite a slower pace of growth in demand, AREVA intends to remain a key supplier of natural uranium. Its objective is to continue to optimize the competitiveness of its existing sites and to maintain its portfolio of projects by conducting the necessary studies in order to be able to launch new capital expenditure when market prices permit.

In this way, AREVA intends to strengthen its position in the uranium market while remaining one of the most competitive producers.

#### 6.4.1.2. FRONT END

##### **Key figures**

	2016	2015
Revenue* (in millions of euros)	1,025	1,097
Operating income (in millions of euros)	158	101
Workforce at year end**	2,807	3,012

\* Contribution to consolidated revenue.

\*\* Workforce consistent with the breakdown by operation shown in Chapter 17, Employees.

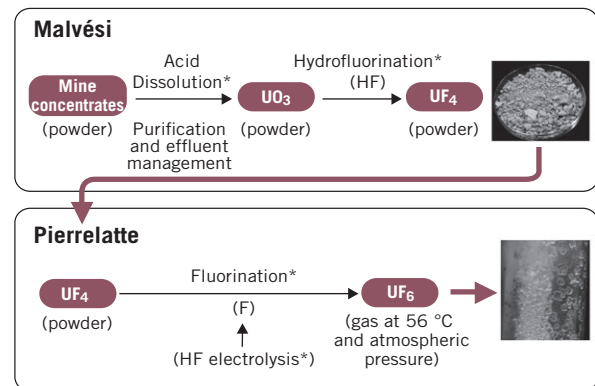
#### **Businesses**

##### **Conversion of natural uranium ( $U_3O_8$ ) into uranium hexafluoride ( $UF_6$ )**

The principal business of the Chemistry operations is to convert natural uranium into uranium hexafluoride. All enrichment processes – the stage after conversion in the fuel cycle – currently function with uranium in the chemical form of  $UF_6$ .

Uranium concentrates shipped from the mine for conversion are owned by the electric utility customer. They are converted in a two-stage process:

- in the first stage, the uranium is converted into uranium tetrafluoride ( $UF_4$ ). This involves dissolving the mine concentrates in acid, then purifying them to produce  $UO_3$  powder. This powder is then hydro-fluorinated with hydrofluoric acid, converting it into  $UF_4$ . These operations are carried out in AREVA's plant at the Malvési site in the Aude department of France;
- in the second stage, the  $UF_4$  is converted by fluorination into uranium hexafluoride ( $UF_6$ ), a chemical compound that exists in gaseous form at relatively low temperature. The fluorine used in this process is produced through electrolysis of anhydrous hydrofluoric acid. These operations are carried out in AREVA's plant at the Tricastin site in the Drôme and Vaucluse departments of France.



\* Purely chemical operations (no change to the uranium's isotopic composition).

Source: AREVA.

##### **Enrichment of natural uranium in uranium-235**

Enrichment operations consist of increasing the uranium-235 content of natural uranium from its initial 0.7% to the assay specified by the customer, ranging from 3 to 5%, depending on the type and operating mode of the reactor. Molecules of gaseous uranium hexafluoride ( $UF_6$ ) undergo isotopic separation to achieve the desired enrichment assay. AREVA supplies the enrichment service to the customer, with the latter retaining ownership of its material.

An enrichment plant's production is expressed in separative work units (SWU). This unit is proportional to the quantity of uranium processed and is a measure of the work required to separate the fissile uranium-235 isotope. The SWU is a standard international unit of measurement for enrichment services and sales, and is independent of the separation technology used.

##### **Implementation of a new, more efficient enrichment technology that uses less energy**

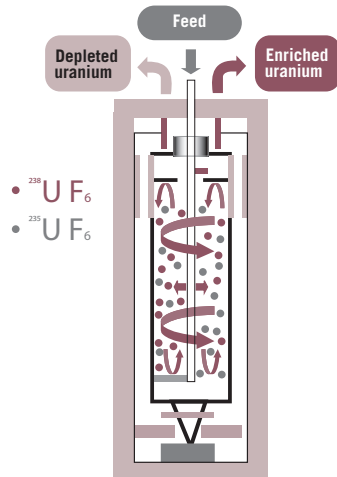
Following the shut-down of Eurodif's gaseous diffusion enrichment plant in 2012, AREVA invested in the new Georges Besse II plant and has now deployed the centrifuge enrichment technology, which meets increasingly stringent nuclear safety, environmental protection and competitiveness requirements.

By using this new technology, the Georges Besse II plant consumes 50 times less electricity than that consumed by the gaseous diffusion process. Another advantage is its modular construction, enabling rapid ramp-up of production and adjustment of production capacity to market demand.



At the same time, the PRISME program, designed to reduce the remaining radioactivity in Eurodif's gaseous diffusion enrichment plant in preparation for its dismantling, continues according to the projected schedule and will be completed at the end of 2016. The most critical phase, consisting of removing the majority of the uranium present, was completed in October 2015. At the same time, AREVA filed the application for a dismantling permit at the end of March 2015. Submittals are still being made, with the public hearing scheduled to start in mid-January 2017.

### **CENTRIFUGATION CONCEPT**



Source: AREVA.

The centrifugation process takes advantage of the difference in the atomic weight of  $^{235}\text{U}$  and  $^{238}\text{U}$  to separate those two isotopes in the  $\text{UF}_6$ .

The centrifugal force concentrates the heaviest particles at the cylinder walls, creating isotopic separation. The gas enriched in the lighter isotope, located closer to the center of the bowl, flows towards the top of the machine, while the gas with the heavier isotope flows towards the bottom. The enriched and depleted products are recovered at either end of the machine.

### **Conversion of depleted uranium hexafluoride (depleted $\text{UF}_6$ ) into an oxide**

Uranium enrichment generates uranium hexafluoride ( $\text{UF}_6$ ) depleted in the uranium-235 isotope. This depleted uranium is converted into a stable, insoluble, non-corrosive uranium oxide which can be safely stored pending reuse, either in its depleted state or after a new enrichment stage. Very few defluorination facilities in the world are able to convert depleted uranium hexafluoride into an oxide on a production scale.

The conversion of depleted uranium hexafluoride into an oxide generates a byproduct: an ultra-pure, aqueous, 70% hydrofluoric acid, which is marketed.

AREVA earns a return from its internationally recognized expertise in depleted uranium defluorination through technology sales agreements with world-class companies. AREVA's know-how enables customers to store this reusable material safely and to produce hydrofluoric acid that can be marketed to the chemical industry. AREVA's know-how led to the signature of contracts with Tenex and Urenco for the sale and installation of defluorination lines.

### **Recycling of uranium from used fuel treatment**

After a reactor residence time of nearly four years, uranium still represents approximately 95% of the used nuclear fuel's content. The uranium is recovered through treatment operations performed at the AREVA la Hague plant (see Section 6.4.4.1. *Recycling*) and is shipped in the form of liquid uranyl nitrate for chemical conversion into a stable oxide powder. Uranium from used fuel treatment (reprocessed uranium, or RepU) may then be reconverted into uranium hexafluoride and re-enriched for reuse in the fabrication of new fuel, in which case it is called enriched recycled uranium (ERU).

### **Other fluorine derivatives**

The know-how needed for conversion, particularly in the field of uranium fluorination, has served to develop fluorination operations such as the production of chlorine trifluoride, used to clean enrichment barriers from the Eurodif plant, which was shut down permanently in 2012.

### **Human and industrial resources**

The operations in the Front End of the fuel cycle (Chemistry and Enrichment) are split between two industrial sites in France, the Malvési site and the integrated Tricastin platform:

- $\text{UF}_4$  is produced by the plant at the AREVA NC Malvési site (annual capacity: approximately 14,000 metric tons);
- $\text{UF}_6$  is produced by the plant at the AREVA NC Tricastin site (annual capacity: approximately 14,000 metric tons);
- $\text{UF}_6$  is enriched by the Georges Besse II plant of Société d'Enrichissement du Tricastin (SET) at the Tricastin site (annual capacity: 7.5 million SWU);
- depleted uranium is defluorinated in the W Plant at the Tricastin site (annual capacity: approximately 13,000 metric tons);
- uranyl nitrate is converted into oxide in the TU5 facility at the Tricastin site (annual capacity: approximately 1,250 metric tons);
- the integrated Tricastin platform also pools all of the resources for logistics, laboratory, waste and effluent treatment, and equipment repair in the Department of Industrial Services, serving all of the site's plants more efficiently and in a more cost-effective manner.

On the financial level, SET is wholly owned by SET Holding. The majority of SET Holding is owned by AREVA NC (subsidiary of New AREVA Holding); two partners also hold an interest totaling 5% of the capital, i.e. 2.5% for Korea Hydro & Nuclear Co. Ltd (KHNP) and 2.5% for Japan France Enrichment Investing (JFEI).

AREVA holds a 50% interest in the Enrichment Technology Company (ETC) alongside Urenco. ETC manufactures the centrifuges used for uranium enrichment.

### **Relations with customers and suppliers**

#### **Customers**

In 2016, AREVA made deliveries to more than 35 customers across the globe, mostly in Europe, Asia and the United States. The number and volume of transactions remained stable in relation to 2015, but the transaction volume was distinctly lower than pre-Fukushima volumes, in view of the already high level of coverage of utility requirements.

The enrichment market is structured around multi-year commitments. The backlog for enrichment operations represents more than 40 utility customers, primarily in the United States, Europe and Asia, corresponding to the supply of an average of about 60 reactors worldwide each year.

### Suppliers

The risk of supply interruptions for the chemical reagents needed for its production operations is minimized by contracting with suppliers based in Europe and in the rest of the world.

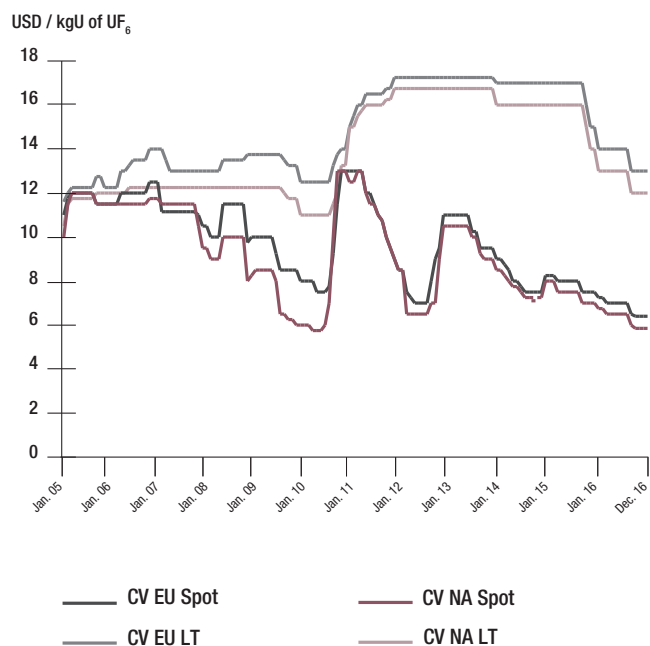
### Market and competitive position

#### Conversion market

Annual world conversion requirements were estimated at approximately 62,000 metric tons of natural UF<sub>6</sub> in 2016 (source: WNA 2016), including 18,000 metric tons in Western and Central Europe (Euratom area). China's conversion requirements are rising quickly, largely contributing to the growth in global demand for these services. According to the World Nuclear Association (WNA), Chinese demand for UF<sub>6</sub> will be about 11,400 metric tons in 2020 (source: WNA 2015 report, reference scenario).

The conversion market has seen a recent drop due to excess capacity which should last for several more years in view of the persistence of secondary materials and utility inventories, in particular those of the Japanese utilities affected by the outage of a significant share of their nuclear fleet. Nevertheless, the gap between spot indicators and long-term indicators reflects the perception of the conversion market's long-term fragility related to the need to replace aging production plants.

#### CONVERSION PRICES (LONG-TERM AND SPOT)



Source: UxC.

#### Competitive position in conversion

With nominal production capacity of 14,000 metric tons of UF<sub>6</sub> in 2016, New AREVA Holding is a major global player in conversion services. Its main competitors are TVEL in Russia, Converdyn in the United States and Cameco in Canada. The State-owned China National Nuclear Corporation (CNNC) still has limited capacity, but strong growth potential for the future.

The current production capacities of AREVA's competitors are thus estimated as follows according to UxC:

- 11,500 metric tons for TVEL;
- 15,000 metric tons for Converdyn;
- 12,500 metric tons for Cameco; and
- 5,000 metric tons for CNNC.

It should be noted, however, that most of the plants do not operate at their nominal capacity. The plants in the Western countries have operated at an average of 60% of their nominal capacity over the past ten years, mainly due to outages for maintenance and safety upgrades. AREVA's production was close to 90% of its nominal capacity during that same period.

#### Enrichment market

Annual world enrichment requirements were estimated at 48.9 million SWU in 2016, including 14.2 million SWU in Western Europe (source: WNA 2016). Market volume will grow slowly, pushed by Chinese and South Korean demand.

The market is traditionally regulated by geopolitical considerations, but they have less and less impact. In Europe, the Euratom Supply Agency monitors supplies of uranium and enrichment services. Deriving from the Euratom Treaty, its missions cover the security of supply of nuclear fuel materials in particular. In the United States, since the US Congress amended the Suspension Agreement in 2008, the Russian supplier Rosatom was allowed to supply up to 20% of the US utilities' requirements starting in 2014 and signed several contracts with these customers.

Rosatom's competitors are unable to access the uranium enrichment market in Russia at this time.

#### COMPETITIVE POSITION IN ENRICHMENT

Operator	Estimated installed capacity	Process
Georges Besse II (France)	7.5 million SWU/year	Centrifugation
Rosatom (Russia)	26.0 million SWU/year	Centrifugation
Urenco (UK, Germany, Netherlands, USA)	18.9 million SWU/year	Centrifugation
CNNC (China)	5.6 million SWU/year	Centrifugation
Other (Japan, Brazil)	0.6 million SWU/year	Centrifugation
<b>TOTAL (2016)</b>	<b>58.6 MILLION SWU/YEAR</b>	

Source: AREVA estimates based on available data.

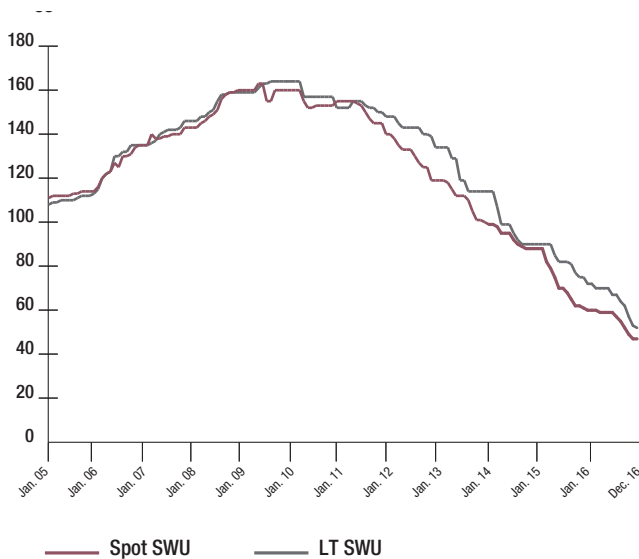
AREVA, Urenco, TVEL, CNNC and Centrus are the leading players in the enrichment market.

The Georges Besse II plant reached its nominal capacity of 7.5 million SWU per year in 2016.

TVEL and Urenco recently announced that they have initiated advanced assessments on the reduction of their capacity in order to adapt to the volumes of the US and European markets.

In the former countries of the USSR, for historical reasons, demand is chiefly met by Rosatom, whose enrichment plants are split among four combines: Angarsk, Zelenogorsk, Seversk and Novouralsk. All of these plants use centrifugation technology.

**SPOT AND LONG-TERM SWU PRICES FROM 2005 TO 2015  
(IN CURRENT US DOLLARS)**



Source: UxC.

**Outlook and development goals**

One of the strategic objectives for the operations in the front end of the cycle is to strengthen AREVA's position as a major player in the global conversion market. It will continue to benefit from the integration of the group's Front End operations and its physical proximity to Europe's enrichment plants.

To achieve this goal, AREVA decided in 2007 to replace its uranium conversion production capabilities by investing in a new conversion plant at the Malvési and Tricastin sites; this is known as the Comurhex II project. The new plant will have a full production capacity of 15,000 metric tons, with the possibility of increasing capacity later to 21,000 metric tons if, and only if, market conditions permit. At this point, Comurhex II is the only new conversion plant project to be launched in the world. It will replace the existing capacity of Comurhex I. The Comurhex II plant is designed to offer maximum security of supply to our customers. In addition, it meets the most recent safety standards, particularly in terms of its ability to withstand earthquakes and flooding. Comurhex II also received triple ISO 9001, ISO 14001 and OHSAS 18001 certification. Recently, the plant demonstrated its energy efficiency innovations when it received ISO 50001 certification for using the heat produced by electrolysis to heat the buildings.

With Comurhex II, the environmental footprint will decrease considerably:

- 75% reduction in ammonia releases, 50% reduction in nitric acid and fluorine, and 60% reduction in potassium hydroxide, thanks to the Isoflash process;
- 90% reduction in the annual consumption of water.

The Comurhex II project continued in 2016:

- at the Malvési site with the continued ramp-up of industrial production following the qualification of the UF<sub>4</sub> produced by the new thermal denitration process, which replaced chemical denitration;
- at the Tricastin site, with the continued construction of the fluorination, effluent treatment and utilities functions. The fluorination building entered the testing phase in the early autumn.

In 2015, the nuclear safety authority ASN approved AREVA's request to extend the operation of the Comurhex I production plant until the end of 2017. This will reduce the duration of the non-production phase, with integrated startup of Comurhex II at both sites slated for the end of 2018.

The backlog in the enrichment business offers more than 10 years of visibility. Given the known operating period of current reactors, the conversion and enrichment markets should see growth in volume by 2030. The sharp upturn in demand in Asia should largely offset a decline in demand in Europe.

The Georges Besse II plant reached full production capacity at the end of 2016, strengthening the return on investment for the future through implementation of operational and commercial levers.

**6.4.1.3. BACK END**

NewCo's Back End operations combine the recycling, nuclear logistics, dismantling and services, and waste management operations.

**Key figures**

	2016	2015
Revenue* (in millions of euros)	1,523	1,593
Operating income (in millions of euros)	65	(184)
Workforce at year end**	10,941	11,050

\* Contribution to consolidated revenue.

\*\* Workforce consistent with the breakdown by operation shown in Chapter 17, Employees.

**6.4.1.3.1. Recycling**

**Businesses**

The Recycling business uses processes allowing its customers to recycle used fuel into fresh fuel and to package final waste in standardized containers in a safe and stable manner.

The Recycling business earns a return internationally on the technical and industrial expertise developed in its facilities and the know-how acquired by the Dismantling and Services business at the sites of the group and of its French customers. In particular, it designs and builds new recycling plants in the framework of international partnerships with countries seeking to acquire their own production plants.

After nuclear fuel has been used in a light water reactor, 95 to 96% of its content is material that is still recyclable: 1% is plutonium and 94 to 95% is uranium. The first step in fuel recycling is to separate these reusable materials from the final waste. The latter is packaged in "universal waste canisters" for safe storage and transportation. This package is designed for high integrity and containment performance for purposes of geologic disposal. Following the treatment stage, the reusable materials are recovered for recycling. Depending on the utility's strategy, the recycled, re-enriched uranium from used fuel treatment, also called RepU, may be recycled in the form of enriched recycled uranium fuel (ERU), or stored in stable form, constituting a uranium stockpile. The plutonium is used to fabricate another type of fuel, MOX, of which AREVA is the world's leading producer.

Power companies can manage their used fuel in one of two ways:

- **Recycling:** this solution meets the objectives of natural resource conservation and environmental impact limitation. After removal from the reactor and cooling in a storage pool, the fuel is treated to recover materials that still have energy potential in order to fabricate fresh fuel. The uranium and plutonium, which represent 95 to 96% of the materials contained in the used fuel, are thus recycled into new fuels called MOX (fuel containing a mixture of uranium and plutonium oxides) and ERU (enriched recycled uranium fuel). Final waste, which represents 4 to 5% of the materials, is incorporated into glass and packaged for safe and stable disposal in a geologic repository. Countries such as France, the Netherlands, Russia, China and Japan have opted to recycle their used fuel;
- **Direct Disposal:** the used fuel is stored temporarily in pools or at dry storage sites. Storage is not a lasting solution and must be followed by deep geologic disposal. For the medium term, direct disposal solutions for used fuel are under assessment as a component of national nuclear waste management policies. However, these solutions are not available on an industrial scale today. The direct disposal policy is currently being implemented in two countries: Sweden and Finland.

Used fuel recycling contributes to the conservation of natural uranium resources and to non-proliferation, and it facilitates radioactive waste management by significantly reducing its volume and radiotoxicity. Waste is packaged in universal canisters designed specifically to trap contamination over very long periods of time.

The sustainability of nuclear power programs requires the implementation of a used fuel management policy accepted by all stakeholders. Many countries are planning to recycle their used fuel or are interested in doing so. Some countries seeking to deploy large-scale nuclear power programs are turning to recycling technology as an important factor in energy self-sufficiency. Some of them, such as China, even want to have their own facilities when warranted by their power programs.

Recycling is also a response to non-proliferation issues. AREVA can offer utilities global services consisting of removing the used fuel from the power plant and producing the corresponding recycled fuel, returning to the customer country only final waste that does not contain materials subject to International Atomic Energy Agency (IAEA) safeguards.

Recycling allows utilities to constitute reserves of nuclear materials which could be used in future generation IV reactors.

### **Operations and highlights**

The treatment and recycling framework agreement defines the terms of industrial cooperation in treatment and recycling between AREVA and EDF for the years to come. Pursuant to that framework agreement, AREVA and EDF signed a new contract for the 2016-2023 period. This agreement includes the transportation, treatment and recycling of used nuclear fuel.

In 2016, in connection with the review of its facilities following the Fukushima accident, the Recycling Business Unit continued to implement the action plans submitted to the nuclear safety authority ASN in June 2012. These measures aim to strengthen nuclear safety in the event of extreme situations at the la Hague and MELOX sites.

Internationally, the Recycling Business Unit is still in technical negotiations with its customer CNNC for the construction of a used fuel treatment and recycling plant in China. The construction of the MFFF also constitutes a major goal. On December 21, 2016, AREVA and Sellafield Ltd signed an assistance contract (ASSIP) for the 2017-2021 period, thus broadening AREVA's prospects in the United

Kingdom. Its recognized expertise in the management of production/dismantling transitions, particularly for the UP1 plant at Marcoule and the UP2-400 plant at la Hague, is a valuable asset: the United Kingdom has asked for our support over a period of five years during the final shutdown of the Thorp and Magnox plants. In the dismantling field, the strategic objective is to strengthen the business unit's position as a major player in managing and bringing solutions to customers for their dismantling projects, particularly in the United States, the United Kingdom, Germany and Japan.

### **Human and industrial resources**

The Recycling Business Unit's principal base consists of the industrial platforms of la Hague and MELOX, respectively located in the Manche and Gard Departments of France. These two sites represented close to 6,000 employees and subcontractors in 2016.

The installed capacity of the la Hague and MELOX plants along with AREVA's cumulative experience rank the group number one worldwide in recycling.

The Recycling Business Unit also draws on the skills of the AREVA Temis entity.

### **AREVA LA HAGUE**

The la Hague site provides the first stage of recycling operations: the recyclable materials are first separated from the waste in the used fuel of French and foreign power plants and research reactors, and then these recyclable materials and final waste are packaged in a safe and stable form.

The plant has two production lines, UP2-800 and UP3, which have a combined licensed capacity of 1,700 metric tons of used fuel per year, corresponding to the generation of 600 TWh per year of electricity.

In 2016, the la Hague plant treated 1,118 metric tons of used fuel and produced 999 canisters of vitrified waste.

In October 2016, the new industrial organization was implemented at the la Hague plant following the authorization given by the nuclear safety authority ASN.

In November, the decree authorizing the extension of storage capacity for French vitrified waste at regulated nuclear facility no. 116 (INB, *installation nucléaire de base*) was published in the *Journal Officiel*. This publication follows the public inquiry commission's favorable opinion on the project to extend the storage capacity by an additional 12,000 canisters, rendered in June 2015.

In addition, preparatory civil engineering work began related to projects to install new fission product concentration evaporators (NCPF projects) in the T2 and R2 facilities. This equipment will ultimately replace the evaporators currently in service.

Lastly, most of the remediation means defined pursuant to the post-Fukushima supplementary safety assessments (cooling, emergency generators, pumps, etc.) were in operation at the end of the year.

### **AREVA MELOX**

The AREVA MELOX site is the world leader in the fabrication of recycled nuclear fuel, or MOX.

In 2016, MELOX produced 124 metric tons of MOX fuel for its French and international customers. For the international market, fabrication resumed for the Japanese customer Kansai Electric Power Company in 2016.

Concerning technology, four Japanese specialists from Japan Nuclear Fuel Limited began a six-month training program at the MELOX plant in the autumn of 2016.

These trainees will be the future operators of the J-MOX fabrication plant under construction at the Rokkasho-Mura site in northern Japan.

Concerning safety, the site continued to set up action plans defined following the post-Fukushima supplementary safety assessments in the areas of personnel training, remediation equipment and a new emergency management organization.

#### **AREVA TEMIS**

AREVA Temis develops and offers a selection of technical skills and know-how for all high added-value projects in the nuclear, aeronautic and defense industries. In particular, the company provides automated systems, designs and manufactures mechanical equipment in specialty metals, and produces fiber-reinforced concrete containers.

AREVA Temis is based at five sites located near the AREVA la Hague and AREVA MELOX production sites.

In 2016, AREVA Temis continued its initiative to strengthen marketing and sales outside of AREVA's subsidiaries, in particular with the development of a robotic offering for remote intervention in hostile environments where human intervention is not possible.

#### **Market and competitive position**

The world market for used fuel recycling is tightly controlled by strict technical and regulatory requirements. The market's main features are:

- demanding nuclear safety, emissions and environmental impact requirements;
- a concentrated industry with a limited number of suppliers of recycling services;
- a very high level of technological expertise required;
- capital-intensive operations; and
- services under multi-year contracts.

#### **Outlook and development goals**

In 2017, the Recycling business's objectives are to:

- continue to sell and supply recycling solutions in France and internationally;
- promote recycling technology abroad;
- develop innovative offers to strengthen nuclear and occupational safety in used fuel management;
- participate in the creation of appropriate infrastructure for its international partners.

#### **6.4.1.3.2. Nuclear Logistics**

##### **Businesses**

The Nuclear Logistics business, known by the trade name of AREVA TN, has two main business lines:

- the design of casks and specialized equipment to ship and/or store nuclear materials and waste, and the management of their manufacturing;

- the organization and execution of nuclear materials and waste shipments and, as needed, the management of the logistics chain, including that of the related equipment fleet. It works both in the front end and the back end of the nuclear fuel cycle for industry as well as for research reactors and laboratories. It is also tasked with the supervision of the transportation operations of the AREVA group and of its customers, and with ensuring that they are carried out according to the highest level of safety.

The Nuclear Logistics business also supplies dry storage solutions, nuclear fuel storage racks for power plant cooling pools, and neutron shielding systems for reactors.

#### **Operations and highlights**

In the front end of the nuclear fuel cycle and in a tight market, AREVA TN consolidated new sea shipping lanes to China and continued to offer even more optimized sea solutions to its customers.

In the waste market, the Nuclear Logistics business strengthened its position by kicking off the development of a new cask called the TN<sup>®</sup>MW to serve the nuclear power plant dismantling market. This cask gives operators the possibility of containing a wide variety of waste while combining the storage, shipment and disposal functions in a single solution.

In the back end of the cycle, 2016 saw the signature of the used fuel treatment and recycling contract for the 2016-2023 period by AREVA NC and EDF. All of the shipments under this contract are carried out by AREVA TN. This involves shipping used fuel from the nuclear power plants to the AREVA la Hague site, and shipping fresh MOX fuel fabricated at the AREVA MELOX plant.

As part of this contract, EDF gave AREVA NC an order for 22 TN<sup>®</sup>G3 casks to be manufactured by AREVA TN. The TN<sup>®</sup>G3 cask is a next-generation cask which will ultimately replace the current TN<sup>®</sup>12 and TN<sup>®</sup>13 casks.

Also in 2016, Japan's reactors were gradually returned to service, reinforcing assumptions of MOX fuel shipments to that country in the coming years.

In the storage field in Europe, the first TN<sup>®</sup>24E cask was loaded in 2016 at the Isar power plant in Germany operated by Preussenelektra. In addition, Synatom once again turned to AREVA TN with the signature of a contract to develop and manufacture 30 TN<sup>®</sup>24 casks for the Doel and Tihange power plants. This contract includes an option to deliver additional casks.

AREVA TN had several commercial successes with the signature of NUHOMS<sup>®</sup> cask supply contracts for the on-site storage of used fuel, including their startup and loading. It also celebrated the loading of its 1,000<sup>th</sup> canister with Exelon, the leading nuclear utility in the United States. Consistent with its industrial strategy for manufacturing integration, AREVA TN inaugurated its new production center for the concrete modules of its casks in Moyock, North Carolina. Production began in February 2016.

In 2016, AREVA TN and its Texan partner Waste Control Specialists filed a license application for a consolidated storage center in Texas to receive NUHOMS<sup>®</sup> type casks currently stored at shut-down reactors, most of which have been dismantled.

In China, the Logistics Business Unit continues its development work with the near-term objective of supplying dry storage solutions.

**Human and industrial resources**

The Nuclear Logistics business carries out nearly 6,000 shipments each year. It is based in several regions of the world:

- in Europe, the business designs casks and commissions shipments of nuclear materials. Its subsidiaries LMC and Mainco carry out road shipments and provide industrial logistics services respectively;
- in the United States, the entity and its subsidiary CHT design, manufacture and sell storage casks to US nuclear utilities. They are also active in the front end of the nuclear cycle. Its operations are based at four sites, in Columbia, Maryland; Aiken, South Carolina; Kernersville, North Carolina; and Moyock, North Carolina;
- in Japan, its entity provides engineering; studies, transportation, and the sale and maintenance of fuel casks for Japanese power companies;
- in Niger, the Nuclear Logistics business ships mining concentrates;
- in China, the Logistics Business Unit has a team dedicated to the development of future operations.

The Nuclear Logistics business has the necessary resources to manufacture shipping and storage casks. It has a fleet of transportation equipment, including casks and road and rail resources, and it operates road, rail and sea terminals.

To accomplish its mission of supervising the AREVA group's transportation operations, the business has an organization that manages risks and sets up appropriate action plans to manage any emergency at any location, in liaison with the public authorities. Its real-time transportation tracking center gives it a continuous stream of information on transportation operations.

**Relations with customers and suppliers**

AREVA TN's customers are utilities, research reactor operators and fuel cycle companies, as well as institutes, laboratories and research centers working in the nuclear field, all of which seek solutions for the shipment of radioactive materials, for materials storage and for the management of their logistics chain.

AREVA TN relies on a diversified international network of partners and suppliers for all of its shipments and key components.

**Market and competitive position**

The Nuclear Logistics business is active in every stage of the nuclear fuel cycle, worldwide.

The business of nuclear materials transportation and of nuclear materials storage/shipping cask design is characterized by the diversity of materials involved, the international and competitive nature of the markets, and the strict and changing regulatory framework, which differs according to each transportation mode and each country.

Sales were evenly distributed among France, Europe, North America and Asia.

The Nuclear Logistics business offers comprehensive management of the logistics chain and has strengthened its position in securing supplies for the nuclear sites.

Operations in the front end of the fuel cycle are deployed around the globe. In recent years, the Nuclear Logistics business has strengthened its position in this market, in particular through shipments for AREVA's uranium mines and fuel fabrication plants, with support from solid partners.

In the back end of the fuel cycle:

- in Europe, EDF continues to be the leading shipper of used fuel to the la Hague recycling plant, followed by other international power companies which have opted for recycling and by certain research reactors;
- in the United States, the Nuclear Logistics business is a leading player in the market for the dry storage of used fuel;

- in Asia, the Nuclear Logistics business is mainly present in Japan, where it carries out fuel and nuclear waste shipments between Europe and Japan. It also supplies storage racks to nuclear reactors in China.

**Outlook and development goals**

The Nuclear Logistics business continues to develop internationally to strengthen its position as a leading player in its business areas.

**6.4.1.3.3. Dismantling and Services (D&S)****Businesses**

The Dismantling and Services business offers customers a broad range of services covering three main types of operations:

- nuclear facility dismantling operations across the entire value chain: radiological characterization of facilities to be dismantled, cleanup, deconstruction, operation of facilities during dismantling and of the support facilities, and redevelopment of the land and buildings.

Numerous facilities built in the 1950s and 1960s have reached the end of their operating period. Their dismantling and the rehabilitation of their host sites, in particular to allow new projects to be located there, represent a major industrial challenge. The Dismantling and Services business (D&S) is a managing contractor for facilities that have been shut down, provides dismantling studies and project management, and carries out dismantling operations;

- waste management operations, whether the waste comes from the production and operation of nuclear facilities, from dismantling operations, or from major maintenance operations. The Dismantling and Services business also contributes to major projects for the retrieval and packaging of legacy waste stored at the sites pending the availability of disposition methods;
- services to nuclear operators include nuclear logistics and project support, facility maintenance, radiological safety of workers and facility operations.

These operations mostly involve nuclear facilities currently in production, which must ensure the best nuclear safety performance at all times, preserve assets, plan for the future and control costs.

**Operations and highlights**

In 2016, the Dismantling and Services business (D&S) won several significant projects, strengthening its position as a major player in the markets for dismantling, waste management and services to nuclear operators in France.

Commercially, D&S exceeded its objectives, winning significant contracts with its main customers, the CEA and EDF, particularly in the field of services.

For example, D&S won a request for proposals with EDF relating to project support activities for reactors in the French nuclear fleet. The business unit was also chosen by the CEA at Cadarache to manage storage facilities for low- and medium-level radioactive waste.

Operationally, 2016 saw the completion of the major project to dismantle the ATPu and LPC nuclear facilities at Cadarache. This is a first in the dismantling of a MOX fuel fabrication plant. Up to 300 people were mobilized at the peak of the project, which involved the deconstruction of 462 glove boxes, more than 30 tanks and 4 kilometers of piping.

In addition, the teams of the Triade facility operated by D&S successfully treated very low-level mercury metal in 2016, enabling its acceptance in an Andra disposal center. This was achieved with the use of a process patented by a D&S entity, which opens the way to a new waste treatment method.

More generally, as concerns technology, D&S's know-how was recognized on several occasions in 2016. For example, the business unit won the grand prize in the Nuclear Safety category at the World Nuclear Exhibition (WNE) for its robotic investigation pack comprising the multi-task Riana™ platform and the Dorica™ drone. In addition, other technology developments by D&S in the virtual reality and augmented reality field, such as the simulator of pole crane operations and the Manuela™ real-time radiological mapping tool, contributed to the "Industry of the Future Showcase" label (*Vitrine Industrie du Future*) granted to AREVA.

### **Human and industrial resources**

The Dismantling and Services business provides services to practically all of the French nuclear sites operated by AREVA, the CEA, EDF and Andra. Its personnel are present at all sites to ensure the quality of the services provided, in compliance with the budget, schedule, and nuclear and occupational safety requirements.

It has expertise in the vast majority of techniques suited to the treatment of very low, low, medium and high level effluent and waste, to their volume reduction and to their safe packaging.

D&S has operated the Triade environmentally regulated facility (see *Glossary*) since 1994, where it maintains machinery and equipment used in controlled areas, recertifies equipment, dismantles tooling and processes waste. Facilities are made available to customers so that they can maintain their tools and equipment in a secure environment.

In 2016, D&S continued to lead projects to retrieve legacy waste and dismantle legacy facilities which had been operated by AREVA or for which the group contracted operations. This includes in particular the UP2-400 facilities at the la Hague site and the Eurodif uranium enrichment plant at the Tricastin site. At the same time, the D&S team provided monitoring services for sites where dismantling is now complete, such as the SICN Annecy and Veurey sites or the former chemical plant at Miramas, pending their decommissioning by the nuclear safety authority ASN.

In addition, D&S brings its customers unique operating experience from AREVA's implementation of its end-of-lifecycle obligations in France.

### **Relations with customers and suppliers**

To improve the competitiveness of its projects, D&S has set up a process for dialogue with its suppliers to strengthen their visibility for the future workload over the short and medium terms and to work on improving performance.

### **Market and competitive position**

The French dismantling and services market is driven by the new requirements of customers who turn to the group for its know-how. D&S is a major player in that market in France.

For facility dismantling, the net present value of provisions for the three main contracting authorities – the CEA, AREVA and EDF – is approximately 30 billion euros. The market will grow significantly in the coming years, led by the ramp-up of dismantling programs, although the general economic situation sometimes leads to a reconsideration of the some project schedules. D&S is a leading player in this effort.

### **Outlook and development goals**

The goals of the Dismantling and Services business are to:

- contribute to AREVA's performance, in particular by carrying out internal dismantling projects related to end-of-lifecycle operations with optimum nuclear, industrial and occupational safety, while limiting the consumption of provisions;
- assert its position as a leading player in the French market; and

- provide a showcase of its know-how to support the development of AREVA's dismantling operations internationally. In this vein, in 2016, the D&S teams met their counterparts at the Sellafield site in the United Kingdom to examine opportunities for assistance and expertise that the group might provide to projects conducted on the other side of the Channel.

The Dismantling and Services business will grow by continuing to expand its offering of activities supported by in-house expertise, and by developing partnerships. The competitiveness of D&S also depends on its investment in technology innovation to serve its customers. In this regard, the market introduction in 2016 of a simulator cab for polar crane operations in nuclear power plants and of the Manuela™ portable tool for the topographical and radiological mapping of nuclear facilities quickly received positive feedback from several EDF sites.

#### **6.4.1.3.4. Waste management**

##### **Businesses**

In operating and dismantling its fuel cycle facilities, AREVA represents only a small fraction of the national radioactive waste inventory. This is due to the design and implementation of effective solutions for the safe, optimized and comprehensive management of radioactive waste management. AREVA assumes responsibility for its waste by continually adopting solutions aimed at reducing their overall impact and by setting aside assets to secure long-term funding for the related expenses.

Optimization of a waste method means managing the waste from its generation (aiming for minimization at the source), managing waste flows, sorting, packaging (with or without prior processing), storage, shipment and disposal. The diversity of the group's operations and businesses, which cover the entire nuclear fuel cycle from the uranium mine to used fuel recycling, multiple related industrial sites, and a variety of resulting primary waste, have led AREVA to develop unique technical, industrial and organizational know-how. Backed by more than 40 years of waste management experience, AREVA's skills as an integrator of solutions allow an optimum technical and economic balance to be achieved in the implementation of comprehensive waste management methods.

This unique know-how goes into serving its customers through tailor-made solutions for the management of all or part of the waste they generate.

Radioactive waste management must meet a number of safety, industrial and societal challenges, and AREVA is in constant contact with the various players and stakeholders involved, particularly at the national level. It is an active contributor to the development of the French National Radioactive Materials and Waste Management Plan (PNGMDR) under the aegis of the Ministry of Environment, Energy and Oceans represented by the General Directorate of Energy and Climate and by ASN. Under this plan, an exhaustive inventory of the different radioactive waste management methods is drawn up, and areas for improvement and related actions to be taken are defined.

##### **Operations and highlights**

###### **OPERATIONS**

In 2016, AREVA packaged more than 10,000 m<sup>3</sup> of waste, including approximately 70% in the very-low-level waste category, 25% in the short-lived low- and medium-level waste category, and 5% in the other categories (including long-lived medium- and high-level waste). Waste categories are described in Appendix 3 of the Reference Document.

Comprehensive waste management methods, going up to final disposal, are now operational for 90% of the waste generated each year in France.

In addition to adapting its industrial plants, in 2016 AREVA continued to pursue its objectives to optimize operating performance in waste management, in particular through waste reduction at the source; the implementation of advanced characterization, sorting and decontamination solutions; the reduction of final waste volumes through high-performance facilities; and early packaging of waste.

These optimizations help minimize the environmental footprint of the group's operations and contribute to the company's economic performance: in 2016, they resulted in a reduction of operating expenses for waste management in relation to 2015.

#### OPTIMIZATION AND INNOVATION

Innovation is a key to adapting existing waste management methods for improved overall performance, just as it is central to the creation of new or more effective waste management methods.

AREVA is in the process of expanding its current range of waste packages based on the use of vitrification, cementation, encapsulation, compaction and other technologies.

In particular, AREVA is developing an innovative alternative to existing incineration/fusion/vitrification processes called PIVIC aimed at processing and packaging alpha-contaminated metal waste containing organics in a single stage. More than 140,000 metric tons of metal materials could be recovered and recycled in connection with the dismantling of the Georges Besse enrichment plant. AREVA continues studies on the feasibility of melting to decontaminate these materials, which could result in activity levels which are below radiation protection thresholds, allowing them to be recycled. The optimization of waste management methods is a major subject being evaluated under the PNGMDR. AREVA is fully committed to implementing this Plan and continues its activities aimed in particular at strengthening the overall cohesiveness of management methods for all of its operations.

In addition, AREVA is pursuing innovative development work for the management of special waste, such as mercury or magnesium waste.

AREVA, EDF and the CEA continued their cooperation with Andra in 2016 on technical and economic optimization of the Cigéo project for long-lived medium- and high-level waste disposal. The majority of the waste to be sent to Cigéo is processed and packaged by AREVA.

#### HUMAN AND INDUSTRIAL RESOURCES

AREVA has considerable experience in the management of all waste categories, from the lowest level to the highest level, and thus has all of the related operational skills and R&D resources. All of the group's operations are concerned by the optimization of waste management, meaning all of its business units. For its implementation, AREVA draws on:

- the operating entities of the different production or mining sites;
- the Dismantling and Waste Contracting Authority (see Section 6.4.1.4.1.).

#### 6.4.1.4. OTHER NEWCO OPERATIONS

The other operations of NewCo combine the other cross-business functions, including the Dismantling and Waste Contracting Department, AREVA Projects and AREVA Med.

#### Key figures

	2016	2015
Revenue* (in millions of euros)	13	29
Operating income (in millions of euros)	34	(200)
Workforce at year end**	2,475	3,286

\* Contribution to consolidated revenue.

\*\* Workforce consistent with the breakdown by operation shown in Chapter 17, Employees.

#### 6.4.1.4.1. Dismantling and waste contracting department

End-of-lifecycle operations (ELO) are crucial to the group's operating, financial and commercial performance. They include facility dismantling, legacy waste retrieval and packaging, and the definition and implementation of comprehensive management methods for our existing and future waste. Demonstrating its unwavering commitment to sustainable nuclear power, the group implements these operations, plans for them, and sets up provisions to cover the related expenses over the long term. In accordance with the law, AREVA earmarks the necessary assets to cover these provisions exclusively.

The operational and financial challenges associated with ELO are major ones for the group. Accordingly, and in view of the cross-business nature of the related activities, the Dismantling and Waste Contracting Department (DWCD) reports directly to Management. It is responsible for all ELO-related projects and steers performance in the management of radioactive substances for the entire group. Its missions are divided into five key areas:

- serving as the contracting organization for ELO, the DWCD proposes a strategy, has it approved, and ensures the overall consistency of all of the group's activities in this regard. The DWCD is responsible for the implementation of the related projects (excluding post-mining projects), in compliance with safety, cost, schedule and quality objectives. It draws on project management organizations which are, depending on the project, the operations of the Front End of the cycle, of the Back End (Dismantling and Services, Recycling, Nuclear Logistics) and AREVA Projects;
- ensuring centralized management of end-of-lifecycle provisions in compliance with internal control provisions for end-of-lifecycle obligations and the group's financial trajectory;
- consolidating and developing safe and effective radioactive waste management methods. The DWCD's mission is to ensure, in connection with the operating and functional entities concerned (including R&D and Innovation), the overall consistency of solutions and management methods used or proposed in order to achieve an overall management system which has been optimized both technically and economically (see information in Section 6.4.1.3.4. *Waste management methods*);
- coordinating radioactive waste and materials management operations. The DWCD's objective is to boost the performance of operational methods by coordinating actions to promote synergy and performance; providing technical and contractual management of shipping and storage projects; providing support for operating safety and regulatory compliance; and ensuring the leadership of the internal network of waste coordinators;
- positioning our solutions and methods with external stakeholders. The DWCD coordinates AREVA's contributions to the French National Radioactive Waste and Materials Plan (PNGMDR) and implementation of the related regulatory requirements. Capitalizing on its know-how and the solutions developed



in connection with ELO, the DWCD contributes to the development of a Commercial Waste Offering by providing support to the Customers, Strategy and Innovation Department and to the business units. The DWCD proposes industrial partnerships necessary to the implementation of the selected strategies, has them approved as necessary, and leads their establishment.

The DWCD coordinates regional economic development for which AREVA is responsible near waste disposal sites.

#### 6.4.1.4.2. AREVA Projects

##### **Businesses**

AREVA Projects concentrates expertise in nuclear fuel cycle engineering for the facilities of the group and of external customers. Its services range from engineering for operator support to full engineering, procurement, construction and management (EPCM) assignments.

Its scope of intervention covers all of the group's operations: mining, uranium chemistry, enrichment, nuclear fuel, used fuel recycling, dismantling and waste management. AREVA Projects also intends to contribute to the group's growth objectives through reasonable development in non-fuel-cycle nuclear and in non-nuclear applications.

AREVA Projects draws on more than 40 years of operating experience in the design and construction of plants which are unique in the world (la Hague, MELOX and others), as well as on flagship projects conducted over the past 10 years in northwestern and southeastern France: projects to renovate AREVA's industrial plants, waste retrieval and packaging at la Hague, the Georges Besse II enrichment plants, and uranium chemistry facilities for Comurhex II Tricastin and Malvési.

AREVA Projects also has recognized skills in the management and execution of international projects: the Rokkasho-Mura recycling plant in Japan built on the la Hague model; the MOX Fuel Fabrication Facility (MFFF) in the United States; and, in the future, the recycling plant in China.

##### **Operations and highlights**

The year of 2016 was a pivotal one for the group's engineering organization. On July 1, 2016, as part of the AREVA group's transformation, the group's engineering teams were reorganized, starting from a pooled structure (cross-business operating department then called the Engineering and Projects Organization, E&P) into an engineering organization for reactors and a second engineering organization for the fuel cycle.

As part of that reorganization, the engineering teams whose work concerned the fuel cycle facilities and plants were combined in the AREVA Projects Business Unit of NewCo. The last stage in the structuring of fuel cycle engineering was completed with the contribution of assets corresponding to the creation of a legal entity, AREVA Projects SAS, at December 31, 2016.

AREVA Projects is the leading engineering organization for NewCo's capital projects. Its position is formalized with the group's other business units by means of an internal framework agreement for the period 2017 to 2021.

##### **Human and industrial resources**

The AREVA Projects Business Unit currently has teams in place at three main engineering sites in France: Saint-Quentin-en-Yvelines (Ile-de-France Region), Bagnols-sur-Cèze (Gard Department) and Equeurdreville (Manche Department). AREVA Projects also has a unique research and development facility, the HRB center at Beaumont, close to the AREVA la Hague site.

The AREVA Projects Business Unit is based in the United Kingdom via its subsidiary Risk Management Consulting Ltd (RMC). Located mainly in Warrington (Cheshire, northeastern England), Abingdon (near Oxford in the southeast) and Dounreay

(Scotland), the 90-person team specializes in safety analyses, waste studies and engineering for dismantling for all British nuclear sites.

At December 31, 2016, the AREVA Projects Business Unit had a total of 1,452 employees.

The AREVA Projects Business Unit has major assets: the skills and commitment of its employees; processes, technologies and proven management skills for complex projects; and operating experience harvested from the design and construction of plants which are world firsts.

In addition to these assets, and to meet the need for external growth in a very tight engineering market, the business unit's management has opted for a "pared down" organization serving the customer's exact needs by improving its competitiveness and adapting its methods.

##### **Relations with customers and suppliers**

In addition to the AREVA group's historical customers – operators of plants which separate, treat, recycle and package nuclear materials – AREVA Project's mission is to diversify by developing a direct relationship with the group's other external customers and by promoting its design engineering know-how encompassing issues related to construction, startup, operation and nuclear industry safety requirements. In this regard, the AREVA Projects Business Unit works closely with the AREVA NC teams to offer its international customers solutions specific to their needs, based on technologies which have been proven in the group's plants.

##### **Market and competitive position**

The AREVA group's external market is highly competitive. Efforts to enhance competitiveness and performance in connection with the group's operational excellence initiative have put AREVA Projects in a position to offer competitive, differentiating services.

AREVA Projects is positioned in markets for engineering consulting; contracting authority assistance; project management; design and engineering; startup; and plant operating support. The principal French customers with which the AREVA Projects Business Unit is in contact are the Commissariat à l'énergie atomique et aux énergies alternatives (CEA), the International Thermonuclear Experimental Reactor project (ITER), the French National Radioactive Waste Management Agency (Andra), and EDF.

Internationally, the AREVA Projects Business Unit is present in the United Kingdom, Japan and China, in partnership with NewCo businesses such as the Recycling business, or directly with the customers, depending on their requirements.

AREVA Projects works on the design and construction of new facilities, on the renovation of existing facilities, and on the design of units for waste retrieval and packaging and for nuclear materials treatment and recycling.

Its teams are also prospecting in non-nuclear fields close to its reference businesses, including facilities using complex processes or operating in an environment presenting risk.

##### **Outlook and development goals**

In an environment where the historical markets for fuel cycle engineering are undergoing profound change due to a number of factors, AREVA Projects will seek growth in France, in Europe and of course in Asia, where engineering teams are actively working with teams from the Recycling business to finalize negotiations for a recycling plant in China and two vitrification facilities.

Negotiations for the recycling plant in China met a major milestone with the finalization of the application for approval which CNNC must submit to its regulatory authorities. Concerning the vitrification facilities, competitive dialogue was carried out in 2016, and AREVA is ready to submit its offer as soon as the final specifications have been received from CNNC in order to finalize negotiations.

In addition to the recycling project in China, AREVA Projects is engaged in significant opportunities in Europe, especially in France and the United Kingdom, related to the implementation of new projects (such as ITER); to the renovation of production plants and research facilities (notably those of the CEA); and to dismantling and legacy waste management (in particular at Sellafield in the United Kingdom).

#### 6.4.1.4.3. AREVA Med

##### **Alpha therapy**

AREVA Med is the medical subsidiary of AREVA. Established in 2009, it develops innovative therapies to fight cancer. Following an R&D program launched in 2005, AREVA Med developed a unique process for extracting highly pure lead-212 (<sup>212</sup>Pb), a particularly rare radioactive isotope. AREVA Med's lead-212 is currently the focus of promising research projects in nuclear medicine, and new treatments to fight cancer are currently being developed. When it involves the use of antibodies, this innovative approach is also called radioimmunotherapy.

##### **Operations**

AREVA Med's mission is to develop effective, targeted therapies to fight cancer, with two main objectives:

- produce highly pure lead-212 to meet clinical development needs;
- participate in the development of innovative treatments using AREVA Med's lead-212.

AREVA Med built the Maurice Tubiana Laboratory in Bessines-sur-Gartempe, in France's Limousin region, to produce highly pure lead-212 for clinical development needs. Production began in 2013. In April 2016, to expand its industrial footprint, AREVA Med started up a new production unit near Dallas, Texas in the United States. Called the Domestic Distribution and Production Unit (DDPU), this unit also houses the operations of its subsidiary Macrocylics.

In 2012, AREVA Med signed a strategic alliance with Roche, a pharmaceuticals laboratory, to create a new advanced platform for alpha radioimmunotherapy. The alliance is currently focusing its efforts on the development of therapies to meet needs that are not otherwise covered. As part of their partnership, Roche and AREVA Med built a joint research laboratory called ARCoLab (AREVA Med Roche Common Laboratory) in the Limousin region, which began operating in 2013. Roche and AREVA Med continued their joint efforts in 2016.

In 2015 and 2016, AREVA Med signed three new partnership agreements to co-develop new alphatherapy treatments:

- with Radiomedix, to target neuroendocrine tumors;
- with Morphotek, to target the vascularization of solid tumors;
- with Nordic Nanovector, to target leukemia.

AREVA Med began the first Phase 1 clinical trial with lead-212 in 2012, targeting intra-abdominal HER2-expression cancers (such as ovarian cancer). The recruitment of patients for this unprecedented clinical trial was completed in 2014, and the most recent scientific results of the trial were published in the *American Journal of Clinical Oncology* at the end of 2016.

Lastly, in 2015, the CARAT project (Consortium for Applications of Radio Alpha Therapy), which seeks to develop a French network of excellence in nuclear medicine based on lead-212, received nearly 10 million euros in funding under the Investments for the Future Program led by the Commissariat Général à l'Investissement (CGI). Coordinated by AREVA Med, CARAT brings together the Eveon and Triskem International companies, the University Hospital Center of Limoges, the CRIBL Laboratory of the University of Limoges, and Subatech. This partnership continued according to plan in 2016.

## 6.4.2. AREVA NP OPERATIONS

At December 31, 2016, AREVA NP's operations were divided into two subsets:

- operations held for sale to EDF and to strategic investors, which combine the operations composing the new company temporarily called "New NP" (Fuel, Installed Base, Large Projects (excluding the OL3 project), Components, Technical and Engineering Department, and Instrumentation and Control); and
- the continuing operations of AREVA NP, but which will remain with AREVA SA, concerning the management of the OL3 project, whose mission is to complete the Olkiluoto 3 EPR reactor project in Finland with the necessary resources and in compliance with its contractual obligations.

### Key figures

	2016	2015
Revenue* ( <i>in millions of euros</i> )	3,101	3,566
Operating income ( <i>in millions of euros</i> )	77	32
Workforce at year end**	15,115	16,035

\* Contribution to consolidated revenue.

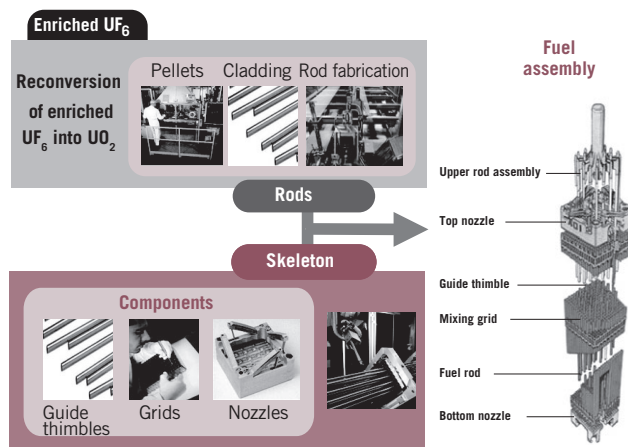
\*\* Workforce consistent with the breakdown by operation shown in Chapter 17, Employees.

## 6.4.2.1. NEW NP OPERATIONS

## 6.4.2.1.1. Fuel

**Businesses**

The Fuel business designs, fabricates and markets fuel assemblies and provides fuel-related services for power generating stations with light water reactors (commonly called PWR for pressurized water reactors and BWR for boiling water reactors). In addition to conventional enriched natural uranium oxide fuel ( $UO_2$ ), the Fuel business markets MOX fuel (a mixture of uranium and plutonium oxides) and enriched recycled uranium fuel (ERU – see *Glossary*) containing fissile materials from the used fuel recycling process. MOX fuel fabrication is provided by the Recycling business (see Section 6.4.1.3.1. *Recycling*).

**PRINCIPAL STAGES IN FUEL ASSEMBLY FABRICATION FOR LIGHT WATER REACTORS**

Source: AREVA, PWR reactor system.

Reactor safety is a function of several requirements:

- containment, in the nuclear safety sense, of radioactive products under both normal and accidental operating conditions;
- control of the chain reaction; and
- cooling of the reactor core.

Fuel assemblies contribute to reactor safety by sealing fissile materials and radioactive fission products inside zirconium alloy cladding, which forms the primary containment barrier.

Once unloaded from the reactor, the fuel assembly must continue to provide containment of the fissile materials and fission products, allow for residual heat dissipation and fuel handling, even after having been stored for relatively long periods, and allow for treatment when the closed fuel cycle has been chosen. The number of assemblies periodically replaced simultaneously (every 12 to 24 months) constitutes a fuel reload.

The Fuel business has expertise in every aspect of the fuel design and fabrication process, from the production of zirconium and its alloys to fabrication of the final fuel assembly. A large number of high-level scientific and technical skills must be

brought together to achieve flawless design and fabrication quality, an absolute requirement. The Fuel business has three major areas of expertise:

- fuel design: This brings into play neutronic, thermohydraulic and mechanical design codes and databases built on lessons learned from many years of reactor operations. Fuel designs are referenced in reactor operating license applications, making the fuel designer one of the utility's most important partners in its relations with its national or local safety authority;
- zirconium and zirconium alloy production: This draws on expertise in chemical and metallurgical processes and technologies;
- fuel assembly fabrication: This requires knowledge of chemistry; powder metallurgy; various assembly techniques, including advanced welding, mechanical systems and machining; and numerous methods for non-destructive examination and physico-chemical analysis.

The Fuel business also manufactures zirconium-based products and semi-finished products which may be sold, including to some competing fuel assembly fabricators. In addition, the Fuel Business Unit markets fuel-related engineering services, fabrication services and onsite services.

**Operations and highlights**

The streamlining and performance improvement of the production plants continued:

- in Dessel, Belgium, the last fissile material present at the site was transferred to other sites of the group, and site dismantling continued towards the goal of completion in 2018;
- in France, the transfer of the manufacturing of spacer grids and rod cluster control assemblies from the Pierrelatte site to the Romans plant began, with completion scheduled in 2017. Lastly, construction of the new emergency command center at the Romans plant in France was completed, in accordance with its safety commitments.

Concerning the zirconium operations, a furnace exploded in the melting facility of the Ugine plant in France, with no injuries or environmental impacts but with an impact on 2016 production volumes. Elsewhere, the CAST joint venture in China with SGTC (a subsidiary of the Chinese nuclear group CNNC) continued to deliver cladding tubes to CJNF, also a subsidiary of CNNC, in China.

**Human and industrial resources**

The Fuel business is structured into several entities with facilities in Europe and the United States:

- the Products and Technologies; Fuel Design; Sales, Contracts and Services; and Supply Chain Divisions;
- the Components Operations Department, which includes all of the manufacturing processes for zirconium products, from zircon ore to the finished products. It has five plants in France, each specialized in one aspect of zirconium metallurgy or forming, and two joint ventures, one in Japan and the other in China;
- the Fuel Operations Department organized into five production sites, one in the United States and four in Europe, which mainly supply US and European utilities. In Japan, a joint-venture production site serves the Japanese market;
- Cerca's operations in France, which mainly involve the fabrication and sale of fuel elements for research reactors and of fuel targets made with enriched uranium.

The molybdenum extracted after the irradiation of certain of these targets is used for medical applications.

### **Relations with customers and suppliers**

#### **CUSTOMERS**

Sales contracts are generally signed for multiple years and for one or more reactors of the same utility. These contracts may include services such as shipping and handling; technical support for fuel loading and unloading operations; fuel inspection during scheduled outages; and even the underwater repair of defective fuel rods or assemblies at the utility's reactor site. Given their importance for the customer's operations, the contracts generally include warranties. These warranties are provided for:

- fuel integrity under all normal operating conditions and up to the announced burnup (see *Glossary*);
- satisfactory fuel performance in the reactor at nominal power;
- compatibility with fuel already in the reactor, recognizing that the reactor core is refueled in sections; and
- fuel transportability and the ability to store the fuel safely after irradiation.

#### **SUPPLIERS**

After prices stabilized at the break-even point from 2014 to 2016, the markets for zircon sand and zirconium (staple commodity for the extraction of zirconium metal at the Jarrie plant in France) appear to be moving slightly upward again in 2017 at the instigation of the suppliers. Most of the zirconium supplies (approximately 75%) were secured at the end of 2016 by the renewal of multi-year contracts.

For 2016, the price of nickel (a component of inconel alloys) trended strongly upwards (+20% year on year), a sign of the recovery needed by the mining companies to remain profitable. Despite this positive activity, which is expected to last in 2017, prices nonetheless remain far from the levels achieved before 2014. The price of carbon black remained depressed in 2016, due to the stagnation of the oil market, to which it is pegged. Still, prices are up following changes in oil production policy and agreements and OPEC's return to its management of market rules.

The Fuel business's supplies of other key components or materials, such as magnesium, niobium or the components needed to manufacture fuel assemblies and rod cluster control assemblies, are secured through yearly and multi-year contracts for spacer grid cutting, SIC rods (silver-indium-cadmium) and stainless steel tubing.

Electricity prices were brought under control in 2015 through a five-year group agreement; 2016 rates were direct beneficiaries. Industrial gas prices (nitrogen, etc.) were set in multi-year group agreements. Argon prices and requirements have been hedged. For helium, prices and supplies were secured in 2016 through a group contract valid until 2020.

Subcontracting expense for spacer grid cutting increased in 2016 and this is expected to continue in 2017, although prices for rod cluster control assemblies remained low.

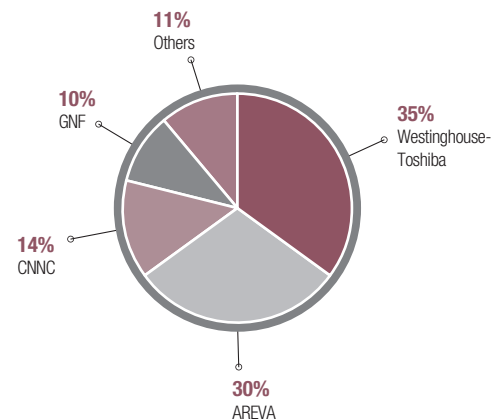
### **Market and competitive position**

The Fuel business's target market is that of fuel assemblies for light water reactors (LWR). These reactors represent most of the world's operating reactors and are divided into two groups: pressurized water reactors (PWR) and boiling water reactors (BWR).

Approximately 74% of the requirements for light water reactors (excluding VVERs) are supplied by AREVA, Toshiba-Westinghouse <sup>(1)</sup> and Global Nuclear Fuel (GNF) <sup>(2)</sup>. As of the end of 2016, AREVA had supplied a cumulative total of more than 229,000 assemblies.

The Fuel Business Unit is upholding its position as a key player in Europe despite the closure of the German reactors, most of which it served, and it is the leading challenger in the US market. It is also a long-standing technology partner of key nuclear companies in China. It should be noted that AREVA does not serve the VVER fuel segment, for which TVEL remains the majority supplier.

### **MARKET SHARE OF LIGHT WATER REACTOR FUEL SUPPLIERS, EXCLUDING VVER REACTORS, IN 2016**



Source: NAC (*Fuel Trac*, October 2016 edition); average data for 2016 +/- 1 year, based on the fresh fuel loaded in the reactors each year.

Considering that a number of the world's power plants were taken offline or shut down (in Japan, Germany and the United States), and despite the growth of nuclear power in China, the fuel market remained flat at approximately 6,700 metric tons of heavy metal (uranium or plutonium contained in the fuel assemblies) and approximately 5,900 metric tons excluding the VVERs. There will be no noticeable increase in fuel demand until a sufficient number of new power plants have been commissioned.

### **Outlook and development goals**

Fuel reliability remains the principal objective of the Fuel business. Beyond this major requirement, the Fuel business is pursuing efforts to continually improve its operating performance, whether in design and fabrication or in terms of nuclear safety, industrial safety and environmental impacts, with excellence as its goal.

In keeping with its strong technology orientation, innovation is key to the Fuel business's approach to development. Thus, the marketing of Atrium™11, a new generation of BWR fuel, continued in 2016. The same was true for Gaia PWR fuel, both in Europe and in the United States. In addition, the offering of advanced codes and methods used to maximum product performance was strengthened with their review or licensing by the US Nuclear Regulatory Commission (NRC).

In China, AREVA is building on more than 20 years of cooperation to pursue its development, directly or through joint ventures. Development projects were actively pursued with Chinese players in 2016.

(1) Toshiba-Westinghouse, including NFI and the share of fuel subcontracted to Enusa in France.

(2) GNF including GNF-A (USA), GNF-J (Japan) and the share of fuel subcontracted to Genusa in Europe.

In Kazakhstan, AREVA was selected as a technology provider for the construction of a 200-metric-ton fuel fabrication plant for Ulba-Fa, a joint venture between Kazatomprom and CGN.

In conclusion, the streamlining of its production plants and the development of partnerships and technology supply contracts in Asia and elsewhere, and the deployment of a new generation of products combined with a very comprehensive range of fuel services will enable the Fuel business to optimize its position in an evolving market and to secure its market share by expanding its commercial positions in all regions.

#### 6.4.2.1.2. Installed base

##### Businesses

The scope of the Installed Base Business Unit covers:

- products and services to maintain, upgrade and extend the operating period of reactors in service;
- nuclear and specialized engineering services related to the operation and maintenance of nuclear reactors;
- products and solutions for the installation and commissioning of new reactors;
- projects to install and/or replace heavy components, mobile components, and large forgings and castings.

The Installed Base business's portfolio of solutions and services aims to improve the safety, availability and economic performance of nuclear power facilities.

##### Operations and highlights

Noteworthy among the key highlights of 2016 was the German platform's significant commercial successes with international customers, securing its operations even as Germany phases out nuclear power. For example, several multi-year services and engineering contracts were signed with Swiss, Spanish and Brazilian utilities. The German platform also contributed to AREVA's commercial successes in China.

##### **ASIA**

AREVA recorded commercial successes for different product lines, giving shape to its localization strategy in China and enabling it to take advantage of market growth.

In South Korea, AREVA consolidated in the market for reactor coolant pump upgrades.

##### **NORTH AMERICA**

AREVA was awarded a contract valued at several tens of millions of dollars to manufacture and install heat exchangers in the secondary cooling system of the Palo Verde power plant in Arizona.

Through its Steam Generator Technology joint venture (SGT), AREVA signed a contract valued at several tens of millions of dollars for engineering studies and on-site steam generator replacement operations at a US power plant.

The maintenance teams worked in several US power plants for long unit outages, successfully and simultaneously performing various important repairs, particularly during the spring and autumn operating peaks.

The cavitation peening process developed in 2014 was successfully implemented for the first time on the vessel closure heads of the Byron and Braidwood reactors.

AREVA signed several contracts with US utilities for engineering services, in particular contracts for strategic cybersecurity expertise. These services will enable the group's customers to improve the digital protection systems of their nuclear power plants

The Installed Base Business Unit continues to adapt its structure to the market environment in response to the US utility initiative "Deliver the Nuclear Promise" launched at the end of 2015, which aims to enhance power plant safety and performance and to significantly reduce costs.

##### **FRANCE**

AREVA had a large volume of operations in the services field in France, in particular to support EDF's Major Retrofitting Program ("*Grand Carénage*").

AREVA signed a multi-year contract to service equipment in the primary cooling system of EDF's 1,300 MWe reactors, among others.

AREVA began, and continues, operations to upgrade the instrumentation and control systems of the Paluel and Cattenom power plants. Additionally, a multi-year contract was signed for similar work to be carried out at EDF's 900 MWe power plants. Henceforth, this work will be carried out by the Instrumentation and Control Business Unit created in 2016.

In April, unfortunately, a steam generator fell in the Paluel 2 power plant during work performed by a short-term joint venture in which AREVA is a stakeholder. It is working closely with EDF and the French nuclear safety authority ASN to resolve the incident and resume the steam generator replacement operations.

AREVA's teams also provided support for investigations in progress on subjects involving carbon segregation in certain forgings produced by Creusot Forges and JCFC which are used in certain equipment in the French reactor fleet. In particular, they took a number of measurements and in some cases took samples from the sites.

The maintenance teams also worked on long unit outages in England at the Sizewell power plant, and in South Africa.

AREVA signed an extension to the collaboration agreement with the CEA valued at several tens of millions of euros for its participation in the design phase of the technology demonstration project for the Generation IV reactor known as Astrid.

##### Human and industrial resources

Historically, the Installed Base Business Unit's teams are located in France, the United States and Germany, but they are also present in China, Sweden, Spain, Canada, Slovakia, South Africa and elsewhere. These decentralized units are staffed with highly qualified specialists and offer personalized, localized service to their customers to help them comply with national regulations.

In addition, the business unit has workshops in Europe and the United States for offsite maintenance, to develop its equipment and to store its tools, as well as three facilities dedicated to personnel training and instruction, one in France co-owned by the EDF group and AREVA (Cetic), one in Germany, and one in the United States.

**Relations with customers and suppliers****CUSTOMERS**

Customers consist of utilities on every continent. Every year, the Installed Base Business Unit provides maintenance and upgrades to more than 250 reactors around the world.

Changes in the energy environment, the pressures of deregulation and the consequences of the Fukushima accident all weigh on the utilities' profitability. Their objective is to optimize their costs and increase the operating period of their power plants while ensuring an optimum level of safety.

**SUPPLIERS**

Orders to suppliers represent a large share of the cost structure of the Installed Base's projects. They concern:

- subcontracted labor for scheduled unit outages and design activities;
- the supply of products or equipment such as parts and tooling to replace steam generators in the framework of component replacement and power plant modernization operations.

**Market and competitive position**

As part of its services to the installed base, AREVA brings solutions for all types of reactor technologies, whether:

- PWRs, including Russian-designed VVERs;
- BWRs;
- CANDU pressurized heavy water reactors (CANada Deuterium Uranium).

Outages are scheduled for these reactors every 12 to 24 months for fuel reloading, for servicing and maintenance, and sometimes to replace heavy components or install capital items to improve their performance and extend their operating period while ensuring a maximum level of safety.

The market is led in particular by activities related to power plant aging, such as upgrades to prolong the operating period of power plants, engineering work, and programs to enhance safety. Elsewhere, certain cross-cutting programs set up by the nuclear operators with the objective of reducing reactor operating costs should generate significant investment opportunities in the short and medium terms.

More generally, in services to the installed base, AREVA and Toshiba-Westinghouse are the two major players, followed by General Electric allied with two Japanese companies, Hitachi and Mitsubishi Heavy Industries (MHI).

Other companies, both specialized and non-specialized, are also active in the market in every country with nuclear power plants, including KPS in South Korea, SNC Lavalin in Canada, Technom in Spain, and the subsidiaries of the utilities in China, among others. At the global level, services to nuclear power plants continue to be highly competitive. In Europe and the United States, the competition has even increased in certain segments, such as non-destructive examinations and general maintenance.

**Outlook and development goals**

Like the global energy market, the outlook for the Installed Base Business Unit remains relatively stable. However, operators want to continue to operate their reactor fleets, particularly in the United States, in France with EDF's "Grand Carénage" program of retrofits, and in the United Kingdom.

To increase business volume, the Installed Base Business Unit is pursuing a strategy of localization beyond its traditional domestic markets (France, Germany and the United States), with a particular focus on Asia, Central Europe, Eastern Europe and South Africa. At the same time, it continues to perfect its work tools and to raise productivity.

**6.4.2.1.3. Large projects****Businesses**

The missions of the Large Projects Business Unit are to:

- submit comprehensive, structured offers within the scope of AREVA NP's core business (nuclear steam supply systems and safety instrumentation and control) to reactor projects, in support of EDF, which is taking the leadership of the French nuclear industry;
- carry out construction projects by assuming responsibility for the execution of reactor projects, i.e. engineering, procurement, construction and startup to complete projects in progress and, within the scope of AREVA NP's core business, for new projects;
- manage purchasing and procurement for the construction projects;
- provide project services (standard Project Management Office schedule, cost estimating, contract management, risks and opportunities, industrial and operational plan) to the proposal and project teams; and
- continuously improve the competitiveness of new reactor projects in terms of both costs and schedule, particularly by optimizing execution planning within the scope of AREVA NP's core business.

**Operations and highlights****REACTORS UNDER CONSTRUCTION*****China – Taishan 1 & 2***

In the first half of 2016, the Taishan project entered the start-up testing phase for unit 1 of the plant. After successful cold testing and leak testing of the containment building in March and June, the instrumentation and control system cabinets of unit 1 were reconfigured in preparation for hot start-up tests.

***Finland – Olkiluoto 3***

In 2016, construction of the Olkiluoto 3 EPR made progress in compliance with the milestones of the critical path.

Functional testing of power plant systems and components began in April. Also in the first half of 2016, the main electromechanical installations were completed, including piping work, a prerequisite to the vessel flushing sequence. The latter was completed in early November, six weeks ahead of the updated schedule.

Meanwhile, tests of the full-scale simulator were also completed.

Note: The mission for the OL3 project – which will remain within AREVA NP in the AREVA SA scope of consolidation after the sale of New NP to EDF and strategic investors – is to complete the Olkiluoto 3 EPR reactor project in Finland with the necessary resources and in compliance with its contractual obligations.

***France – Flamanville 3***

Work continues at the Flamanville 3 EPR reactor.

In the first quarter of 2016, a first milestone was met with the completion of the mechanical installation of the primary cooling system. In June, the power plant's operational instrumentation and control system was successfully configured for the start of the reactor's unit commissioning tests.

***Status of the FA3 vessel***

In the last quarter of 2014, the results of quality testing on the Flamanville 3 reactor vessel revealed substantial carbon segregation leading to non-compliance with the regulatory requirements (resilience parameter mentioned in point 4 of Appendix 1 of the ESPN Order) in the center part of the upper and lower vessel heads (closure head and bottom head). In order to provide technical proof that there are no industrial or occupational safety risks, AREVA prepared a new vessel design report presentation and proposed a program of supplementary testing to

the French nuclear safety authority ASN. On December 12, 2015, ASN validated the test program proposed by AREVA concerning the bottom head and the closure head of the Flamanville 3 reactor vessel. That program aims to demonstrate the mechanical properties of those parts in connection with the fitness for service report required by ASN.

The test program was launched in late 2015 and ended on December 7, 2016. Tests were carried out on vessel bottom heads and closure heads analogous to those of the Flamanville 3 EPR reactor. The toughness properties measured in sacrificial parts meet the expectations of ASN's follow-up letter of December 2015; they are in the high end of the range of what was anticipated by AREVA's experts.

An independent, external organization was chosen by EDF and ASN to monitor these tests. All three of them were therefore associated in the program of analysis.

### **New Build projects**

#### **SOUTH AFRICA**

The South African government is currently in the process of revising its energy plan to 2050. A public debate has been opened and will run until February 2017. The project will be consolidated after this debate and submitted to the Council of Ministers for a decision, with promulgation of the plan not expected to occur before April 2017. In fact, the base scenario postpones the startup of nuclear power as from 2037 and maintains the long-term target of 20 GW of nuclear electricity. AREVA will participate as a member of the French team. The South African government is supposed to send the call for proposals to the governments of countries whose technology corresponds to South Africa's requirements.

#### **SAUDI ARABIA**

Saudi Arabia plans to build several sets of reactors for generating capacity of 17.6 GWe by 2040. In June of 2015, the Ministry of Foreign Affairs and the King Abdullah City for Atomic and Renewable Energy (KACARE) signed a letter of intent to launch a feasibility study for the construction of two EPR reactors in Saudi Arabia.

The next stage will be to create a regulatory authority and a legal framework for the construction and operation of nuclear reactors in Saudi Arabia, with the cooperation of the Finnish nuclear safety authority STUK, which has been appointed to provide support to KACARE.

#### **INDIA**

In 2015, AREVA signed a contract with NPCIL for pre-engineering studies on the Jaitapur EPR project and a Memorandum of Understanding (MOU) with the engineering company Larsen & Toubro to examine areas for cooperation in connection with the project. Both of those activities are advancing according to plan. The objective is to continue preparations for certification of the EPR reactor in India by the Indian safety authority and to finalize the project's financial and economic conditions in particular as well as its technical specifications. EDF has now taken leadership for the industry.

#### **POLAND**

Poland wishes to include nuclear power in its energy mix and is considering the installation of 6 GWe of nuclear generating capacity by 2035. The choice of technology could be made in 2018.

A new government was formed in Poland in October 2015. PGE started the environmental impact study process in November. AREVA worked with EDF to plan for a possible call for proposals and attended different seminars, for which they signed a "Statement of Participation".

#### **CZECH REPUBLIC**

On May 18, 2015, the government of the Czech Republic approved the new version of the country's Energy Policy for the next 25 years.

This document includes the "National Action Plan for the Development of Nuclear Energy in the Czech Republic", which calls for the finalization of the construction of additional nuclear units aimed at producing 20 TWh of power by 2035; lifecycle extension of four units of the Dukovany power plant (raising it from 50 years to 60 years); and, gradually, the possible construction of additional units to replace that power plant.

With support from AREVA, EDF responded to a Request for Information (RFI) issued by the Czech Ministry of Industry and Trade. The RFI concerns two units, one at the Dukovany site and the other at the Temelin site.

#### **UNITED KINGDOM – HINKLEY POINT C**

At the end of September 2016, AREVA signed contracts with EDF and Nuclear New Build Generation Company (NNB), a joint venture between the EDF group and the Chinese group China General Nuclear Corporation (CGNC), which define the basis for its work on the project.

AREVA was awarded several subcontracts for this project.

AREVA NP will be in charge of:

- the delivery of two nuclear steam supply systems (NSSS), including their design, procurement and startup;
- the execution and supply of the power plant's operational and safety instrumentation and control system;
- the fabrication of the fuel needed to operate the two NSSS.

AREVA will supply the necessary materials for fuel fabrication by producing the uranium and providing conversion and enrichment services.

Execution of these contracts began in early January 2017 following the fulfillment of all of the preconditions.

The transformation of the French nuclear industry decided by the French State in 2015 could have an impact on the distribution of the scope of supply.

#### **TURKEY – SINOP PROJECT**

In September 2016, AREVA NP signed a preliminary engineering contract with MHI to support the technical and cost feasibility study for the proposed construction and operation of four ATMEA1 reactors at the Sinop site in Turkey.

The ATMEA company signed a license agreement making the ATMEA1 technology available to MHI and AREVA NP for purposes of this feasibility study.

### **Human and industrial resources**

The Large Projects Business Unit's teams are located in France, Germany, Finland and China.

### **Relations with customers and suppliers**

The Large Projects Business Unit's customers are utilities from all over the world, including both well-established companies and newcomers to the market.

The entity offers reactor solutions that are synergistic with the group's other operations, such as the Component Business Unit, the Fuel Business Unit and the Installed Base Business Unit.

### **Market and competitive position**

Projects for the construction of Generation III reactors designed by AREVA are currently among the most advanced in the world. Its competitors are Westinghouse/Toshiba, General Electric of the United States, Hitachi of Japan, Mitsubishi of Japan, FAE of Russia, AECL of Canada, KHNP of South Korea and Rosatom of Russia.

Despite a slowdown due to the Fukushima accident, reactor construction is still a market with substantial growth prospects (see Section 6.1.2 for a discussion of nuclear power markets).

### **Outlook and development goals**

In addition to these activities, and with the objective of always offering high-quality services and assistance, the entity set up a program to optimize and improve the EPR reactor's competitiveness. This program, established jointly by AREVA and EDF and endowed with shared resources, illustrates the Large Projects Business Unit's commitment to bringing together under a single leadership all optimization activities undertaken by the two groups since 2008 to harvest operating experience and evolve the concept to reduce costs and secure project execution.

#### **6.4.2.1.4. Components**

##### **Businesses**

The Components Business Unit mainly designs and manufactures:

- large forgings or castings and machined parts used in the manufacturing of heavy components for the nuclear steam supply system and in process industries such as petrochemicals;
- heavy components: reactor vessels, vessel heads and internals, steam generators, pressurizers, primary system legs and support elements <sup>(1)</sup>, which are the main components required to manufacture nuclear steam supply systems;
- mobile components: reactor coolant pump sets (pump, motor and sealing system) for the primary cooling system and control rod drive mechanisms that regulate the functioning of the reactor core.

The "monitoring/diagnostic systems" product line has been assigned to the Installed Base Business Unit as from February 1, 2016. All of the other product lines contributing to instrumentation and control operations were combined in the Instrumentation and Control Business Unit as from July 1, 2016.

##### **Operations and highlights**

- In 2016, anomalies were discovered in the manufacturing and inspection of forgings at the Creusot plant, which led to the verification of all manufacturing files produced at that site (more than 6,000 files for nuclear components). This mobilized considerable resources, including close to 150 people and the digitization of approximately 2.5 pages of documentation. These verifications and the processing of any new anomalies that may arise will continue in 2017.

As soon as the first anomalies were discovered, the Creusot site strengthened the inspection and traceability of manufacturing in progress. The deployment of a quality improvement plan, especially quality culture improvement, continues. On December 19, 2016, AREVA NP met a new and important milestone by presenting the work completed and the results obtained in the different areas of this program to EDF.

- The discovery of high concentrations of carbon on the channel heads of steam generators in EDF's fleet also gave rise to a large program of inspections, tests and analyses to demonstrate the suitability for service of those components and to recommend strengthened manufacturing processes to ASN guaranteeing that these phenomena are under control. The channel heads concerned are mainly subcontracted parts and are not forged at le Creusot. The analyses provided in 2016 enabled the restart of the reactors in the EDF fleet.
- The Saint-Marcel plant completed the manufacturing of six 900 MWe replacement steam generators, but the quality deviations detected on a certain number of forgings used in these steam generators during the Creusot audit resulted in a significant postponement of the receipt of the Conformity Certificates.  
The Saint-Marcel plant launched the manufacturing of two new quadruplets <sup>(2)</sup> of 1,300 MWe replacement steam generators for EDF.
- The Jeumont plant delivered the Flamanville 3 and Taishan 2 pressurized control rod drive mechanisms. All of the pads of the thermal barriers concerned by welding defects detected in 2015 have been repaired. Manufacturing of EDF 900 MWe and 1,300 MWe replacement mechanisms began in 2016. All of the procurement for the Fanchenggang 3&4 project (first CGN project of a Hualong pump) has begun.

##### **Human and industrial resources**

###### **HEAVY EQUIPMENT**

The Creusot plant in France's Saône-et-Loire Department has production capacity for forgings and machined parts. Its production plant consists mainly of machining facilities and a forge equipped with two presses (9,000 metric tons and 11,300 metric tons). The site is deploying a large-scale quality plan to deal with the anomalies identified during the audit, strengthen procedures and control of processes, and develop cooperative programs with the steelmaker Industeel (ArcelorMittal group). The foundry operations taken over from Industeel made it possible to cast and begin machining five volutes for the reactor coolant pump sets.

The Saint-Marcel plant near Chalon-sur-Saône in France's Saône-et-Loire Department is dedicated to the manufacturing of heavy nuclear equipment. The main building covers a surface area of 39,000 m<sup>2</sup> and has a hoisting capacity of 1,000 metric tons. In 2016, a decision was made to invest in a pre-manufacturing workshop for primary legs to be used in the Hinkley Point EPR project. The plant has already begun industrial deployment of automated ultrasound inspection systems.

###### **MOBILE EQUIPMENT**

The Jeumont plant in northern France manufactures mobile equipment for the nuclear island. It specializes in the design and manufacturing of reactor coolant pump sets and control rod drive mechanisms, as well as the replacement parts for this equipment. The Jeumont plant has a reactor coolant pump set test center in Maubeuge. AREVA NP is also present in China through the AREVA Dongfang Joint Venture formed between AREVA NP and the DEC group to manufacture AREVA NP-designed reactor coolant pump sets for the Chinese market.

##### **Market and competitive position**

###### **HEAVY EQUIPMENT**

AREVA NP is a leading supplier of heavy equipment leader in France.

There are two suppliers of nuclear forgings: Creusot Forge and its leading competitor, the Japanese company Japan Steel Works (JSW), which together cover

(1) Equipment used to support and hold the main components of the primary cooling system. It also reduces the vibration to which the components are subjected during earthquakes or accident conditions.

(2) Set of four steam generators manufactured for a single reactor.



a large part of the Western world's demand for forgings. Supply has increased since 2006, with large capital projects in Germany, Italy, South Korea, China and India.

There is considerable international competition in heavy components, with six main competitors: Toshiba-Westinghouse, Doosan, MHI, Babcock & Wilcox and the arrival of emerging Chinese players mainly active in their domestic market. The EDF group has opened replacement steam generator manufacturing to the competition. AREVA NP is able to respond to customer requirements for all engineering and project management services.

AREVA's main competitors in mobile components are Toshiba-Westinghouse, MHI, Curtis Wright, KSB and Andritz.

Extension of the power plant operating period and optimization of maintenance strategies are two important issues for operators, who are becoming more demanding in terms of performance improvement, reliability and maintenance costs for reactor coolant pumps.

### **Outlook and development goals**

The Components Business Unit works for all reactor types. The nuclear equipment market consists of two segments: the component maintenance and replacement market, and the new builds market.

Despite the deterioration of global energy markets, the load outlook for the Saint-Marcel and Jeumont manufacturing plants is pointed upwards for the next three years, led in particular by the ramp-up of primary cooling system equipment manufacturing for the Hinkley Point EPR.

In 2017, the Creusot site's priority will be to continue to audit past manufacturing files and to deploy the quality plan to secure manufacturing quality. This program will be accompanied by investment in improvements to key equipment in its industrial operations.

The production sites' main challenges are to improve industrial safety, increase quality levels and achieve productivity gains. The objective remains to deliver primary cooling system equipment for nuclear reactors with the requisite standards of quality, according to the schedule agreed upon with the customer, and in a competitive manner.

#### **6.4.2.1.5. Technical and engineering department**

##### **Businesses**

The principal missions of the Technical and Engineering Department (TED) are the following:

- support AREVA NP's operations for the design of nuclear steam supply systems in France and Germany. The Technical and Engineering Department provides technical and testing facilities for which it is responsible, around the world;
- develop and guarantee the technical performance, licensing and competitiveness of the nuclear steam supply system;
- maintain and develop skills, methods and tools;
- promote the operations supported by these skills, ensuring proposal competitiveness;
- steer the Research and Development process for AREVA NP;
- manage relations with the safety authorities concerning the licensing of nuclear steam supply systems or the design of pressurized nuclear equipment, and with the institutions which define codes and standards applicable to AREVA NP's technical fields;
- fulfill the Technical Direction function within the scope of work of AREVA NP, except for the Fuel operations.

### **Operations and highlights**

#### **RESEARCH AND DEVELOPMENT**

This entity coordinates R&D teams responsible for key technologies and products supporting PWR and BWR reactors. It is also responsible for the development of new systems and technologies for next-generation reactors, in particular high temperature reactors and fast neutron reactors. Since July 1, 2016, and following the establishment of the new AREVA NP organization, it also steers AREVA NP's R&D program.

#### **DESIGN AUTHORITY**

The entity is the authority for AREVA NP's products (reactor models and products and services offered by the Installed Base Business Unit). For reactors, it ensures the consistency of the models under construction or development. For the products and services of the Installed Base Business Unit, it provides independent verification of the technical risk assessment. In 2016, the division in charge of TED continued in its role as Design Authority for the EPR NM project jointly with EDF's Septen (issuance of opinions and recommendations on the technical configuration of the EPR NM reactor).

#### **TECHNICAL CENTER**

The Technical Center brings a unique and wide range of skills, test facilities and laboratories to the development and testing of advanced methods and solutions.

The Technical Center's facilities are located in Erlangen and Karlstein, Germany, and in le Creusot and Chalon/St-Marcel in France.

#### **LICENSING, QUALITY AND SAFETY**

This entity is in charge of relations with the nuclear safety regulators.

In the French regulatory context, it is also responsible for relations with the French nuclear safety authority ASN for assessment of pressurized nuclear equipment conformity within the scope allocated to it, in accordance with the ESPN order of December 12, 2005, as amended by the order of December 30, 2015. To meet ASN requests for justifications and demonstrations to be provided in connection with this regulation, AREVA NP has put in place determining actions to evolve its practices. Internal and external work within the AFCEN association (publisher of the RCC-M mechanical construction code) received a positive score from ASN and will strengthen the group's position as a leading "manufacturer", under the meaning of the orders.

#### **ENGINEERING OF SAFETY, MECHANICAL AND CROSS-BUSINESS PROCESSES**

The engineering entities are responsible for carrying out studies in connection with projects led by the business units at the requisite level of quality, schedule and budget compliance. They are responsible for harvesting knowledge, managing skills and developing related codes and methods in the nuclear steam supply system field and in services to operating reactors. The teams are based in France (Paris and Lyon) and in Germany (Erlangen).

### **Human and industrial resources**

The technical units are comprised of international teams and have experimental and engineering facilities in France (Paris, Chalon, Lyon and le Creusot), in Germany (Erlangen and Karlstein) and in United States (Lynchburg).

### **Relations with customers and suppliers**

The Technical and Engineering Department teams work on projects won by other business units from external customers, and contribute to project performance.

**Outlook and development goals**

The Technical and Engineering Department was created on July 1, 2016 with teams from the Products and Technologies Business Unit and from the Engineering and Projects Organization. This entity's mission is to support the operations of AREVA NP by offering its skills, making its facilities available, and supplying reliable and effective services. Its efficient solutions support nuclear power plant operators confronted with a difficult financial environment. Its objective is to deliver high performance and high added-value services, and to meet its commitments, especially in terms of quality, schedule and budget.

**6.4.2.1.6. Instrumentation and Control****Businesses**

The Instrumentation and Control Business Unit is responsible for operations in AREVA NP's core instrumentation and control business: safety instrumentation and control systems, nuclear instrumentation, autonomous systems designed to meet strengthened safety requirements, simulation tools, cybersecurity of instrumentation and control, and technical management of instrumentation and control.

The main activities of the business unit are to:

- develop proposals for upgrade projects or new construction for internal and external customers;
- carry out projects covering the entire specification development cycle at the highest level, from the development of software and hardware to the validation of complete configurations on platforms;
- take responsibility or provide support for on-site installation and testing operations and for customer training;
- provide after-sales services for the equipment delivered.

**Human and industrial resources**

The teams of the Instrumentation and Control Business Unit are located in France, Germany, the United States, Slovakia and China.

The business unit has centers for engineering and project execution as well as research and development capabilities and production centers for operations related to specific, critical products in the core business: nuclear instrumentation and safety instrumentation and control.

Through one of its French subsidiaries, the business unit also has the ability to offer high-performance simulation tools, software and hardware.

**Operations and highlights**

The Instrumentation and Control Business Unit is involved in all of AREVA NP's projects with an instrumentation and control component.

**FRANCE**

The leading projects are:

- programs to upgrade or renovate EDF's installed nuclear fleet:

- the m2C program (twenty 1,300 MWe units) successfully deployed at the Paluel 1 and Catenom 1 reactors. The startup of other installations will occur at each unit outage,
- the E2C program (thirty-two 900 MWe units), in the design phase;
- the Flamanville 3 EPR ("FA3"), for which the instrumentation and control equipment is installed at the site and undergoing testing.

**FINLAND**

The Instrumentation and Control Business Unit delivered all of the safety instrumentation and control equipment as well as the operating instrumentation and control equipment to the site of the Olkiluoto EPR project ("OL3"), in strict compliance with the schedule set in September 2013, after receiving approval from the customer TVO and the Finnish safety authority STUK.

**CHINA**

The main projects are those of the Taishan 1 & 2 EPR units, for which most of the activity shifted to the site; the DCS Tianwan 3 & 4 project; and the DCS Fuqing units 5 & 6 project.

The business unit also has several nuclear instrumentation projects in parallel.

**ENGLAND**

The business unit is involved in the Hinkley Point EPR project ("HPC"), for which it is in charge of executing and supplying the operating and safety instrumentation and control systems of the power plant.

**GERMANY**

The German teams of the Instrumentation and Control Business Unit, armed with their experience with a number of reactor models, carry out a large number of upgrade projects in Europe.

**Outlook and development goals**

To increase its business volume, the Instrumentation and Control Business Unit is pursuing a strategy of development outside of its traditional domestic markets (France, Germany and the United States). In particular, it is targeting China and the international market for VVER reactors.

In its traditional markets, the Instrumentation and Control Business Unit's development strategy aims to provide a broader service to its customers.

Consistent with its development strategy, the business unit is pursuing efforts to streamline and expand its product catalogue; boost productivity by perfecting its work methods in engineering and project management; and optimize its industrial base and partnerships. By enhancing its competitiveness and the key differentiators of its instrumentation and control offer, it will strengthen its market share and position.

Maintaining the critical skills and experience of the employees of the Instrumentation and Control Business Unit is a major objective, for they add considerable value for the customer over the long term and are key differentiators of AREVA's offer.

**6.4.3. OTHER OPERATIONS**

The other operations are held for sale or remain within the AREVA SA consolidation scope until they are sold or completed. Two main areas of activity are concerned:

- the Propulsion and Research Reactors business led by AREVA TA, which is held for sale;
- the Renewable Energies operations (Bioenergies, Energy Storage, Wind Energy and Solar Energy), which are either held for sale or discontinued, in line with

the group's refocusing on operations related to the fuel cycle and its withdrawal from renewable operations.

### 6.4.3.1. PROPULSION AND RESEARCH REACTORS

#### Businesses

##### **Nuclear power supply systems for marine propulsion**

The core business of AREVA TA is to design, manufacture and maintain nuclear propulsion reactors for the French Navy and to provide related fuel, services and equipment. This business meets stringent safety, reliability and availability requirements. It is a strategic activity for France's nuclear deterrence.

The market consists of nuclear-powered vessels and related testing and production facilities. This market requires mastery of key methodologies and technologies, such as systems architecture, project management, digital safety systems, safety analysis, thermohydraulics and neutronics, and integrated logistics support. Nuclear reactors designed by the AREVA TA teams have powered several of the French Navy's submarines and an aircraft carrier during all of the fleet's operating missions for more than 40 years.

AREVA TA also provides propulsion-related services and systems, control systems, monitoring systems, acoustic discretion of facilities and their components. It has unique experience as a designer and facilities operator for the CEA. In addition to reactor design and related fuel design and fabrication, it provides support to the operator of onboard reactors or facilities in the form of training, services and maintenance.

##### **Engineering of nuclear facilities and major scientific research instruments for complex facilities (nuclear research reactors, small modular reactors)**

AREVA TA offers engineering solutions for the design, construction and commissioning of complex facilities to customers in the defense and civilian nuclear industries.

For example:

- its teams can take charge of the engineering and construction of a research reactor;
- AREVA TA is also responsible for the supply of certain equipment related to the construction of the MegaJoule Laser in Bordeaux and has provided its support to the customer since the beginning of the program;
- it is in charge of design studies for small modular reactors (SMR) as part of the future consortium led by EDF or for other interested customers (Engie).

##### **Design of electronics and instrumentation and control systems**

AREVA TA offers its defense and civilian nuclear customers high-tech electronics and instrumentation and control systems through its subsidiary AREVA Expansion.

#### Operations and highlights

Highlights of 2016 include:

In the defense nuclear segment:

- for the Barracuda program: The instrumented nuclear steam supply system (NSSS) module of the second submarine in the series (the *Duguay Trouin*) was transferred from Nantes-Indret to Cherbourg, and the non-instrumented NSSS of the third submarine in the series (the *Tourville*) was transferred from Cherbourg to Nantes-Indret to be fitted with its equipment. At the end of May, the training

platforms consisting of NSSS simulators were inaugurated in Toulon and can now be used to train seamen in the operation of the submarines in the series;

- several important contracts were awarded for the following projects: The contract for the major overhaul no. 2 of the *Charles de Gaulle* aircraft carrier was received in late January. In June, a contract was received to start the design definition phase of the New Mode RES project. In December, a contract was signed for the start of the detailed front end engineering and design phase of the S3G project involving the design of the NSSS of a third-generation ballistic missile submarine;
- for the operating and manufacturing operations:
  - land-based test reactor (RES): overall testing of the reactor starting in March (pressure and temperature tests with a fake core) and the first tests in the Hippocampe test program; on July 21, active startup of the reactor and combining of the fuel storage pool and the reactor in a single facility; complete qualification in October of the full-time engineering staff and of the shift teams for reactor operations,
  - end of the manufacturing and execution of neutronic and thermo-hydraulic qualification tests of the two cores to be used in the NSSS of the *Charles de Gaulle* aircraft carrier during major maintenance in 2017.

In the civilian nuclear segment:

- for the Jules Horowitz Reactor program (RJH):
  - in terms of the project management contract, civil engineering is 90% complete: The completed buildings include the reactor building, the change rooms, the refrigerant building, the safeguard building and the hot cell building. In the nuclear annex building, the pole crane has been accepted and the concreting and rebar of the roof is in progress. The ventilation and fluids studies restarted after DCNS left by mutual agreement,
  - for the reactor block supply contract: The reactor design and drawings of tubes and elbows in the primary cooling system have been completed; the design of the transfer system and pool floor are almost complete. Manufacturing has been launched for the mechanisms (qualifications complete), the reflector, and the components of the second containment building (including welding),
  - a new organization was set up internally in early October to improve its efficiency as concerns project management and supply contracts in order to be better prepared for the integration and testing phase and to optimize the effectiveness of the resources deployed,
- for the EPR reactors:
  - Hinkley Point C: Continued early studies of the non-computerized safety system (NCSS) and of the engineering of analogue instrumentation and control for the Unicom platform.

In the field of organization:

Until June 30, 2016 the Propulsion and Research Reactors operations were combined within a business division in AREVA's Reactors and Services Business Group. Operations relating to the fabrication and sale of fuel for research reactors and of medical targets were removed from the Propulsion and Research Reactors Business Division in April 2016, although they were kept within the Reactors and Services Business Group. As from July 1, 2016, the Propulsion and Research Reactors operations were combined operationally within a NewCo business unit while maintaining a direct legal link to the parent company, AREVA SA.

In early August, AREVA SA, AREVA TA and ECA Group, a subsidiary of the Gorgé group, entered exclusive negotiations following the unilateral purchase agreement

signed by Gorgé on the Elta company, a subsidiary of AREVA TA (66%) and of FracoQ2 (34%) (wholly owned subsidiary of AREVA SA) based in Toulouse. AREVA TA completed the sale of Elta to the Gorgé group in late November.

Throughout 2016, AREVA TA together with its parent company AREVA SA implemented the plan to remove AREVA TA from the AREVA group. On December 17, 2016, AREVA signed a share purchase agreement for all of its shares in AREVA TA with a consortium of buyers composed of the Agence des participations de l'État (APE, 50.32% of the capital), the Commissariat à l'énergie atomique et aux énergies renouvelables (CEA, 20.32%), and DCNS (20.32%). EDF will keep its 9.03% interest in the capital. The sale is expected to close in late March/early April 2017.

### Human and industrial resources

AREVA TA has four main industrial and engineering locations in France:

- Saclay: support functions and project operations;
- Aix-en-Provence: mainly engineering activities;
- Cadarache: support to and operation of onboard reactors;
- AREVA Expansion a subsidiary of AREVA TA (51%) and AREVA NP (49%), is based in Toulouse.

It is also located in the ports of Toulon, Brest and Cherbourg and close to DCNS Indret in Nantes and to the CEA in Bordeaux.

### Relations with customers and suppliers

AREVA TA's principal customers and partners are:

- in the defense sector: the CEA, the DGA, DCNS, the SSF and the SID;
- in the civilian nuclear sector: the CEA and AREVA NP.

AREVA TA's principal suppliers are:

- in the defense sector: DCNS, AREVA NP, Technoplus Industries, SPX-Clyde Union;
- in the civilian nuclear sector: SEIV, Endel-Engie, Comex, Sogeti, CNIM.

### Market and competitive position

AREVA TA works in the defense markets, mainly in the field of marine nuclear propulsion and defense facilities, markets which are based exclusively in France.

It is also positioned in the market for small modular reactors for research, both for new construction or for services to the installed base, in France and abroad.

Its principal competitors in its civilian operations are mainly large constructors such as Invaip in Argentina, Rosatom in Russia and Kaeri in South Korean.

AREVA TA also provides expertise and solutions to support power reactors for AREVA in the energy market.

### Outlook and development goals

In 2016, AREVA TA completed its process of refocusing on its nuclear operations and henceforth concentrates on the development of the following dual model:

In the defense nuclear segment, AREVA TA plans to keep its design, construction, maintenance, dismantling and fuel supply operations for nuclear steam supply systems for nuclear propulsion, and to develop even further its support activities in the field of defense facilities, making sure to maintain its expertise at the highest level of excellence.

In the civilian nuclear field, AREVA TA's goal is to develop its operations by capitalizing on its experience and references in design and engineering meeting demanding requirements in terms of safety and availability, focusing on:

- the design and construction of small modular reactors and nuclear facilities devoted to research and medical isotope production, in particular by positioning itself for international calls for proposals such as the Safari 2 research reactor in South Africa and the Pallas research reactor in the Netherlands;
- the supply of engineering services for power reactor systems and equipment, particularly in the field of instrumentation and control.

### 6.4.3.2. RENEWABLE ENERGIES

#### Operations and highlights

As part of the group's refocusing on operations related to the fuel cycle, the strategy for the streamlining of and withdrawal from the renewables operations launched in 2013 accelerated in 2016. Implementation of this strategy materialized as a series of decisions and actions during the year:

- in offshore wind, at the end of a three-month competitive bidding process designed to solicit and assess offers from potential third-party investors, on September 14, 2016 AREVA exercised its option to sell its 50% interest in the Adwen joint venture to Gamesa. This sale closed on January 5, 2017, and Gamesa holds 100% of the shares of Adwen since that date;
- in accordance with the decisions made in 2015, the Solar Energy operations were shut down in 2016. On February 22, 2016, an agreement between AREVA and its customer Reliance Power entered into force concerning the concentrated solar power plant built by AREVA in the state of Rajasthan, India. The agreement officially transfers the solar field in as-is condition to Reliance, along with the maintenance and operation of the power plant. As a result of the termination of this project and the absence of any orders in backlog, this decision marks the end of AREVA's involvement in any solar energy operation and the discontinuation of that business;
- in accordance with the decisions made in 2015, the process of shutting down the Bioenergy operations also continued in 2016:
  - in Brazil and Asia, the entity completed projects in the pipeline over the course of 2016. At December 31, 2016, the entity no longer had any projects under construction or any operating activities in these two regions, except for limited maintenance of three projects still under warranty. The business exit plan continued in 2016 in those two regions, in compliance with AREVA's contractual commitments,
  - in Europe, the Bioenergy entity continued in 2016 the construction of the co-generation biomass power plant project in Commeny, France. The gradual exit from the business continued in parallel and could be completed after the project is completed, scheduled for the third quarter of 2017;
- in energy storage, AREVA still has limited involvement in two initiatives:
  - a shareholding interest of 40% in the joint venture AREVA H2Gen co-owned with Ademe and Smart Energies, which develops, manufactures and markets hydrogen electrolyzers based on PEM technology. The business operates as an independent company, and AREVA is only involved as a shareholder through its representation on the Supervisory Board,
  - the development of a continuous flow battery technology led by the Research, Development and Innovation Department.

Note:

Due to the decisions described above and pursuant to IFRS 5, the Wind Energy, Solar Energy and Energy Storage businesses made no contribution to the group's intermediate balances or revenue.

Despite the decision to shut down the Bioenergy operations, they remained within the consolidation scope of the group's intermediate balances and consolidated revenue in 2016; the final shutdown of the business will not be completely effective until the last project has been completed.

#### 6.4.3.2.1. Bioenergy

##### Operations and highlights

###### BIOENERGY EUROPE

In 2016, the principal operating activity of the Bioenergy Europe entity was the continued turnkey construction of the Commeny biomass cogeneration power plant for the independent French energy producer Neoen. The power plant will have 15 MWe of electrical power and 50 MWe of thermal power. The construction of the power plant has experienced delays and is scheduled to be completed during the third quarter of 2017.

In view of the difficult market conditions and the group's strategy of refocusing on businesses related to the nuclear fuel cycle, it was decided in 2015 to terminate the Bioenergy Europe operations after completion of the Commeny project and in compliance with all of AREVA's contractual obligations, in particular as concerns warranties for operating power plants. Starting in June 2015, the staff of the entity's two sites in France and Germany was gradually reduced. In France, employees were covered by an Employment Preservation Plan with possibilities for redeployment in the group or departure with support measures. In Germany, an equivalent plan was deployed in compliance with local procedures. The plan for a gradual exit from the business continued in 2016 and may be finalized upon the completion of the Commeny project in 2017.

###### BIOENERGY ASIA

On February 22, 2016, it was decided to shut down the Bioenergy Asia operations. A program for a gradual exit from the business and staff reduction was implemented in 2016, in compliance with AREVA's contractual commitments. The business no longer has any projects under construction today and its operations are limited to managing warranty obligations. Full shutdown should be effective in 2017.

###### BIOENERGY BRAZIL

On March 8, 2016, the personnel of Bioenergy Brazil were informed of its shutdown. A program for a gradual exit from the business and staff reduction was immediately set up, in line with the schedule for completing AREVA's contractual commitments, in particular as concerns warranty obligations for the operating power plants. Lastly, it should be noted that in February 2016 the Bioenergy Brazil entity terminated the Campo Grande biomass power plant supply project with its customer Atico/Bolt, in compliance with the terms of the contract. As a reminder, this contract had been suspended in October 2015 in view of the customer's difficulties in coming up with the financing for this project.

#### 6.4.3.2.2. Energy storage

##### Hydrogen electrolysis with PEM technology

In 2016, operation continued of AREVA H2Gen, a joint venture created in May 2014 by its shareholders AREVA Stockage d'Énergie, Smart Energies and the French Environment and Energy Management Agency (Ademe). The joint venture designs and manufactures proton exchange membrane (PEM) hydrogen electrolyzers. AREVA and its partners aim to turn it into a global leader in the hydrogen production

market using electrolysis technology. The company is based in France and operates an engineering and electrolyzer production site in Ullis.

The market for hydrogen production by electrolysis, traditionally focused on industrial applications, is evolving with the opening of hydrogen vehicle supply stations. Other applications, such as power-to-gas, offer additional and important avenues for this business.

##### Other energy storage operations

Energy storage operations other than PEM electrolysis fall under the responsibility of AREVA's Research, Development and Innovation Department, to speed up development of related technology under collaborative programs. These operations mainly concern the development of a continuous flow battery technology, with operation of the first 150-kW prototype starting in 2016.

#### 6.4.3.2.3. Solar energy

As a reminder, in view of the very unfavorable market conditions for concentrated solar power, AREVA had decided in August 2014 to stop the Solar Energy operations at the end of projects nearing completion, unless a full takeover bid was received in the short term. Unfortunately, detailed discussions conducted in 2015 with potential buyers did not result in an agreement. Consequently, it was decided to discontinue these operations completely.

In order to shut down operations, an agreement was reached in December 2015 between AREVA and its customer Reliance Power for the early termination of the concentrated solar power plant project built by AREVA for Reliance in the State of Rajasthan, India. The agreement officially transfers the solar field in as-is condition to Reliance, along with the maintenance and operation of the power plant. This agreement was effectively executed on February 22, 2016, releasing both parties from their respective obligations. As a result of this termination and the absence of any orders in backlog, this decision marks the end of AREVA's involvement in any solar energy operation and the discontinuation of that business.

#### 6.4.3.2.4. Wind energy

##### Operations and highlights

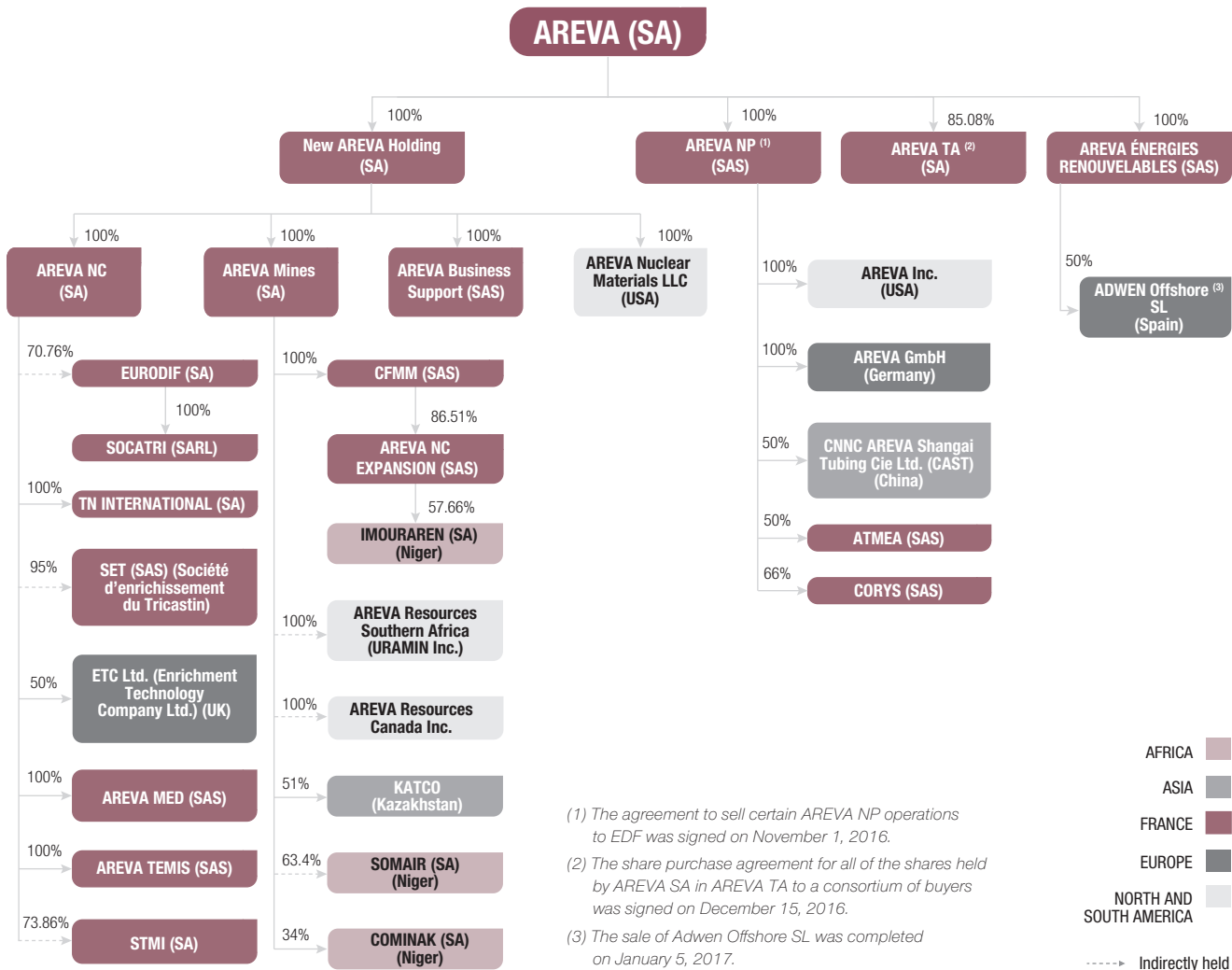
In offshore wind, on June 17, 2016, Gamesa and AREVA signed an amendment to the shareholders' agreement for Adwen, a joint venture in offshore wind energy held in equal shares by the two groups. Through that amendment, AREVA had three months to either sell its interest in Adwen to Gamesa or sell 100% of the shares in Adwen to an independent investor having made a more attractive firm offer during that period.

At the end of the three-month period, and in the absence of an attractive offer from a third party, the Board of Directors of AREVA SA decided to authorize Management to exercise the option to sell its interest in Adwen to Gamesa. This option, which was exercised on September 14, 2016, closed on January 5, 2017 with Gamesa's purchase of the 50% interest in Adwen held by AREVA. This transaction allowed the AREVA group to:

- maximize the value of the Adwen shares sold;
- limit and cap for the long term the amount of cash disbursements related to projects in operation and in the installation phase;
- strengthen Adwen's operations through a stable shareholding structure. In particular, Gamesa is aware of commitments made by Adwen under requests for proposals concerning offshore wind power generation in metropolitan France. Adwen will continue to carry these commitments.

## 7.1

## SIMPLIFIED ORGANIZATION CHART OF THE GROUP AT DECEMBER 31, 2016



The organization chart above reflects in particular the main consolidated companies of the group at December 31, 2016 appearing in note 36 to the consolidated financial statements.

The percentages mentioned for each entity correspond to the share of interest in the capital.

## 7.2. REPRESENTATIVE AND BRANCH OFFICES

In accordance with the provisions of article L. 232-1 II, the representative and branch offices of AREVA SA at December 31, 2016 were AREVA Helsinki (Finland); AREVA Istanbul (Turkey); AREVA Taiwan Representative Office (Taiwan); AREVA Brussels

(Belgium); AREVA Moscow Office (Russia)\*; AREVA Madrid (Spain)\*; AREVA Riyadh Branch Office (Saudi Arabia)\*; and AREVA South Africa (South Africa)\*.

\* In the process of being closed.

# PROPERTY, PLANT AND EQUIPMENT

08

<b>8.1. PRINCIPAL SITES OF THE GROUP</b>	<b>93</b>	<b>8.2. ENVIRONMENTAL ISSUES THAT MAY INFLUENCE THE ISSUER'S USE OF PROPERTY, PLANT AND EQUIPMENT</b>	<b>99</b>
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## 8.1. PRINCIPAL SITES OF THE GROUP

Pursuant to Appendix 1, point 8 of European Commission Regulation no. 809/2004 of April 29, 2004 and recommendation 146 of the European Securities and Markets Authority (ESMA), information is provided hereunder on the real estate properties and rentals used by the group in connection with its operations.

The group's principal worldwide plant sites at December 31, 2016 are listed below. The primary criterion for listing sites is the size of the operation conducted there. It should be noted that several different operations are performed at some of these sites.

### 8.1.1. NEWCO'S OPERATIONS

#### 8.1.1.1. MINING

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Arlit</b> Niger	Offices + production and storage facilities	Long-term concession/ Full ownership	No	146.6 ha Building: 347,907 m <sup>2</sup>	Uranium concentrates
<b>Imouraren</b> Niger	Mining site	Long-term concession/ Full ownership	No	20,000 ha	Under development
<b>Trekkopje</b> Namibia	Mining site	Full ownership	No	37,367 ha	Care and maintenance
<b>Trekkopje</b> Namibia	Desalination plant	Full ownership	No	Land: 20 ha Building: 12,948 m <sup>2</sup>	Seawater desalination
<b>McClean</b> Canada	Mill + base camp	Long-term concession/ Full ownership	No	4,600 ha	Uranium concentrates
<b>Bessines/Gartempe</b> (France)	Offices + production and storage facilities	Full ownership	No	389.1 ha Building: 50,586 m <sup>2</sup>	Research laboratory and U3O8 storage
<b>Muyunkum</b> Kazakhstan	Offices + production and storage facilities	Long-term concession/ Full ownership	No	72.2 ha	Eluates
<b>Tortkuduk</b> Kazakhstan	Offices + production and storage facilities	Long-term concession/ Full ownership	No	103.4 ha Building: 37,701 m <sup>2</sup>	Eluates + uranium concentrates (U <sub>3</sub> O <sub>8</sub> )

## 8.1.1.2. FRONT END

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Tricastin</b> (26) France (nuclear regulated, security regulated, environmentally regulated facility)	Plant and storage areas	Full ownership	No	Land: 624.1 ha Building: 65.7 ha	Conversion of UF <sub>6</sub> ; defluorination and denitration of TU <sub>5</sub> , TU <sub>2</sub> and depleted UO <sub>2</sub> ; related services (effluent treatment, equipment maintenance); storage and enrichment services
<b>Malvési</b> (11) France (nuclear regulated, environmentally regulated facility)	Plant	Full ownership	No	Land: 161.7 ha Building: 32,581 m <sup>2</sup>	UF <sub>4</sub> conversion services

## 8.1.1.3. BACK END

## 8.1.1.3.1. Recycling

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>La Hague</b> (50) France (regulated nuclear facility)	Plant site	Full ownership	No	Land: 385.8 ha Building: 77.2 ha	Used fuel treatment
<b>Valognes</b> (50) France	Offices, Warehouse	Full ownership	No	Land: 52,533 m <sup>2</sup> Building: 18,323 m <sup>2</sup>	Offices and transportation warehouse
<b>Saint-Sauveur-le-Vicomte</b> (50) France	Office, workshop	Full ownership/ Lease	No	Land: 27,094 m <sup>2</sup> Building: 9,638 m <sup>2</sup>	Machining and mechanical fabrication
<b>Marcoule</b> (30) France (regulated nuclear facility)	Plants, offices	Full ownership	No	Land: 11.47 ha Building: 60,012 m <sup>2</sup>	MOX fabrication

## 8.1.1.3.2. Nuclear Logistics

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Codolet</b> France	Offices and workshops	Full ownership	No	Land: 3.1 ha Building: 2,997m <sup>2</sup>	Offices and workshop. Transport vehicle servicing
<b>Valogne</b> France	Offices, warehouse and rail terminal	Full ownership/ Lease	No	Land: 5.7 ha Building: 3,927 m <sup>2</sup>	Railroad, transport warehouse

## 8.1.1.3.3. Dismantling &amp; Services

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Cadarache</b> (13) France (regulated nuclear facility)	Plants, offices	Full ownership	No	Building: 4,995 m <sup>2</sup>	Site undergoing dismantling
<b>Miramas</b> (13) France (environmentally regulated facility)	Plant	Full ownership	No	Land: 31.2 ha Building: 13,021 m <sup>2</sup>	Site undergoing cleanup
<b>Bollène</b> (84) France (environmentally regulated facility)	Plant	Full ownership	No	Land: 19,483 m <sup>2</sup> Building: 9,644 m <sup>2</sup>	Machine maintenance, waste processing, equipment recertification



8.1.1.4. OTHER NEWCO'S OPERATIONS

8.1.1.4.1. AREVA Projets

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Bagnols/Geze</b> France	Offices	Full ownership	No	Land: 18,694 m <sup>2</sup> Building: 7,182 m <sup>2</sup>	Engineering
<b>Equerdreuville</b> France	Offices	Full ownership/Lease	No	Land: 16,366 m <sup>2</sup> Building: 4,350 m <sup>2</sup>	Engineering
<b>St Quentin en Yvelines</b> France	Offices	Lease	No	Building: 27,472 m <sup>2</sup>	Engineering

8.1.1.4.2. AREVA Med

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Plano, Texas</b> United States	Laboratory	Full ownership	No	Land: 1.5 ha Building: 780 m <sup>2</sup>	Research
<b>Bessins</b> France	Laboratory	Full ownership	No	Land: 6,990 m <sup>2</sup> Building: 12,053 m <sup>2</sup>	Research
<b>Razes</b> France	Laboratory	Full ownership	No	Land: 2,794 m <sup>2</sup> Building: 680 m <sup>2</sup>	Research

### 8.1.2. AREVA NP's OPERATIONS

#### 8.1.2.1. FUEL

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Romans-sur-Isère</b> (26) France (regulated nuclear facility)	Plant	Full ownership	No	Land: 32.6 ha Building: 59,789 m <sup>2</sup>	PWR fuel assemblies
<b>Paimbœuf</b> (44) France (environmentally regulated facility)	Plant	Full ownership	No	Land: 6.4 ha Building: 18,170 m <sup>2</sup>	Zirconium tubes for fuel assemblies
<b>Jarrie</b> (38) France (environmentally regulated facility)	Plant	Full ownership/Lease	No	Land: 10.13 ha Building: 41,813 m <sup>2</sup>	Zirconium sponge
<b>Rugles</b> (27) France (environmentally regulated facility)	Plant	Full ownership	No	Land: 7.3 ha Building: 12,630 m <sup>2</sup>	Zirconium products
<b>Ugine</b> (73) France (environmentally regulated facility)	Plant	Full ownership	No	Land: 5.6 ha Building: 33,550 m <sup>2</sup>	Intermediate products in zirconium and titanium Plug rods
<b>Lyon</b> (69) France	Offices	Lease	No	Building: 8,146 m <sup>2</sup>	Engineering
<b>Dessel</b> Belgium (nuclear facility)	Plant	Full ownership	No	Land: 10.4 ha Building: 17,851 m <sup>2</sup>	Site undergoing dismantling Powder and pellet production (UO <sub>2</sub> , Gad & BLEU)
<b>Richland</b> Washington – United States (nuclear facility)	Plant	Full ownership	No	Land: 134.4 ha Building: 36,900 m <sup>2</sup>	Assemblies and various components.
<b>Lingen</b> Germany (nuclear facility)	Plant	Full ownership	No	Land: 44.1 ha Building: 14,260 m <sup>2</sup>	Fuel assemblies for BWRs and PWRs

#### 8.1.2.2. INSTALLED BASE

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Chalon-sur-Saône</b> France	Offices, workshop and storage	Full ownership/Lease	No	Land: 25.4 ha Building: 39,513 m <sup>2</sup>	Robotics, tooling, decontamination, storage of tooling (contaminated/decontaminated)
<b>Maubeuge</b> France (nuclear regulated, environmentally regulated facility)	Plant	Full ownership	No	Land: 45,000 m <sup>2</sup> Building: 7,800 m <sup>2</sup>	Services related to contaminated component maintenance
<b>Lyon</b> (69) France	Offices	Lease	No	Building: 15,484 m <sup>2</sup>	Engineering
<b>Erlangen</b> Germany	Offices	Lease	No	Building: 5,286 m <sup>2</sup>	Engineering
<b>Lynchburg</b> United States	Offices, hot facilities, training center	Full ownership/Lease	No	Land: 99,636 m <sup>2</sup> Building: 23,219 m <sup>2</sup>	Decontamination Hot maintenance facility

8.1.2.3. **LARGE PROJECTS**

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Vitry/Seine</b> France	Offices	Lease	No	Building: 1,105 m <sup>2</sup>	Engineering
<b>Erlangen</b> Germany	Offices	Lease	No	Building: 5,354 m <sup>2</sup>	Engineering

8.1.2.4. **COMPONENTS**

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Saint-Marcel</b> France (environmentally regulated facility)	Plant	Full ownership	No	Land: 18.5 ha Building: 56,814 m <sup>2</sup>	Heavy components
<b>Jeumont</b> France (environmentally regulated facility)	Plant	Full ownership	No	Land: 9.2 ha Building: 41,003 m <sup>2</sup>	Reactor coolant pump sets, control rod drive mechanisms
<b>Maubeuge</b> France (nuclear regulated, environmentally regulated facility)	Plant	Full ownership	No	Land: 51,390 m <sup>2</sup> Building: 3,630 m <sup>2</sup>	Services related to contaminated component maintenance
<b>Le Creusot</b> France (environmentally regulated facility)	Plant, offices, workshop	Full ownership/Lease	No	Land: 8.5 ha Building: 54,009 m <sup>2</sup>	Forged parts and machining of large parts
<b>Chalon-sur-Saône</b> France	Offices	Full ownership 50/50 joint venture between JSPM and Dongfang Electric Machinery	No	Building: 25,116 m <sup>2</sup>	Robotics, tooling
<b>Deyang</b> Sichuan, China	Plant	Full ownership	No	Land: 36,729 m <sup>2</sup> Building: 16,435 m <sup>2</sup>	Reactor coolant pumps

8.1.2.5. **TECHNICAL AND ENGINEERING DEPARTMENT**

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Lyon</b> France	Offices	Lease	No	Building: 8,921 m <sup>2</sup>	Engineering
<b>Erlangen</b> Germany	Offices	Lease	No	Land: 27,500 m <sup>2</sup> Building: 53,636 m <sup>2</sup>	Engineering

8.1.2.6. **INSTRUMENTATION AND CONTROL**

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Le Creusot</b> France	Technical Center	Full ownership	No	Land: 4.5 ha Building: 5,901 m <sup>2</sup>	Testing

### 8.1.3. OTHER OPERATIONS

#### 8.1.3.1. CORPORATE

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area
Tour AREVA, 1 place Jean Millier – Paris-La Défense, France	Offices (registered office)	Lease	No	93,457 m <sup>2</sup>

#### 8.1.3.2. PROPULSION AND RESEARCH REACTORS

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Cadarache</b> (13) France (INBS)	Production plant, offices	CEA host site	No	Land: 15.3 ha Building: 53,954 m <sup>2</sup>	Nuclear fuel
<b>Aix-en-Provence</b> (13) France	Offices	Full ownership	No	Land: 10.6 ha Building: 12,053 m <sup>2</sup>	Design/Engineering
<b>Saclay</b> (91) France	Offices	Full ownership/Lease	No	Land: 1.5 ha Building: 7,298 m <sup>2</sup>	Design/Engineering

#### 8.1.3.3. RENEWABLE ENERGIES

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Aix-en-Provence</b> (13) France	Offices, Plant	Lease	No	Land: 1,230 m <sup>2</sup> Building: 835 m <sup>2</sup>	Fuel cells

### 8.1.4. SCHEDULED INVESTMENTS

See Section 5.2. *Investments* and the appropriate subsections of Section 6. *Business overview* for more detailed information on scheduled investments by operation.

## **8.2. ENVIRONMENTAL ISSUES THAT MAY INFLUENCE THE ISSUER'S USE OF PROPERTY, PLANT AND EQUIPMENT**

See Section 4. *Risk factors*.

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## 9.1. OVERVIEW

The following comments are based on financial information for 2016 and 2015 and must be read in conjunction with AREVA's consolidated financial statements for the years ended December 31, 2016 and December 31, 2015. These comments were drafted based on the group's consolidated financial statements, prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union on December 31, 2016.

Traditionally, AREVA presented business segment information by operating Business Group (BG), which is the level at which that information was examined within the group's governance bodies, as per the requirements of IFRS 8. However, in view of the changes in consolidation scope contemplated in 2017 and the adoption of IFRS 5, this division of information is no longer relevant, since the only continuing operations of AREVA relate to the OL3 project and to the contract in the final stage of completion in the Bioenergy operations.

### 9.1.1. BUSINESS TRENDS

#### CHANGE IN THE GROUP'S CONSOLIDATION SCOPE

The legal and financial restructuring of the group begun in 2015 continued in 2016. It translated in particular into disposals of assets which were no longer strategic (nuclear measurements, propulsion and research reactors, offshore wind turbines), into the discontinuation of operations (Solar Energy, Bioenergy), and into the constitution of two subsets of operations over which AREVA SA will no longer exercise control at the end of the restructuring, normally expected in 2017. Ultimately, three separate companies should exist:

- New AREVA Holding, temporarily called "NewCo", centered on the nuclear fuel cycle and carrying in particular the operations of AREVA Mines, AREVA NC (Front End and Back End of the fuel cycle) and AREVA BS. AREVA SA will lose the control of NewCo once the capital increase of the latter has been completed, planned for the first half of 2017, subject to the fulfillment of preconditions set by the European Commission in its decision of January 10, 2017;
- a company yet to be constituted and temporarily named "New NP" combining the operations of AREVA NP, with the exception of the OL3 contract. This company is destined to be sold to EDF and to strategic investors during the second half of 2017;
- and lastly AREVA SA, whose main mission after the end of the implementation of the restructuring plan, subject to its completion, will be to complete the Olkiluoto 3 EPR reactor project ("OL3") in Finland via its subsidiary AREVA NP with the necessary resources and in compliance with its contractual obligations.

Consequently, pursuant to IFRS 5, the following operations are classified in "operations sold, discontinued or held for sale" and no longer contribute to the key financial indicators published by the group:

- Nuclear fuel cycle operations: Mining, Chemistry/Enrichment, Recycling, Dismantling and Services, and Logistics, combined within the New AREVA Holding company ("NewCo");
- AREVA NP's operations (excluding the OL3 contract) held for sale to EDF and to strategic partners: Fuel, Installed Base, Large Projects (excluding OL3), Components, Engineering, Instrumentation and Control;
- Propulsion and Research Reactors operations combined in AREVA TA;
- Nuclear Measurement operations combined in the Canberra company, sold on July 1, 2016;
- Wind Energy operations, which were sold, and Solar Energy operations, which have been discontinued.

### 9.1.2. KEY FEATURES OF AREVA'S BUSINESS MODEL

Once the Bioenergy operations are discontinued after the completion of the last project in progress, the completion of the Olkiluoto 3 EPR project in Finland ("OL3")

through its subsidiary AREVA NP will be AREVA's main activity.

### 9.1.3. HIGHLIGHTS OF THE PERIOD

The information reported in this section concerns the entire group, including NewCo and the other operations sold or held for sale.

To restore its competitiveness and reestablish its financial position, the group designed and has started to implement the Restructuring Plan, consistent with the 2016-2020 roadmap presented to the market on June 15, 2016.

The Restructuring Plan includes the following three main sections:

- conversion of the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) into subsidiaries within the NewCo entity, a wholly owned subsidiary of AREVA;
- capital increases of AREVA and NewCo in the total amount of 5 billion euros; and
- asset sales in order to withdraw from certain operations and refocus on the nuclear fuel cycle operations.

At the end of the implementation of the Restructuring Plan, and subject to its execution, AREVA's main mission will be to complete the Olkiluoto 3 EPR reactor project ("OL3") in Finland with the necessary resources, in compliance with its contractual obligations. Another objective of AREVA will be to close out the remaining renewable energy projects; it will keep the responsibility associated with outstanding component contracts and potentially with non-outstanding component contracts for which serious anomalies might be identified and unresolved by the completion of the sale of New NP (see below, "Quality action plan concerning the manufacturing plants of New NP"). Lastly, AREVA will assume responsibility for the repayment of bank borrowings (bilateral lines of credit and RCF) in 2017 and 2018.

#### CONVERSION OF THE NUCLEAR FUEL CYCLE OPERATIONS INTO SUBSIDIARIES WITHIN NEWCO

The creation of subsidiaries involved contributing the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) to the NewCo entity, within which strategic investors are authorized to invest alongside the French State.

The bearers of bonds issued by AREVA maturing in 2017, 2019, 2020, 2021, 2022, 2023 and 2024, assembled in general meetings, and the sole holder of the 2018 bond approved the contribution on September 19, 2016 and September 27, 2016 respectively.

On November 3, 2016, AREVA's shareholders, assembled in an Extraordinary General Meeting, also approved the contribution, the draft partial asset contribution agreement between AREVA and NewCo, and the valuation of and payment for the contribution, and delegated authority to the Board of Directors to effect the contribution. Furthermore, the contribution and correlative capital increase of NewCo were approved by the NewCo shareholders on November 3, 2016.

The contribution was effected on November 10, 2016, giving rise to a capital increase for NewCo in the amount of 45 million euros.

Non-significant assets and liabilities attached to the fuel cycle operations will also be transferred.

#### CAPITAL INCREASES OF AREVA AND NEWCO IN THE TOTAL AMOUNT OF 5 BILLION EUROS

##### European Commission consent for the Restructuring Plan

On April 29, 2016, the French authorities notified the European Commission of a restructuring aid measure which they plan to grant to the group pursuant to the guidelines on "aid for rescuing and restructuring non-financial undertakings in difficulty". This notice is based on the Restructuring Plan, which aims to restore the group's long-term viability and competitiveness.

The proposed restructuring aid in the maximum total amount of 4.5 billion euros takes the form of twin capital increases by the injection of public capital in the amount of 2 billion euros in AREVA and in the maximum amount of 2.5 billion euros in NewCo.

On July 19, 2016, pursuant to procedural rules on State aid, the European Commission opened a formal review related to the planned measures, asking in particular that the French authorities provide clarification on the plan for returning the group to viability, how it would contribute to its restructuring costs, and how it would remedy the potential distortions of competition that may result from the planned recapitalizations, if any. This decision was published in the *Official Journal of the European Union* on August 19, 2016 in order to allow all interested third parties (such as, in particular, the group's competitors, suppliers and customers) to submit comments they may have in this regard to the European Commission.

On January 10, 2017, at the end of the review of the matter by the European Commission, the latter authorized the French State's participation in the capital increases of AREVA and of NewCo, finding in particular that (i) the planned aid measures enable the group's return to long-term viability, (ii) the group is contributing significantly to the costs of its restructuring and (iii) the compensatory measures proposed by the group are sufficient and adequate.

The European Commission's authorization is conditioned on the fulfillment of the following two preconditions:

- the findings of the Autorité de sûreté nucléaire ("ASN") on the results of the demonstration program concerning the problem of carbon segregation identified in parts of the EPR reactor vessel of the Flamanville 3 project, without calling into question the suitability for service of the vessel parts due to that segregation or, alternatively, a decision by EDF, duly notified to the group in view of the sale of New NP, to waive the condition precedent related to the EPR reactor of the Flamanville 3 project as concerns the carbon segregation identified in parts of that reactor's vessel; and
- the European Commission's authorization of the merger between EDF and New NP.

Moreover, the European Commission's authorization is accompanied by a certain number of commitments on the part of the group until the end of its restructuring plan, i.e. the end of 2019. In particular, it covers the obligation not to proceed with acquisitions of interests in companies which it does not already control (with the exception of (i) a certain number of already identified projects and (ii) after the European Commission's authorization of projects which would be necessary to its return to viability), and the obligation to withdraw completely from the reactor and fuel assembly operations. By that date, neither AREVA nor NewCo will have a capitalistic relationship with New NP.

On January 10, 2017, the European Commission also authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros, to enable the group to meet its financial obligations until the effective completion of the AREVA and NewCo capital increases.

These advances from the shareholder current account, to be credited to the amount of the above-mentioned capital increases reserved for the French State, will be reimbursed by converting the State's receivable into capital within the framework of those capital increases, subject to the fulfillment of the two preconditions described above.

### Capital increase of AREVA SA

Within the framework of the group's Restructuring Plan aimed at restoring its competitiveness and reestablishing its financial position, AREVA plans to carry out a capital increase reserved for the French State with cancellation of the shareholders' preemptive subscription right (the "Reserved Capital Increase"). In its meeting of December 15, 2016, AREVA's Board of Directors approved the principle of the Reserved Capital Increase and convened a General Meeting of Shareholders on February 3, 2017 for the purpose of authorizing the Reserved Capital Increase. AREVA's Board of Directors met again to set the main terms and conditions of the Reserved Capital Increase, including the subscription price.

The proposed Reserved Capital Increase was approved by the Combined General Meeting of Shareholders held on February 3, 2017, with a view to carrying it out upon the fulfillment of the conditions accompanying the European Commission's authorization, in conformance with European regulations relative to State aid.

The total amount of the Reserved Capital Increase, including the share premium, will be 2 billion euros, corresponding to the sum of the 444,444,444 new shares issued multiplied by the subscription price per new share of 4.50 euros.

The purpose of the Reserved Capital Increase, as a supplement to the income from asset sales in progress, is to enable AREVA to meet its cash requirements and in particular to undertake the successful completion of the OL3 project.

Subject to the completion of the Reserved Capital Increase, the admission of the shares thus issued to trading on the Euronext Paris regulated market will be the subject of a prospectus which will be submitted to the AMF for approval.

The French State confirmed its commitments to participating in the Reserved Capital Increase at the level of 2 billion euros.

### Capital increase of NewCo

The capital increase of NewCo in the total amount of 3 billion euros is to be subscribed by the French State and strategic investors.

The objective of this capital increase is to enable NewCo to meet its financial obligations and to develop, before being in a position in the medium term to refinance on the markets. The French State confirmed its commitments to participating in the Capital Increase at the maximum level of 2.5 billion euros, alongside strategic investors.

The proposed NewCo capital increase was submitted for approval to the General Meeting of NewCo Shareholders held on February 3, 2017. The execution of this capital increase is subject to the fulfillment of the conditions accompanying the European Commission's authorization of January 10, 2017 (see above *European Commission consent for the Restructuring Plan*).

Following this capital increase, and subject to its completion, AREVA would hold a minority interest in NewCo of approximately 40% of the capital and voting rights, leading to the loss of AREVA's control of NewCo.

### Commitments from strategic investors to participate in the NewCo capital increase

The industrial groups Mitsubishi Heavy Industries (MHI) and Japan Nuclear Fuel Limited (JNFL) have expressed interest in participating in the NewCo capital increase and formulated offers to that effect on December 15, 2016.

These strategic investors have committed to participating in the NewCo capital increase at the level of 500 million euros, corresponding to a 10% target interest, and will thus become NewCo shareholders alongside the French State and the company, subject to the signature of the final agreements and the completion of the above-mentioned capital increase.

### Public buyout offer for AREVA SA shares

Considering the loss of control of NewCo resulting from its capital increase, and in accordance with the provisions of article 236-6 of the AMF's general regulations, the French State announced its intention of filing a public buyout offer, followed as applicable by a mandatory squeeze-out. The price of this public buyout offer would be identical to the issue price of the Reserved Capital Increase, i.e. 4.50 euros per share, on the condition that no significant event occurs between now and the launch of the public buyout offer which might lead to a change of price, upwards or downwards.

The proposed public buyout offer remains subject to AMF's Conformity Decision.

### ASSET SALES

#### OL3 contract maintained in consolidation scope of continuing operations

Discussions were entered into with TVO in early 2016, mainly with the objective of getting TVO's consent for the transfer of the contract for the project to construct the Olkiluoto 3 power plant ("OL3") to AREVA SA and for the signature of a comprehensive settlement ending the arbitration between TVO and the AREVA-Siemens consortium. These negotiations did not lead to an agreement and were suspended during the first half of 2016.



In the absence of an agreement with TVO, the OL3 contract (currently held by AREVA NP) was not transferred to AREVA, and it was thus kept within the AREVA NP consolidation scope.

Following the sale of its operations to EDF (previously transferred to New NP), AREVA NP will be kept within the AREVA consolidation scope and will keep all of the resources needed to complete the OL3 project, in compliance with its contractual obligations.

### Plan to sell AREVA NP's operations, excluding the Olkiluoto 3 EPR project in Finland ("OL3")

Following the memorandum of understanding signed on July 28, 2016, AREVA, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 which sets the terms and conditions for the sale of an interest giving EDF exclusive control of an entity tentatively called "New NP", a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base of the group.

The selling price for 100% of the capital of New NP was set at 2.5 billion euros, excluding any price adjustments and/or supplements.

The contracts related to the OL3 project and the means needed to complete the project, along with the responsibility attached to outstanding contracts related to parts forged at the Creusot plant and possibly to contracts not outstanding but for which serious anomalies might be identified and not yet resolved by the closing of the New NP sale, will be kept within AREVA NP and will thus remain within the group's consolidation scope.

The contractual obligations which would be chargeable to New NP in the event of the discovery of anomalies resulting from a failure in the quality control of equipment manufacturing at the Creusot plant and, possibly, at the Saint-Marcel and Jeumont plants will continue to be guaranteed by AREVA.

The transaction is expected to close by the end of 2017, subject in particular to the receipt of favorable findings from the French nuclear safety authority ASN on the subject of the results of tests of the primary cooling system of the Flamanville 3 reactor; the completion and satisfactory conclusion of quality audits at the Creusot, Saint-Marcel and Jeumont plants; and the approval of the competent authorities which regulate business mergers and nuclear safety. Furthermore, the closing of the transaction is conditioned on the transfer of AREVA NP's operations, excluding the OL3 contract and certain component contracts, to the New NP entity.

Discussions with strategic investors which have expressed interest in acquiring an interest in New NP alongside EDF are expected to begin soon. The interest acquired by EDF, which could be as much as 75% of the capital under the terms of the share purchase agreement signed on November 15, 2016, would thus be reduced to a target interest of at least 51% of the capital, giving it exclusive control. At the end of the restructuring, AREVA and NewCo would no longer hold any interest in New NP.

### Sale of Canberra

AREVA and the Mirion Technologies group announced on July 1 the completion of the sale of Canberra, the group's subsidiary specialized in nuclear measurements.

### Sale of Adwen

On September 14, at the end of a three-month competitive process aimed at soliciting and assessing investor offers, AREVA exercised the option to sell to Gamesa its interest in Adwen, the joint venture between the two groups specialized in offshore wind. The sale closed on January 5, 2017.

### Sale of Elta

On November 30, AREVA TA and AREVA SA sold to ECA Group all of their respective interests in Elta, a group subsidiary specialized in the development, marketing and operational readiness of electronic systems and equipment for the aerospace industry.

### Plan to sell AREVA TA

On December 15, 2016, AREVA signed a share purchase agreement for all of its shares in AREVA TA to a consortium of buyers composed of the Agence des participations de l'État, the Commissariat à l'énergie atomique et aux énergies renouvelables, and DCNS. EDF, which already owns 9% of the capital, will remain a shareholder. AREVA TA specializes in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research reactors and facilities.

## OTHER HIGHLIGHTS OF THE 2016

### Voluntary Departure Plan and adaptation of the group's workforce

On March 4, 2015, when the group's 2014 results were reported, AREVA announced the deployment of a performance plan to achieve 1 billion euros in operational gains in 2018 compared with 2014. This plan rests on four pillars in particular: control of payroll and compensation, productivity improvement, selectivity in purchasing, and marketing and sales strategy.

In July 2015, as part of its performance plan, the group had announced its intention of reducing its international workforce by 6,000 people by the end of 2017 in relation to December 31, 2014.

In France, voluntary departure plans were launched for AREVA Mines, AREVA NC, AREVA NP, AREVA Business Support, SET and Eurodif Production, with the goal of 3,400 job cuts over the 2016-2017 period. The voluntary period of these departure plans ended in late November 2016.

At the end of 2016 (i.e. after the end of the voluntary departure periods), a total of 3,042 departures had been recorded (including those to come) within the scope of the above-mentioned six companies, 2,046 of which were within the framework of the voluntary departure plans and 996 of which were outside those plans (non-VDP retirement, dismissals, resignations, etc.).

The performance plan also contains an international component. In Niger (at the mining sites), in Germany (closure of the Offenbach site) and in the United States, the job cuts concerned close to 2,000 employees as of the end of 2016.

At December 31, 2016, the AREVA group (consolidation scope) had a global workforce of 36,241 employees, compared with 41,847 employees at December 31, 2014, for a reduction of approximately 13.5% representing 5,632 employees (including 927 employees of the Canberra subsidiary, sold on July 1, and 85 employees of Elta, sold in December 2016).

The group's global workforce at December 31, 2016 was distributed as follows:

- continuing operations consolidation scope: 46 employees;
- New NP consolidation scope: 16,410 employees;
- NewCo consolidation scope: 18,125 employees;
- other operations in the process of being sold (particularly AREVA TA and renewable energies): 1,660 employees.

### Test program for the bottom and closure heads of the FA3 reactor vessel

In 2016, AREVA carried out the test program concerning the problem of carbon segregation in the bottom head and closure head of the Flamanville 3 reactor vessel, in accordance with the framework of the nuclear safety authority ASN's requirements, as defined in its letter of December 12, 2015 and supplemented by that of September 26, 2016.

Throughout the conduct of this program, it was subject to surveillance by the Notified Organization designated by the nuclear safety authority ASN. EDF was associated with those tests.

As a reminder, this program involves carrying out mechanical tests to characterize the properties of the materials and verify their conformity. Three sacrificial parts were used.

The final report was sent to the nuclear safety authority ASN on December 16, 2016. It is under review by the latter together with the IRSN. The review will end with an opinion from the ESPN Standing Group, expected in June 2017.

Based on that opinion, ASN will issue a technical evaluation of the vessel's conformity and will refer the matter to the Higher Council for the Prevention of Technological Risks (CSPRT). In addition, the Chinese safety authority conditioned the commissioning of the Taishan 1 power plant under construction on the acceptance of the Flamanville vessel demonstration report by the French safety authority.

AREVA considers the results included in the report sent to the safety authority to be satisfactory. A favorable decision by the CSPRT was assumed in the financial statements for the period ended December 31, 2016.

### Carbon segregation of steam generator channel heads

The discovery of high concentrations of carbon on the channel heads of steam generators in EDF's fleet gave rise in 2016 to a large program of inspections, tests and analyses to demonstrate the suitability for service of those components and to recommend strengthened manufacturing processes to ASN to guarantee that these phenomena are under control. The channel heads concerned are mainly subcontracted parts and are not forged at le Creusot. The analyses provided in 2016 enabled the restart of the reactors in the EDF fleet.

Some channel heads manufactured at le Creusot for steam generators in the process of being manufactured will be replaced by new channel heads. All of the corresponding work was evaluated and factored into the costs at completion of the projects concerned.

### Quality action plan concerning the New NP manufacturing plants

The quality audit of the Creusot plant launched at the end of 2015 continued in 2016. In connection with the audit, all of the quality processes were reviewed and improvement measures are being implemented.

Concerning the Creusot plant, the quality audit was supplemented by exhaustive analysis of one category of manufacturing files of forged parts (marked files), with the objective of identifying potential anomalies. Files presenting practices which are not in compliance with Creusot's quality assurance rules were identified. The anomalies found were the subject of a technical characterization submitted to a technical committee. This work was carried out with the operators and customers concerned. The objective of this work is to validate the characterization performed and to deal with the anomalies by providing customers and the safety authorities appropriate technical justification in terms of the contractual and regulatory requirements ensuring the operability of the parts. An information and discussion process has been implemented in which the nuclear safety authorities in particular are involved. All of the customers concerned by the anomalies identified have been informed by AREVA.

To date, the analyses have found that no reported anomaly compromises the mechanical integrity of the parts concerned. Additional tests and analyses are in progress, in particular on an equipment item delivered to the Fessenheim 2 power plant, in order to respond to requests from the nuclear safety authority ASN following the suspension of the test certificate of one of the steam generators.

A more extensive analysis of the manufacturing files (unmarked files) is in progress and concerns more than 6,000 files. Additional identified anomalies are being dealt with in the same way. In this regard, an anomaly on a steam generator delivered to the Flamanville 3 site was the subject of characterization for purposes of responding to requests from the safety authority.

In addition, since May 2016, the analysis has been extended to the St-Marcel and Jeumont sites. No similar anomalies have been identified at those two sites as of the date of these financial statements.

### Tensile tests performed at the Creusot laboratory

Following the deficiencies found in April 2015 concerning tensile test protocols at the Creusot laboratory, systematic verification was undertaken to justify the parts concerned through analyses or by retesting on test specimens. The identified anomalies are being dealt with in coordination with the customers.

### Inspection of the Creusot site by the safety authorities of several countries

The safety authorities of several countries carried out an inspection of the Creusot site at the end of 2016 following the inspection protocol of the Multinational Design Evaluation Program (MDEP). Following that inspection, the U.S. Nuclear Regulatory Commission (NRC) published its report on February 22, 2017. In the report's conclusion, the NRC estimates in particular that AREVA NP continues to meet the applicable requirements of the Code of the American Society of Mechanical Engineers (ASME).

However, the NRC presented its site visit report to ASME. The Committee on Nuclear Certification (CNC) of ASME could decide to conduct an audit at le Creusot in order to identify potential deficiencies with regard to ASME's requirements and launch a procedure for the suspension or withdrawal of the certificate(s). CNC's concerns focus more particularly on the equipment delivered under ASME certificates other than the forgings installed in the United States, which the NRC report did not call into question.

A decision to suspend or withdraw could concern all of the designs and components delivered or to be delivered by the Creusot and/or St Marcel sites. A suspension decision would prevent AREVA NP from claiming ASME certification as from the date of the suspension decision and would affect ANP's ability to meet its contractual obligations when it has committed to delivering certified parts. However, the scope of this restriction should be put into perspective in view of the low level of backlog in progress. A decision to withdraw certification would be retroactive only to its date of delivery, i.e. August 2015.

Based on our information, the CNC apparently has decided to contact the ASN for an update on the situation. It is probable that the Chalon site will be inspected by ASME in connection with this line of questioning about the current certificate.

## 9.2. SITUATION AND ACTIVITIES OF THE COMPANY AND ITS SUBSIDIARIES BY BUSINESS SEGMENT DURING THE YEAR

Pursuant to IFRS 5, financial aggregates of operations sold, discontinued or held for sale are presented on a specific line of the statement of income, the statement of cash flows and the statement of financial position.

At December 31, 2016, the following operations meet the criteria set by IFRS 5 for classification as “operations sold, discontinued or held for sale”:

- New AREVA Holding, temporarily called “NewCo”;
- AREVA NP (excluding the OL3 contract), corresponding to the “New NP” consolidation scope;
- Nuclear Measurements (Canberra);
- Propulsion and Research Reactors (AREVA TA);
- Solar Energy;
- Wind Energy (Adwen).

The Bioenergy operations, which are to be discontinued, do not meet the criteria set by the accounting standards for classification in discontinued operations because of two ongoing contracts. Details on adoption of the IFRS 5 accounting rule are given in Section 9.2.3 and in Note 3 of the *Notes to the consolidated financial statements* in Section 20.2.

### Liquidity position and continuity of operations

In 2016, the group’s liquidity was ensured by draws, on January 4 and 5, on available lines of credit in the amount of approximately 2 billion euros.

At December 31, 2016, AREVA’s short-term borrowings amounted to 831 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA guarantees NewCo’s borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the NewCo capital increase, planned in 2017.

To meet those commitments and ensure the continuity of operations in 2017, the main sources of financing in 2017 are spread out as follows:

- on January 10, 2017, the European Commission authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros. These advances from the shareholder current account, to be credited to the capital increases planned in 2017, bridge the gap with the latter;
- the purpose of said capital increases and the income expected from asset disposals in 2017 (AREVA TA, Adwen and New NP) is to strengthen the financial structure of AREVA and NewCo and enable them to meet their liquidity requirements with regard to their obligations in 2017 and beyond, subject to, as concerns AREVA and 2017, the sale of New NP no later than the fourth quarter;
- if the sale of New NP were to occur late in the year, AREVA SA has secured and accepted a commitment from its banking partners for “senior secured” interim financing of 300 million euros, which should be signed in the near future and will have a maturity date of January 8, 2018. Draws on this financing are conditioned on the French State’s subscription to the AREVA and NewCo capital increases. In view of the milestones already met and the work remaining to be accomplished in connection with the process of selling New NP, AREVA has not identified items likely to compromise the completion of the New NP sale before the end of 2017. Moreover, AREVA is maintaining tight control of the sales process and of the fulfillment of the conditions precedent stipulated in the share purchase agreement.

Taken together, these items will ensure the continuity of operations for the 2017 financial year.

Beyond 2017, the last significant maturity of AREVA’s debt consists of the redemption of the syndicated line of credit of 1.25 billion euros in January 2018. Although it is not presently expected that the sale of New NP will be delayed to 2018, alternative solutions are being examined in addition to the internal optimization measures already identified (monetization of receivables, factoring, etc.), with a view to being able to ensure AREVA’s financing until the receipt of the income from the sale of New NP, if it were to be delayed to 2018.

### 9.2.1. SUMMARY OF KEY DATA

In view of the adoption of IFRS 5, the data reported for revenue, operating income, EBITDA, operating cash flow and net debt concern the continuing operations exclusively, i.e. mainly the OL3 project, bioenergy operations in the process of being sold, and AREVA SA funding.

<i>(in millions of euros, except workforce)</i>	<b>2016</b>	<b>2015</b>	<b>Change 2016/2015</b>
<b>Income</b>			
Reported revenue	10	33	-23
Gross margin	(408)	(917)	+509
Operating income	(442)	(1,287)	+845
Net financial income	(68)	(46)	-22
Share in net income of joint ventures and associates	(14)	(26)	+12
Net income from operations sold, discontinued or held for sale	(365)	(770)	+405
Net income attributable to owners of the parent	(665)	(2,038)	+1,373
Comprehensive income	(809)	(1,905)	+1,096
Comprehensive income attributable to owners of the parent	(753)	(1,825)	+1,072
<b>Cash flows</b>			
EBITDA	(684)	(630)	-54
Change in operating working capital requirement	95	166	-71
Net operating CAPEX	(7)	(12)	+5
Operating cash flow	(590)	(475)	-115
<b>Miscellaneous</b>			
Net cash (debt)	(1,473)	(6,323)	+4,850
Equity attributable to owners of the parent	(3,417)	(2,516)	-901
Workforce (end of period, including operations held for sale)	36,241	39,761	-8.9%
Dividend per share	-	-	-

### 9.2.2. RECONCILIATION OF MAIN AGGREGATES OF 2016

#### CONDENSED STATEMENT OF INCOME OF THE GROUP'S COMBINED ENTITIES:

<i>(in millions of euros)</i>	<b>Reported</b>	<b>Operations sold, discontinued or held for sale</b>					<b>Total</b>
		<b>NewCo</b>	<b>New NP</b>	<b>Wind &amp; Solar</b>	<b>AREVA TA</b>	<b>Canberra</b>	
Revenue	10	4,012	3,101	(1)	353	72	7,538
Operating income	(442)	440	77	(71)	46	141	633
Income of associates	(14)	10	(3)	-	-	-	6
Net financial income	(68)	(537)	(54)	2	13	1	(575)
Income tax	118	(337)	(41)	-	(28)	(23)	(429)
Net income from operations sold or held for sale	(365)	(425)	(21)	(68)	31	118	(365)
Net income	(770)						
Minority interests	105						
<b>NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT</b>	<b>(665)</b>						

## 9.2 Situation and activities of the company and its subsidiaries by business segment during the year

**CONDENSED STATEMENT OF CASH FLOWS OF THE GROUP'S COMBINED ENTITIES:**

(in millions of euros)	Reported	Operations sold, discontinued or held for sale					Total
		NewCo	New NP	Wind & Solar	AREVA TA	Canberra	
EBITDA	(684)	1,349	121	(104)	31	-	1,398
Change in operating WCR	95	(166)	(20)	(8)	(9)	4	(198)
Net CAPEX	(7)	(668)	(129)	1	(11)	(24)	(830)
Other	-	-	-	-	7	-	7
Operating cash flow	(590)	517	(20)	(111)	19	(19)	386
End-of-lifecycle cash flow	-	(16)	(17)	-	-	-	(33)
Net borrowing costs	(99)	(282)	(32)	(6)	13	1	(305)
Income tax	71	(174)	(14)	-	(14)	(8)	(210)
Acquisition of AREVA US shares*	-	(358)	358	-	-	-	-
Other	-	(109)	(21)	-	5	287	162
Net cash flow from operations sold, discontinued or held for sale	1	(423)	255	(117)	24	261	1
Other	(4)						
<b>NET CASH FLOW FROM COMPANY OPERATIONS</b>	<b>(621)</b>						

\* Sale of part of the US operations of AREVA NP to NewCo in connection with the legal and financial reorganization.

**9.2.3. SUMMARY DATA BY BUSINESS SEGMENT**

Previously, AREVA presented its operating segment information by operating Business Group, which corresponded to the level at which performance was examined by the group's management bodies, in accordance with the requirements of IFRS 8.

AREVA also reported data by geographic area. AREVA's consolidated revenue was allocated among the five geographic areas based on the destination of goods and services: France, Europe excluding France, North and South America, Asia-Pacific, Africa and the Middle East.

For all reporting periods, income items from operations sold, discontinued or held for sale are presented in the statement of income on a separate line, "net income from operations sold, discontinued or held for sale". Balance sheet items from operations and assets held for sale are presented on a separate line of the statement of financial position under "Assets from operations held for sale" on the assets side and under "Liabilities of operations held for sale" on the liabilities side.

Inasmuch as the continuing operations do not constitute operating segments and are located principally in France, AREVA does not report operating segment information for the periods ended December 31, 2015 and December 31, 2016 herein.

**9.2.4. COMPARABILITY OF FINANCIAL STATEMENTS****GENERAL PRINCIPLES**

In addition to the discussion and analysis of results reported in the consolidated financial statements, the group also presents revenue information on a comparable basis over consecutive periods, excluding the impact of changes in:

- consolidation scope;
- exchange rates; and
- accounting standards and methods.

The group provides this additional information to assess changes in the organic growth of its operations. However, this information does not constitute a method of assessing operations under the international accounting standards (IAS) and international financial reporting standards (IFRS). Excluding exceptions (e.g. material inability to reconstitute figures), changes in comparable revenue figures

are calculated as follows: the consolidation scope, exchange rates and accounting methods and standards of the prior year are adjusted to reflect the consolidation scope, exchange rates and accounting methods and standards of the current year.

For example:

- to compare 2016 and 2015 revenue, the group calculates what the 2015 revenue of the different businesses would have been when average exchange rates for 2016 are applied;
- the resulting revenue is then adjusted for the consolidation effect, and the group calculates what the 2015 revenue from the different businesses would have been based on the applicable consolidation scope at year-end 2016.

Like-for-like changes (abbreviated "LFL") signify "at constant exchange rates and consolidation scope".

### FACTORS POTENTIALLY IMPACTING THE COMPARABILITY OF THE FINANCIAL STATEMENTS

The following operations meet the criteria of IFRS 5 for classification as “operations sold, discontinued or held for sale” at December 31, 2016:

#### ■ New AREVA Holding (“NewCo”)

The proposed NewCo capital increase was approved by the NewCo Shareholders on February 3, 2017. The completion of this capital increase is subject to fulfillment of the conditions accompanying the European Commission’s authorization, in conformance with European regulations on State aid.

The French State’s acquisition of NewCo capital will lead to the dilution and loss of control of AREVA SA.

Since the General Meeting of Shareholders of AREVA SA convened on December 15, 2016, AREVA believed that the European Commission’s decision has been established and that, therefore, the conditions for application of IFRS 5 “Non-current assets held for sale and discontinued operations” had been fulfilled: the loss of AREVA SA’s control of NewCo is considered to be highly probable at December 31, 2016.

#### ■ Wind Energy

The Adwen joint venture was created on March 9, 2015 in partnership with Gamesa, the Spanish onshore wind energy specialist. It is held in equal shares by AREVA and Gamesa.

Consistent with its objective of refocusing on the nuclear fuel cycle operations, AREVA announced that, at the conclusion of a three-month competitive process designed to solicit and assess proposals from potential third-party investors, the company’s Board of Directors had given authority to management to exercise the option to sell its 50% interest in Adwen’s capital, signed on June 17, 2016 with Gamesa.

This option to sell was exercised on September 14, 2016, and the sale closed on January 5, 2017. Adwen was classified as an asset held for sale at December 31, 2016.

#### ■ Solar Energy

At December 31, 2015, the Solar Energy operating segment of AREVA was substantially shut down due to the fact that the last project under execution – the Reliance Project involving a 125-MWe solar field in Dhursar, India – was then in the process of being suspended and that discussions with a potential buyer begun in 2015 had been unsuccessful. The operations were thus classified as discontinued operations. On January 16, 2016, AREVA and its customer Reliance effectively ended their reciprocal obligations concerning this project (construction of the power plant and maintenance). At December 31, 2016, there were no projects in progress or under contractual guarantee within the scope of the Solar operations. The only remaining entities in this scope are non-operating legal entities held for sale or to be liquidated as soon as regulatory requirements, particularly tax-related requirements, permit. The Solar operations are thus kept in “discontinued operations”.

#### ■ AREVA NP (excluding the OL3 contract)

The scope of AREVA NP operations classified as “discontinued operations” at December 31, 2016 was determined based on discussions underway between AREVA and EDF. The OL3 project is not part of the scope of operations held for sale.

Following the memorandum of understanding signed on July 28, 2016, AREVA, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 which sets the terms and conditions for the sale of an interest giving EDF exclusive control of an entity tentatively called “New NP”, a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base of the group.

The selling price for 100% of the capital of New NP was set at 2.5 billion euros, excluding any price adjustments and/or supplements.

The contracts related to the OL3 project and the means needed to complete the project, along with the responsibility attached to outstanding contracts related to parts forged at the Creusot plant and possibly to contracts not outstanding but for which serious anomalies might be identified and not yet resolved by the closing of the New NP sale, will be kept within AREVA NP and will thus remain within the group’s consolidation scope.

The contractual obligations which would be chargeable to New NP in the event of the discovery of anomalies resulting from a failure in the quality control of equipment manufacturing at the Creusot plant and, possibly, at the Saint-Marcel and Jeumont plants will continue to be guaranteed by AREVA.

The transaction is expected to close by the end of 2017, subject in particular to the receipt of favorable findings from the French nuclear safety authority ASN on the subject of the results of tests concerning the primary cooling system of the Flamanville 3 reactor; the completion and satisfactory conclusion of quality audits at the Creusot, Saint-Marcel and Jeumont plants; and the approval of the competent authorities which regulate business mergers and nuclear safety. In addition, the completion of the transaction is conditioned on the transfer of AREVA NP’s operations, excluding the OL3 contract and certain component contracts (see Note 1.1), to the New NP entity.

With AREVA’s support, EDF has engaged in discussions with strategic investors expressing an interest in acquiring a stake in New NP’s capital. The interest acquired by EDF, which could be as much as 75% of the capital under the terms of the share purchase agreement signed on November 15, 2016, would thus be reduced to a target interest of at least 51% of the capital, giving it exclusive control. At the end of the restructuring, AREVA and NewCo will no longer hold any interest in New NP.

#### ■ Nuclear Measurements

On July 1, 2016, AREVA announced the completion of the sales of its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in radioactivity detection and measurement instrumentation, to the industrial group Mirion Technologies Inc. The capital gain from this sale came to 132 million euros.

#### ■ AREVA TA

As part of its refocusing on the nuclear fuel cycle operations, the company announced on December 17, 2015 and confirmed on January 27, 2016 the plan to sell AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

On December 15, 2016, AREVA signed a share purchase agreement for all of its shares in AREVA TA with a consortium of buyers composed of the Agence des participations de l’État (APE, 50.32% of the capital), the Commissariat à l’énergie atomique et aux énergies renouvelables (CEA, 20.32%), and DCNS (20.32%). EDF will keep its 9.03% interest in the capital.

The sale, for which the plan has already been the subject of consultation with employee representative bodies and which has been approved by AREVA’s governance, is scheduled to close in the first quarter of 2017, subject in particular to the publication of the ministerial orders related to the sale and the absence of any unfavorable significant event with an impact of more than 55 million euros on the value of the company’s equity. On the date the sale closes, the French State will control AREVA TA.

Detailed information on the impacts of IFRS 5 adoption is provided in Section 20.2. *Notes to the consolidated financial statements, note 37.*

## 9.2.5. STATEMENT OF INCOME

### 9.2.5.1. REVENUE

<i>(in millions of euros)</i>	2016	2015	Change 2016/2015
<b>Consolidated revenue</b>	<b>10</b>	<b>33</b>	<b>-23</b>

AREVA's revenue (restated for operations held for sale) amounted to 10 million euros in 2016, compared with 33 million euros in 2015. It corresponds mainly to sales of services. The year-on-year change is mainly due to the drop in Bioenergy sales.

As a reminder, in accordance with the provisions of paragraph 32 of IAS 11, AREVA stopped recognizing the revenue and costs of the OL3 contract as a function of its percentage of completion. Revenue recognized for the OL3 contract has currently stabilized at the level reached at June 30, 2013.

### 9.2.5.2. GROSS MARGIN

The group's gross margin (restated for operations held for sale) was -408 million euros, compared with -917 million euros in 2015. Gross margin for 2016 was impacted in particular by an additional loss at completion of 116 million euros for the Olkiluoto 3 EPR linked with net excess operating costs incurred over the period.

<i>(in millions of euros)</i>	2016	2015	Change 2016/2015
<b>Gross margin</b>	<b>(408)</b>	<b>(917)</b>	<b>+509</b>
<i>Percentage of consolidated sales</i>	<i>n.s.</i>	<i>ns</i>	<i>ns</i>

### 9.2.5.3. RESEARCH AND DEVELOPMENT

AREVA's research and development expenses for 2016 (restated for operations held for sale) represented 13 million euros, as in 2015.

### 9.2.5.4. MARKETING AND SALES, GENERAL AND ADMINISTRATIVE EXPENSES

AREVA's marketing, sales, general and administrative expenses totaled 135 million euros in 2016, compared with 91 million euros in 2015. In 2016, general and administrative expenses included 121 million euros in costs kept within AREVA SA and not passed through to the subsidiaries. They are not representative of the costs AREVA SA will have to bear once the restructuring operations have been completed.

### 9.2.5.5. OTHER OPERATING INCOME AND EXPENSES

Other operating income and expenses represented net income of 115 million euros in 2016, compared with a net expense of 266 million euros in 2015.

Other operating income and expenses mainly included a provision of 180 million euros charged in 2015 for anticipated costs in connection with the plan to transfer the OL3 contract from AREVA NP to AREVA SA, which was reversed in 2016 because the plan was not implemented.

Restructuring costs were higher in 2015 than in 2016, as was goodwill and other asset impairment.

### 9.2.5.6. OPERATING INCOME

Taking into account the items described above, the net operating income of the continuing operations came to -442 million euros at the end of 2016, compared with -1.287 billion euros at the end of 2015.

9.2.5.7. **NET FINANCIAL INCOME**

The net financial income of the continuing operations reached -68 million euros in 2016, compared with -46 million euros in 2015.

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
<b>Net borrowing costs [(expense)/ income]</b>	<b>(73)</b>	<b>19</b>
<b>Other financial income and expenses</b>	<b>5</b>	<b>(65)</b>
Of which share related to end-of-lifecycle operations	-	-
Of which share not related to end-of-lifecycle operations	5	(65)
<b>NET FINANCIAL INCOME</b>	<b>(68)</b>	<b>(46)</b>

The increase in net borrowing costs in 2016 is explained chiefly by the financial expenses resulting from the draws on bilateral lines of credit and on the revolving credit facility (RCF), and by the drop in interest income. Other financial expenses included in particular debt forgiveness granted to an operation held for sale in the amount of 14 million euros (compared with 66 million euros at December 31, 2015).

9.2.5.8. **INCOME TAX**

Net tax income was positive due to the losses posted by the continuing operations in France, reaching +118 million euros in 2016, versus a net amount of +93 million euros in 2015.

9.2.5.9. **SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES**

The share in net income of joint ventures and associates was -14 million euros in 2016, compared with -26 million euros in 2015.

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Adwen	(14)	(26)
Other joint ventures	(1)	(1)
Associates	1	1
<b>TOTAL</b>	<b>(14)</b>	<b>(26)</b>

9.2.5.10. **NET INCOME AFTER TAX FROM OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE**

Added to the key items of the income statement described above is net income after tax of operations sold, discontinued or held for sale, which encompasses the net income of NewCo, New NP, AREVA TA, Canberra and the Solar Energy operations (see 9.2.2). It amounted to -365 million euros in 2016, compared with -770 million euros in 2015.

9.2.5.11. **MINORITY INTERESTS**

In 2016, minority interests in the group's net income represented -105 million euros, as contrasted with 2 million euros in 2015. This share mainly includes the contribution of minority shareholders in the mining and enrichment businesses.

9.2.5.12. **NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT**

Net income attributable to owners of the parent was -665 million euros in 2016, compared with -2.038 billion euros in 2015.

9.2.5.13. **COMPREHENSIVE INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT**

Comprehensive income attributable to owners of the parent was -753 million euros in 2016, compared with -1.825 billion euros in 2015. This change is primarily due to the improvement in net income described above.



## 9.2.6. CASH FLOWS

### 9.2.6.1. CHANGE IN NET DEBT

Items contributing to the change in the group's net debt for the year are presented below. It was calculated according to the French Accounting Board definition (sum of "cash and cash equivalents" less "current and non-current borrowings").

<i>(in millions of euros)</i>	<b>2016</b>
Reported net debt at beginning of period (December 31, 2015)	(6,323)
Operating cash flow	(590)
Non-operating cash flow	(30)
IFRS 5 restatement of the net external debt of NewCo	5,636
IFRS 5 restatements and other items	(166)
<b>December 31, 2016</b>	
<b>(NET DEBT)/ CASH AT THE END OF THE PERIOD</b>	<b>(1,473)</b>
<b>APPARENT CHANGE IN NET DEBT FOR 2016</b>	<b>+4,850</b>

The group's net financial debt totaled 1.473 billion euros at the end of 2016, compared with 6.323 billion euros at December 31, 2015.

This change in net debt of 4.850 billion euros is explained chiefly by:

- net cash flow from company operations in the amount of -621 million euros;
- application of IFRS 5 to the entire external debt transferred to NewCo in November 2016 (bond debt and redeemable loan for structured financing of the Georges Besse II plant) in connection with contributions, i.e. 5.636 billion euros;

- the non-renewal at December 31, 2016 of factoring transactions carried out at the end of 2015 in the amount of -152 million euros.

At December 31, 2016, cash within the group's footprint amounted to 848 million euros. This includes cash from operations held for sale (not included in the cash pool) in the amount of 162 million euros.

Short-term borrowings came to 831 million euros. This consists mainly of upcoming repayments of draws on bilateral lines of credit, which have all been drawn, for the total outstanding amount of 795 million euros, repayable in 2017.

9.2.6.2. **COMPARATIVE TABLE OF OPERATING CASH FLOWS AND CONSOLIDATED CASH FLOWS**

The group analyzes cash flows from operating activities separately from flows relating to end-of-lifecycle operations and other cash flows.

**RECONCILIATION OF OPERATING CASH FLOWS AND CONSOLIDATED CASH FLOWS**

The following table distinguishes operating cash flows from the other cash flows presented in the consolidated statement of cash flows for 2016.

<i>(in millions of euros)</i>	Operating	End-of-lifecycle operations <sup>(1)</sup>	Other <sup>(2)</sup>	Total
EBITDA (i)	(684)			
Income from the sale of non-current operating assets and other non-cash operating items (ii)	6			
<b>Cash flow from operations after interest and taxes (i + ii)</b>	<b>(678)</b>	<b>0</b>	<b>(17)</b>	<b>(695)</b>
Change in working capital requirement (iii)	95	-	5	100
<b>Net cash flow from operating activities (i + ii + iii)</b>	<b>(583)</b>	<b>0</b>	<b>(12)</b>	<b>(595)</b>
Cash from (used in) investing activities, net of disposals (iv)	(7)	-	32	25
Net cash from (used in) financing activities (v)	-	-	1,207	1,207
Impact of changes in consolidation scope, rates and securities held for trading (vi)	-	-	2	2
Net cash from discontinued operations (vii)	-	-	(597)	(597)
<b>Cash flow (i + ii + iii + iv + v + vi + vii)</b>	<b>(590)</b>	<b>0</b>	<b>631</b>	<b>41</b>

(1) Expenses for end-of-lifecycle operations incurred on-site and for final waste disposal, cash flows from the financial asset portfolio earmarked for end-of-lifecycle operations, and cash flows resulting from the signature of agreements with third parties relating to the funding by such parties of a share of the end-of-lifecycle operations are reclassified in the consolidation scope of operations held for sale.

(2) That is, non-operating cash flows unrelated to end-of-lifecycle operations and mainly corresponding to financial cash flows, including cash flows related to exceptional external growth operations, dividends paid, and cash flows of a tax nature.

9.2.6.3. **OPERATING CASH FLOW****2016 AND 2015**

<i>(in millions of euros)</i>	EBITDA		Change in operating working capital requirement (WCR)		Net operating CAPEX		Operating cash flow	
	2016	2015	2016	2015	2016	2015	2016	2015
<b>TOTAL REPORTED</b>	<b>(684)</b>	<b>(630)</b>	<b>95</b>	<b>166</b>	<b>(7)</b>	<b>(12)</b>	<b>(590)</b>	<b>(475)</b>

**EARNINGS BEFORE INTEREST, TAXES, DEPRECIATION AND AMORTIZATION (EBITDA)**

EBITDA fell 54 million euros, to -684 million euros, from 2015 to 2016. This indicator mainly reflects the expenses related to the Olkiluoto 3 EPR project in Finland ("OL3"), but its change mainly reflects corporate costs not passed through to the subsidiaries (see 9.2.5.4).

**CHANGE IN OPERATING WORKING CAPITAL REQUIREMENT (OPERATING WCR)**

The change in WCR evolved negatively from 2015 to 2016, mainly in connection with the evolution of the Olkiluoto 3 EPR project in Finland ("OL3").

**NET OPERATING CAPEX**

The net operating CAPEX of the continuing operations amounted to -7 million euros in 2016, down from 2015.

**OPERATING CASH FLOW**

Taking into account the items described above, the operating cash flow of the continuing operations fell 115 million euros, to -590 million euros, from 2015 to 2016.

## 9.2 Situation and activities of the company and its subsidiaries by business segment during the year

## 9.2.6.4. CASH FLOWS RELATED TO END-OF-LIFECYCLE OPERATIONS

The majority of end-of-lifecycle operations concern operations included in the consolidation scope of New AREVA Holding (Mining, Chemistry-Enrichment, Back End) and to a lesser extent that of AREVA NP. At December 31, 2016, the flows

relating to these operations were recognized on specific lines of the statement of income, the statement of cash flows and the statement of financial position devoted to "operations sold, discontinued or held for sale".

In 2016, the flows related to the end-of-lifecycle operations of operations "sold, discontinued or held for sale" amounted to -33 million euros (see 9.2.2).

## 9.2.6.5. CONSOLIDATED STATEMENT OF CASH FLOWS

The condensed consolidated statement of cash flows is presented below.

<i>(in millions of euros)</i>	2016	2015	Change 2016/2015
Cash flow from operations before interest and taxes	(693)	(643)	-50
Interest expense and taxes paid	(2)	89	-91
<b>Cash flow from operations after interest and taxes</b>	<b>(695)</b>	<b>(554)</b>	<b>-141</b>
Change in working capital requirement	100	111	-11
<b>Cash from operating activities</b>	<b>(595)</b>	<b>(442)</b>	<b>-153</b>
Cash related to investing activities	25	(64)	+89
Cash related to financing activities	1,207	(758)	+1,965
Cash from operations sold, discontinued or held for sale	(597)	419	-1,016
<b>INCREASE (DECREASE) IN NET CASH</b>	<b>41</b>	<b>(811)</b>	<b>852</b>
Net cash at the beginning of the period	745	1,556	-811
<b>NET CASH AT THE END OF THE YEAR</b>	<b>786</b>	<b>745</b>	<b>41</b>

The table below presents the statement of cash flows of operations sold, discontinued or held for sale:

<i>(in millions of euros)</i>	Operations sold	Discontinued operation			Operations held for sale		2016	2015
		Solar Energy	New NP	NewCo	AREVA TA	Total	Total	
Net cash flow from operating activities	(55)	(95)	35	720	30	634	899	
Net cash flow from investing activities	306	1	(142)	(543)	(10)	(390)	(916)	
Net cash flow from financing activities	(10)	(84)	(115)	(729)	61	(878)	463	
Other changes	(1)	(11)	70	(22)	-	36	(26)	
<b>CHANGE IN NET CASH</b>	<b>240</b>	<b>(189)</b>	<b>(152)</b>	<b>(575)</b>	<b>80</b>	<b>(597)</b>	<b>419</b>	

## CASH FROM OPERATING ACTIVITIES

Net cash flow related to operating activities went from -442 million euros in 2015 to -595 million euros in 2016. This change is due to the decrease in cash provided by operations associated with the increase in interest paid.

## CASH RELATED TO INVESTING ACTIVITIES

Net cash flow from investing activities totaled 25 million euros in 2016, compared with -64 million euros in 2015.

## CASH RELATED TO FINANCING ACTIVITIES

Net cash flow from financing activities totaled 1.207 billion euros in 2016, compared with -758 million euros in 2015. This change is explained in particular by the draws on bilateral lines of credit and the RCF on January 5 and 6, 2016 in the total amount of 2.045 billion euros.

### 9.2.7. BALANCE SHEET ITEMS

#### CONDENSED BALANCE SHEET

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
<b>Assets</b>		
Net goodwill	-	1,272
Net property, plant and equipment and intangible assets	67	9,290
Assets earmarked for end-of-lifecycle operations	-	6,300
Investments in joint ventures and associates	10	100
Other non-current assets	234	573
Deferred taxes (assets – liabilities)	1	112
Operating working capital requirement	(109)	(2,718)
Assets of operations held for sale	27,032	7,076
<b>Shareholders' equity and liabilities</b>		
Equity attributable to owners of the parent	(3,417)	(2,516)
Minority interests	(10)	235
Provisions for end-of-lifecycle operations (AREVA share)	-	6,743
Provisions for end-of-lifecycle operations (third party share)	-	178
Other current and non-current provisions	2,064	5,683
Net borrowings	1,473	6,323
Liabilities of operations held for sale	27,391	5,320
Other assets and liabilities	(265)	39
<b>TOTAL – CONDENSED BALANCE SHEET</b>	<b>27,235</b>	<b>22,005</b>

#### 9.2.7.1. NON-CURRENT ASSETS

##### Net goodwill

Net goodwill went from 1.272 billion euros at December 31, 2015 to 0 at December 31, 2016. This decrease is due to the adoption of IFRS 5 for the operations of NewCo, AREVA TA and New NP.

##### Net property, plant and equipment and intangible assets

Net property, plant and equipment and intangible assets went from 9.290 billion euros at December 31, 2015 to 67 million euros at December 31, 2016. This decrease is due mainly to the adoption of IFRS 5 for the operations of NewCo, AREVA TA and New NP.

##### Other non-current assets

Other non-current financial assets went from 573 million euros in 2015 to 234 million euros in 2016, principally due to the adoption of IFRS 5 for the operations of NewCo, AREVA TA and New NP. Loans to affiliates included a shareholder loan to Adwen in the amount of 229 million euros.

#### 9.2.7.2. OPERATING WORKING CAPITAL REQUIREMENT

AREVA's operating working capital requirement (operating WCR) was negative (resource), at -109 million euros at December 31, 2016, compared with -2.718 billion euros a year earlier. This change is due mainly to the adoption of IFRS 5 for the operations of NewCo, AREVA TA and New NP.

#### 9.2.7.3. NET CASH (DEBT)

The group's net financial debt totaled 1.473 billion euros at December 31, 2016, compared with 6.323 billion euros at December 31, 2015. This apparent reduction in net debt is due mainly to the adoption of IFRS 5 for the operations of NewCo, AREVA TA and New NP. In fact, in view of the adoption of that standard, NewCo's debt (bond debt and financing of the Georges Besse II plant) is considered to be external debt.

## 9.2 Situation and activities of the company and its subsidiaries by business segment during the year

**RECONCILIATION BETWEEN NET CASH REPORTED IN THE STATEMENT OF CASH FLOWS AND NET CASH (DEBT) REPORTED IN THE STATEMENT OF FINANCIAL POSITION**

<i>(in millions of euros)</i>	2016	2015	Change 2016/2015
<b>Net cash per statement of cash flows</b>	<b>786</b>	<b>745</b>	<b>+41</b>
Short-term bank facilities and non-trade current accounts (credit balances)	6	91	-85
<b>Net cash from (used in) operations held for sale</b>	<b>(107)</b>	<b>(32)</b>	<b>-75</b>
Financial instruments and margin calls	24	217	-193
Borrowings	(2,182)	(7,344)	+5,162
<b>NET CASH (DEBT)</b>	<b>(1,473)</b>	<b>(6,323)</b>	<b>+4,850</b>

**SCHEDULE OF BORROWINGS**

<i>(in millions of euros)</i>	2016	2015	Change 2016/2015
Interest-bearing advances from customers	-	96	-96
Borrowings from lending institutions and commercial paper	2,065	894	+1,171
Bond issues	-	5,974	-5,947
Short-term bank facilities and other credit balances	6	91	-85
Financial derivatives	108	235	-127
Other financial liabilities (including finance lease obligations)	2	55	-53
<b>TOTAL BORROWINGS</b>	<b>2,182</b>	<b>7,344</b>	<b>-5,162</b>

9.2.7.4. **EQUITY**

Equity attributable to owners of the parent totaled -3.417 billion euros at December 31, 2016, compared with -2.516 billion euros at December 31, 2015. This change reflects in particular the impact of comprehensive income attributable to owners of the parent for 2016 in the amount of -753 million euros.

9.2.7.5. **ASSETS AND PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS**

The majority of end-of-lifecycle operations concern operations included in the consolidation scope of New AREVA Holding (Mining, Chemistry-Enrichment, Back End) and to a lesser extent that of AREVA NP. At December 31, 2016, the flows relating to these operations were recognized on specific lines of the statement of income, the statement of cash flows and the statement of financial position devoted to "operations sold, discontinued or held for sale".

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
<b>Assets</b>		
<b>End-of-lifecycle assets</b>	<b>-</b>	<b>500</b>
AREVA share (to be amortized in future years)	-	322
Third-party share	-	178
<b>Assets earmarked for end-of-lifecycle operations</b>	<b>-</b>	<b>6,122</b>
<b>Shareholders' equity and liabilities</b>		
<b>Provisions for end-of-lifecycle operations</b>	<b>-</b>	<b>6,921</b>
- of which provisions for end-of-lifecycle operations to be funded by AREVA	-	6,743
- of which provisions for end-of-lifecycle operations to be funded by third parties	-	178

It should be noted that in 2016 AREVA's share of the assets, which concerned the operating facilities, rose 197 million euros due to the change in the discount rate used by the group (4.10% vs. 4.50% previously). This change is not visible in the table above due to the classification of the entities hosting the nuclear facilities, mainly NewCo and New NP, in operations held for sale.

At the end of 2016, provisions for the group's end-of-lifecycle operations amounted to 7.682 billion euros (of which 7.172 billion euros within the scope of the law of June 28, 2006), whereas the market value of earmarked financial assets was

6.471 billion euros (of which 6.357 billion euros within the scope of the law). The ratio of coverage within the scope of the law was thus 89%.

#### 9.2.7.6. CAPITAL EMPLOYED AND RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)

Given the major change of consolidation scope in progress, the calculation of capital employed and ROACE was not significant.

### 9.2.8. BUSINESS REVIEW

The legal and financial restructuring of the group begun in 2015 continued in 2016. It translated in particular into disposals of assets which were no longer strategic (nuclear measurements, propulsion and research reactors, offshore wind turbines), into the discontinuation of operations (Solar Energy, Bioenergy), and into the constitution of two subsets of operations over which AREVA SA will no longer exercise control at the end of the restructuring, normally expected in 2017.

Consequently, pursuant to IFRS 5, the following operations are classified in "operations sold, discontinued or held for sale" and no longer contribute to the key financial indicators published by the group:

- Nuclear fuel cycle operations: Mining, Chemistry/Enrichment, Recycling, Dismantling and Services, and Logistics, combined within the New AREVA Holding company ("NewCo");
- AREVA NP's operations (excluding the OL3 contract) held for sale to EDF and to strategic partners: Fuel, Installed Base, Large Projects (excluding OL3), Components, Engineering, Instrumentation and Control;
- Propulsion and Research Reactors operations combined in AREVA TA;
- Nuclear Measurement operations combined in the Canberra company, sold on July 1, 2016;
- Wind Energy operations sold and Solar Energy operations discontinued.

#### REVIEW OF AREVA SA'S OPERATIONS

In summary, AREVA SA's operations are the completion of the Olkiluoto 3 EPR project in Finland ("OL3") through its subsidiary AREVA NP, and the completion of a Bioenergy project in France.

In 2016, construction of the Olkiluoto 3 EPR made progress in accordance with the schedule revised in August 2014, which calls for start-up of the power plant in December 2018.

- Functional testing of power plant systems and components began in April.
- The main electro-mechanical installations have been completed.
- The vessel flushing sequence was completed in early November, six weeks ahead of the updated schedule.
- In parallel, tests of the full-scale simulator were also completed.
- In addition, open-vessel functional tests were completed on January 13, 2017, as per the schedule.

#### REVIEW OF NEW AREVA HOLDING'S OPERATIONS ("NEWCO")

NewCo combines the nuclear fuel cycle operations lodged within the subsidiaries AREVA Mines and AREVA NC: Mining, Front End (Chemistry and Enrichment) and Back End (Recycling, Logistics, and Dismantling and Services).

Pursuant to IFRS 5, NewCo is classified in operations held for sale. As a result, NewCo no longer contributes to reported revenue, operating income, EBITDA or operating cash flow.

## 9.2 Situation and activities of the company and its subsidiaries by business segment during the year

The information presented below is given for information purposes only.

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>	<b>Change 2015/2016</b>
<b>Backlog</b>	<b>31,759</b>	<b>28,615</b>	<b>+3,144</b>
• of which Mining	9,483	9,115	+368
• of which Front End	10,897	10,341	+556
• of which Back End	11,378	9,157	+2,221
<b>Revenue</b>	<b>4,012</b>	<b>4,166</b>	<b>-154</b>
• of which Mining	1,451	1,447	+4
• of which Front End	1,025	1,097	-72
• of which Back End	1,523	1,593	-69
• of which Corporate and other operations*	13	29	-16
<b>Operating income</b>	<b>440</b>	<b>(100)</b>	<b>+540</b>
• of which Mining	183	183	-
• of which Front End	158	101	+57
• of which Back End	65	(184)	+249
• of which Corporate and other operations*	34	(200)	+234
<b>EBITDA</b>	<b>1,349</b>	<b>1,316</b>	<b>+33</b>
• of which Mining	747	604	+144
• of which Front End	354	389	-35
• of which Back End	299	315	-16
• of which Corporate and other operations*	(52)	8	-59
<b>Operating cash flow</b>	<b>517</b>	<b>773</b>	<b>-256</b>
• of which Mining	510	351	+158
• of which Front End	(109)	(78)	-30
• of which Back End	211	450	-239
• of which Corporate and other operations*	(95)	50	-145

\* Includes the Corporate operations and AREVA Med.

NewCo's **backlog**, given here for information purposes only as it is no longer included in the backlog of continuing operations, amounted to 31.8 billion euros at December 31, 2016, an increase of 3.1 billion euros in relation to December 31, 2015 (28.6 billion euros). The backlog at December 31 does not include contracts for uranium supply, conversion services or enrichment services signed with EDF and NNB in connection with the Hinkley Point C project. Those contracts will be included in backlog in 2017, the "notice to proceed" having been signed in early January.

- in Mining, the backlog was 9.5 billion euros, a slight increase over the period (9.1 billion euros at the end of 2015);
- in the Front End (Chemistry and Enrichment), the backlog totaled 10.9 billion euros (compared with 10.3 billion euros at the end of 2015);
- in the Back End (Recycling, Logistics, Dismantling and Services, and International Projects), the backlog amounted to 11.4 billion euros, an increase from December 31, 2015 (9.2 billion euros).

NewCo's **revenue**, which is not consolidated given NewCo's classification in operations sold, discontinued or held for sale, reached 4.012 billion euros at December 31, 2016, a decrease in relation to December 31, 2015 (4.166 billion euros, i.e. -3.7%).

- Mining revenue was stable compared with the previous year, amounting to 1.451 billion euros (+0.3%; -1.5% like for like). Foreign exchange had a positive impact of 26 million euros over the period, offsetting the downturn in volumes sold over the period;

- Front End revenue totaled 1.025 billion euros, a decrease of 6.6% year on year (-7.7% like for like). This change is explained by a less favorable price effect for SWU sales (enrichment) and for materials sales (UF6) related to the drop in market prices, and by decreased SWU volumes sold over the period. Foreign exchange had a positive impact of 13 million euros over the period;
- Back End revenue amounted to 1.523 billion euros, a decrease of 5.3% like for like compared with 2015. This change in revenue is due to a lower level of activity on International Projects and to an unfavorable contract mix in the Recycling operations;
- Revenue from "Corporate and other operations" was 13 million euros at the end of 2016, compared with 29 million euros at the end of 2015.

NewCo's **EBITDA** at the end of 2016 rose slightly compared with the end of 2015 (1.349 billion euros compared with 1.316 billion euros). Against difficult market conditions for uranium, conversion and enrichment, this performance is explained in particular by the positive effects of the performance plan implemented starting in 2015:

- Mining EBITDA was 747 million euros, compared with 604 million euros for the same period in 2015, because of higher production volumes, particularly with the ramp-up of the Cigar Lake mine in Canada, the reduction of supply chain costs and the effects of the competitiveness plan;

## 9.2 Situation and activities of the company and its subsidiaries by business segment during the year

- in the Front End, EBITDA amounted to 354 million euros compared with 389 million euros in 2015, which had benefitted from additional sales made at very low marginal cost. This change is explained by the impact of a less favorable sales mix, offset only in part by cost reductions resulting from the performance plan;
- the Back End had EBITDA of 299 million euros, down 16 million euros compared with December 31, 2015, with the results of the competitiveness plan partly offsetting the unfavorable impact of the contract mix in the Recycling and Dismantling & Services operations;
- NewCo's Corporate EBITDA was -52 million euros, compared with 8 million euros at the end of 2015. This change is explained chiefly by expenses in 2016 connected with the Voluntary Departure Plan in France.

NewCo's **operating income** totaled 440 million euros at December 31, 2016, compared with -100 million euros at the end of 2015.

- In Mining, operating income was stable compared with the end of 2015, totaling 183 million euros at December 31, 2016. In addition to the favorable operating items described to explain the change in EBITDA, operating income was impacted by impairment in the amount of 316 million euros of certain mining assets relating to the Imouraren mine in Niger, as a result of the drop in uranium prices. Impairment of 194 million euros had been recognized in 2015.
- In the Front End, operating income was 158 million euros, compared with 101 million euros in 2015. Related with the decline of market indicators, Front End operating income was impacted:
  - in 2015 by inventory write-downs and by provisions for contingencies in the amount of 198 million euros;
  - in 2016 by inventory write-downs and by provisions for losses at completion for a SWU purchase contract in the total amount of 98 million euros.
- The Back End recorded operating income of 65 million euros in 2016, an improvement of 249 million euros compared with the end of 2015, which had been impacted by an additional provision of 250 million euros for the Cigéo Project.
- Operating income from "Corporate and other operations" amounted to 34 million euros in 2016, compared with -200 million euros in 2015, which had included provisions for social restructuring undertaken in certain NewCo entities. It does not include the reallocation of the balance of AREVA SA corporate expenses not passed through but intended to be borne by NewCo.

NewCo's **operating cash flow**, which is no longer recognized in reported operating cash flow, reached 517 million euros in 2016, a decrease of 256 million euros compared with 2015. In addition to the explanations relative to the change in EBITDA (see above), this decrease is explained among other things by:

- an unfavorable change in WCR, as expected, of -166 million euros at December 31, 2016, compared with 80 million euros in 2015, which had benefitted from the recognition of a customer payment in the Back End regularizing previous services;
- the increase in net CAPEX, which reached -668 million euros in 2016 compared with -619 million euros in 2015. The decrease of productive investments was more than offset by the acquisition of minority interests in subsidiaries of the Tricastin platform.

**REVENUE FROM OTHER OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE**

This section presents the cumulative financial aggregates of New NP (AREVA NP operations to be sold to EDF and strategic investors, excluding the OL3 contract and the means needed to complete the project), AREVA TA and Canberra (for the first six months of 2016).

Pursuant to IFRS 5, these operations, classified in operations sold, discontinued or held for sale, no longer contribute to reported revenue, operating income, EBITDA or operating cash flow. The information presented below is thus given for information purposes only.

The **backlog** of other operations sold, discontinued or held for sale, including AREVA NP and AREVA TA, came to 13.1 billion euros, compared with 13.8 billion euros at the end of 2015. Orders related to the Hinkley Point contract signed by AREVA NP in early 2017 are not included in backlog.

**Revenue** from other operations sold, discontinued or held for sale reached 3.5 billion euros at December 31, 2016, compared with 3.9 billion euros in 2015. Besides the negative consolidation scope impacts connected with the sale of Canberra in mid-2016, the change in revenue is explained among others by the drop in AREVA NP's Fuel operations, particularly in Germany, and in its Installed Base operations in France and in Germany.

**EBITDA** of other operations sold, discontinued or held for sale rose in relation to the end of 2015 (23 million euros compared with -65 million euros). This change is explained by the discontinuation of the Solar Energy and Wind Energy operations and the impacts of the performance plan at AREVA NP.

**Operating income** from other operations sold, discontinued or held for sale totaled 193 million euros in 2016, compared with -72 million euros in 2015. This improvement is the result in particular of:

- the gain on the sale of Canberra in the amount of 146 million euros;
- the Solar Energy operations in the amount of +90 million euros with the end of the last projects in those operations;
- AREVA NP, whose operating income rose 44 million euros. The impacts of performance programs, the drop in restructuring costs (as a reminder, 2015 had been impacted by 184 million euros in provisions and costs), and the neutralization of amortization and depreciation for the full year of 2016 (positive impact of 118 million euros) more than offset the decreased business observed over the period and the impacts of the problems encountered in the manufacturing plants.

In addition, the operating income of other operations sold, discontinued or held for sale did not include the reallocation of the balance of AREVA SA's Corporate expenses not passed through but intended to be borne by New NP.

The **operating cash flow** of other operations sold, discontinued or held for sale, which are no longer recognized in reported operating cash flow, came to -157 million euros in 2016, compared with 46 million euros at the end of 2015. This decrease is chiefly due to unfavorable changes in WCR for the AREVA TA and Solar Energy operations.



## 9.3. EVENTS SUBSEQUENT TO YEAR-END CLOSING FOR 2016

On January 5, 2017, AREVA's interest in Adwen was sold. Gamesa is taking over AREVA's offshore wind energy operations (see Section 20.2. *Notes to the consolidated financial statements*, note 3.) AREVA's off-balance-sheet commitments are taken over by Gamesa. AREVA retains the obligations for indemnification according to the new terms.

On January 10, 2017, the European Commission gave its consent to the French State to participate in the capital increases of AREVA SA and of NewCo (see Section 20.2. *Notes to the consolidated financial statements*, Note 1.1).

On February 3, 2017, the Combined General Meeting of Shareholders approved the capital increase reserved for the French State in the total amount of 2 billion euros. In addition, the par value of the AREVA SA share was reduced from 3.80 euros to 0.25 euro.

On February 21, 2017, in accordance with the terms of the Share Purchase Agreement (SPA) signed on January 5, 2017, Adwen sent a notice to AREVA and Gamesa following the identification of quality problems on the fleet of wind turbines

installed offshore. More in-depth, technical counter-examinations will be necessary in the coming months to determine the financial impact, the division of responsibilities, and the solutions. In the absence of such information, no additional provision was recognized at December 31, 2016. Based on Adwen's estimates, which have not been verified by AREVA at this stage, the maximum exposure would be 70 million euros and would fall within the cap of guarantees given to Adwen, provided for that purpose by the share purchase agreement (see Section 20.2. *Notes to the consolidated financial statements*, Note 24).

The memorandum of understanding and the shareholders' agreement concerning NewCo signed by JNFL, MHI, the Commissariat of State shareholding and AREVA entered into effect on March 21.

On March 19, 2017, AREVA carried out the sale of its majority interest in AREVA TA to a consortium of buyers consisting of the Agence des Participations de l'État (APE), the Commissariat à l'énergie atomique et aux énergies alternatives (CEA) and DCNS. The parties signed a share purchase agreement on December 15, 2016.

# 10

## CAPITAL RESOURCES

For information on cash-flow and equity, please refer to Sections 9.2.6 *Cash flow* and 9.2.7 *Balance sheet data*.

# RESEARCH AND DEVELOPMENT PROGRAMS, PATENTS AND LICENSES

# 11

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## 11.1. RESEARCH AND DEVELOPMENT

### 11.1.1. KEY FIGURES

Traditionally, research and development expenses are capitalized if they meet the capitalization criteria established by IAS 38 and are recognized as research and development expenses if they do not. In the income statement, research and development expenses appear below gross margin and represent non-capitalizable expenses incurred exclusively by the group; expenses relating to programs funded wholly or partially by customers, together with projects carried out in partnerships where AREVA has commercial rights of use of the results, are recognized in the cost of sales. The total research and development expenditure consists of the

combination of amounts spent on research and development, whether capitalized or expensed during the period.

In view of the adoption of IFRS 5 and of the classification of the group's main subsidiaries in operations "sold, discontinued or held for sale", reported research and development expenses amount to 13 million euros and were stable in relation to the restated amount of 2015.

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
<b>Research and development recognized as expenses under gross margin, after RTC <sup>(1)</sup></b>	<b>13</b>	<b>13</b>
Of which expenses for mineral exploration and mining studies	0	0
<b>Research and development recognized as expenses under gross margin, excluding expenses for mineral exploration and mining studies, after RTC <sup>(1)</sup></b>		
RTC <sup>(1)</sup>	1	2
<b>Research and development recognized as expenses under gross margin, excluding expenses for mineral exploration and mining studies, before RTC <sup>(1)</sup></b>	<b>14</b>	<b>15</b>
Capitalized research and development costs	0	0
<b>TOTAL</b>	<b>14</b>	<b>15</b>
<b>Number of registered patents</b>	<b>0</b>	<b>0</b>

(1) Research tax credit.

In the group's two main companies, New AREVA Holding ("NewCo") and AREVA NP, the principal research and development programs concerned:

- New AREVA Holding ("NewCo"):
  - development and upgrading of production capabilities in the front end of the cycle,
  - preliminary design of new treatment and recycling plant processes, and maintenance and performance improvement at existing plants,
  - development of new shipping casks for nuclear materials and waste,
  - development of methods and tools to support dismantling activities;
- AREVA NP:
  - development of next-generation and advanced fuels,
  - continuation of a basic design study in partnership with EDF for an optimized EPR reactor to meet requirements for the replacement of EDF's fleet ("EPR NM" project),
  - completion of detailed generic design studies for the Atmea1 reactor in partnership with MHI,
  - development of advanced instrumentation and control products and systems for new power plants or the renovation of existing power plants,
  - development of advanced tools and methods to support design and services provided to operators,
  - evaluation of advanced concepts such as fast neutron reactors (support for the CEA's Astrid demonstrator project) and small modular reactors (SMR) with AREVA TA,
  - performance improvement in equipment manufacturing, particularly forgings.

Research and development costs recognized as expenses under the gross margin of the group's combined subsidiaries (continuing operations and operations held for sale) represented a cumulative total of 167 million euros in 2016, compared with 202 million euros in 2015. Mineral exploration costs amounted to 32 million euros in 2016, compared with 35 million euros in 2015. The Research Tax Credit came to 58 million euros and was stable compared with 2015. In addition, 33 million euros in R&D costs were capitalized in 2016, compared with 39 million euros in 2015.

### 11.1.2. OVERALL ORGANIZATION OF RESEARCH AND DEVELOPMENT

Research, development and innovation are one of the pillars of the group's strategy, enabling it to ensure its competitiveness and to create new growth opportunities. AREVA has a single Research, Development and Innovation function shared by all subsidiaries. By functioning in integrated mode, the group is able to share best practices across all entities. This boosts the effectiveness of programs conducted in fields as varied as knowledge and expertise management, the protection of intellectual assets, and innovation. It also helps initiate and ultimately manage and fund projects at the corporate level when they serve several group subsidiaries or are longer term.

R&D projects cover a broad spectrum of technological fields, from uranium ore extraction to the treatment and recycling of nuclear fuel. All R&D projects help to improve existing products, services and processes, or to create new ones.

#### AREVA'S INNOVATION INITIATIVE

AREVA's innovation initiative draws on a wide network of contacts in the operating and functional entities. Starting from a shared goal – "To convert employees' innovative ideas into drivers for performance and differentiation so that new AREVA activities can emerge" – it is reinforced by programs that open a door to our ecosystem: "associating innovative solutions developed in other fields of activity with our development projects."

AREVA's innovation initiative is expressed in five major objectives:

- to create and reinforce our culture of innovation;
- to create value in the near and medium terms by identifying and developing new ideas and by accelerating innovation projects throughout the group's footprint;
- to boost development and ensure business continuation by speeding up the time-to-market for innovative technical and non-technical solutions;
- to stimulate digital innovation and support the group's digital transformation;

- to develop innovative solutions by strengthening AREVA's ties with external partners – laboratories, small and medium businesses, start-ups, venture capital funds, etc.

#### Focus on the Open Innovation initiative, the AREVA portal for small and medium business innovation

The AREVA Innovation PME initiative seeks to foster collaborative innovation between AREVA and start-ups and small and medium businesses in France (*PME: petites et moyennes entreprises*). Working with the group's employees, AREVA Innovation PME identifies and evaluates the best innovation solutions developed by start-ups and small and medium businesses that may be able to meet some of the challenges facing AREVA and its customers. AREVA Innovation PME is built on a win-win approach for start-ups and small and medium businesses, for the French industrial ecosystem, and for AREVA.

A website devoted to innovation ([www.innovationpme.areva.com](http://www.innovationpme.areva.com)) was created to give small and medium businesses a broader view of AREVA's innovation needs. AREVA puts challenges on the website for which small and medium businesses may be able to propose innovative solutions. They can also offer solutions unprompted by any bidding process. Proposed solutions are reviewed by a panel of the group's experts.

As of the end of 2016, close to 25 AREVA challenges had been posted and more than 1,000 small and medium businesses were registered on the dedicated portal, submitting more than 300 innovative solutions, a hundred of which made the short list for evaluation. Some 20 contracts had been signed as of the end of 2016 in thematic areas such as:

- "Inspection and measurement assistance in difficult-to-access areas": indoor drones, virtual-on-actual projection, an inflatable robotic arm and a miniaturized wireless sensor;
- "Contact maintenance planning and worker assistance": contactless tool for three-dimensional inspection of complex shapes, hybrid laser welding head, and virtual reality training of operators on a pole crane;
- "Augmented operator": harvesting and transmission of virtual reality knowledge, voice transcription of project follow-up documentation, bone conduction communication system and exoskeletons.

### Focus on the use of digital technologies

AREVA continues to introduce digital technologies in its fuel cycle operations and reactor design and maintenance activities. The group's use of 3D metal printing, the Industrial Internet of Things (IoT), virtual reality and augmented reality has unfolded and grown over the past several years.

Virtual reality is one of the pillars of AREVA's digital transformation. It is used by AREVA NP for example to support the design of Astrid Generation IV reactors with the CEA. It is also used to simulate plant operations, to train its operators and to inform its partners. To put operators in full-scale, realistic and interactive environments, the company has already acquired various fixed and mobile virtual reality tools, such as the Cave automatic virtual environment in Equeurdreville and Lyon, the mini-Cave in Saint Quentin, head-mounted displays and immersive "serious games". Used in a multidisciplinary co-development approach, these tools make training and instruction more effective and engineering even more nimble. AREVA wants to make virtual reality a group-wide project and amplify its deployment in its different operations.

In this regard, NewCo and AREVA NP received the "Vitrine Industrie du Future" label (industry of the future showcase) on December 6, 2016 from the Secretary of State for Industry Christophe Sirugue.

AREVA is also developing new wireless communication technologies with high penetration (concrete, metal) to connect miniature sensors with collection systems based on the potential of an IoT solution. Using a lightweight, non-intrusive installation infrastructure, this technology enables the development of predictive maintenance and project follow-up applications, for example by locating objects and operators or reading valve condition, all in real time.

This digital transformation is leading to an evolution of relations with customers, suppliers, partners and employees towards a more participatory approach. The digital acceleration will also enable in-depth improvement of the operation of our plants, the conduct of our projects and the daily work of our operators.

### EXPERTISE

AREVA views technical expertise as a strategic asset and follows a rigorous process to appoint its experts. The group has given them the real mission of helping to control and manage risk, to organize the harvesting, sharing and transmission of knowledge, and to promote technology innovation. AREVA's community of experts, which organizes the group's technical and scientific knowledge and whose importance for the future is growing, now represents more than a thousand experts serving the entire company and its subsidiaries. More than 250 experts were appointed or promoted to a higher level during the previous appointment campaign in 2015.

The experts are divided into 3 levels, depending on the influence they have within their operating entity all the way up to the international scientific community, and into some 15 areas of expertise covering most of the engineering sciences and techniques (materials, engineering calculations, biology, facility operations, etc.).

## 11.1.3. PARTNERSHIPS

AREVA is an international group with a solid base of operations on three major continents. Scientific and technical partnerships reflecting the group's international dimension are a cornerstone of its continued growth.

The group works closely with regional research and development centers in France, Germany and the United States on the following main missions:

- developing partnerships with major research organizations (finding the best external partners for the group's research and development projects, and drawing up cooperative programs), and securing them for the long term;
- providing support to the group's internal research and development initiatives by identifying additional appropriate external partners;
- reviewing external research and development proposals and the possibilities for participating in externally funded cooperative projects (government agencies, European Commission, etc.).

AREVA already has a broad network of partnerships with international recognized research laboratories, in particular:

- in France, the CEA's research centers at Saclay, Cadarache, Grenoble and Marcoule; EDF's research and development laboratories; the French national scientific research center CNRS; the institute for radiological protection and nuclear safety IRSN; and engineering schools and universities (Chimie Paris, Mines ParisTech, the Ecoles Centrales, the University of Montpellier, the French national institute of applied sciences INSA Lyon, the joint laboratory between the University of Lille, the CNRS and the Ecole de chimie of Lille, etc.);

- in Germany, the universities of Erlangen, Magdeburg and Stuttgart; the Karlsruhe and Rossendorf research centers; and two chairs at Karlsruhe (KIT) and Dresden (HZDR);
- in England, the University of Manchester;
- in Poland, the Warsaw University of Technology (WUT) together with EDF, the CEA and Andra;
- in the United States, the universities of Berkeley, Idaho (Center for Advanced Engineering and Research, CAER), Texas and Virginia; the DOE's national laboratories Sandia, INL and others; and the NRC;
- in China, the Franco-Chinese Institute of Nuclear Energy at Sun Yat-sen University (IFCEN);
- in India, the Jadavpur University in Calcutta.

AREVA supports the CEA, which represents the French parties in the Generation IV International Forum (GIF), a US initiative. The multilateral agreement signed by several countries in 2005 provides a framework for international collaboration on research and development dedicated to Generation IV nuclear reactor concepts. In particular, AREVA is participating in the Senior Industry Advisory Panel (SIAP) and is interested in particular in fast spectrum reactor concepts that will ultimately yield major savings in uranium resources. Consistent with that objective, AREVA is working with the CEA through its subsidiary AREVA NP on the design of the Astrid reactor, and as such is a stakeholder in the agreement signed in May 2014 between France and Japan concerning R&D and studies for the Astrid fast neutron reactor.

### 11.1.4. FUTURE DIRECTIONS IN TECHNOLOGY

The group's research and development programs focus on developing competitive and reliable power generation technologies with low CO<sub>2</sub> emissions which meet our customers' requirements. The programs' main goals are to continuously improve nuclear safety, to reduce capital costs and operating costs, and to minimize environmental impacts. They include means for responsible waste management, natural resource conservation and the development of future generations of technologies in the nuclear energy field.

A summary of 2016 research and development projects and results is presented below.

#### R&D ACTIVITIES IN THE FUEL CYCLE

##### R&D activities in mining

R&D in the mining operations covers the four key areas of geological prospecting, mining techniques, ore processing, and the post-mining period and the environment. In ore processing, for example, R&D covers all of the techniques that AREVA uses for dynamic ore processing, heap leaching and in-situ leaching. A significant share of the research and innovation expenditure was also devoted to mining operations using the in situ recovery method (ISR).

The mining business also carries out research in partnership with research organizations and other companies to assess the technical feasibility of extracting uranium from so-called "unconventional" resources, such as phosphates. The economic recovery of metals and rare earths as byproducts of uranium ore is another area for research.

##### Mineral exploration and outlook

AREVA continued its mineral exploration efforts in 2016. However, due to deteriorating market conditions, AREVA will concentrate on targets with the most potential over the next few years.

##### NEAR TERM

The first action items are to intensify development work for active mining sites, conduct exploration for projects under development, and plan new exploration campaigns in uranium-rich provinces identified by the group.

In addition to Canada, particularly the Athabasca basin, a historical uranium-producing region that is still among the most promising, AREVA is pursuing exploration programs in countries in which the group is a producer (Canada, Niger and Kazakhstan) as well as in Mongolia and Gabon.

##### MEDIUM AND LONG TERMS

Joint teams of geologists, mining engineers, chemists and economists are working on selecting, preparing and developing emerging and previously identified projects, particularly in Africa, North America and Central Asia. These projects will be launched when the technical, economic and regulatory conditions are right.

##### R&D activities in the front end

Research and development efforts in the front end of the fuel cycle concentrate in particular on upgrading industrial tools in the conversion and enrichment operations while improving safety and productivity and reducing the environmental impacts of the processes.

##### Development and upgrading of production resources

Natural uranium conversion facilities around the world that have been operating for several decades will probably see their maintenance costs increase over the short term and experience availability problems.

To guarantee conversion services to its current and future customers under strengthened regulatory conditions, AREVA invested in a new plant, Comurhex II. At the Malvési site, following the startup of the new Isoflash denitration process last year, startup of all of the new Comurhex II units was completed. In addition, industrial-scale experiments on effluent volume reduction are in progress.

R&D in the field of conversion also concerns the development of a new process that would eliminate the nitric dissolution and solvent purification stages. Such a process would offer significant advantages in terms of environmental footprint.

In the field of fluorine gas production, development efforts are focusing on improving electrolyzer productivity and on tools to better monitor their operation.

To meet the need to upgrade the cylinder maintenance facility, a new washing process is under development.

In connection with the Enrichment Technology Company (ETC), the AREVA-Urenco joint venture, new improvements to the centrifugation enrichment technology are gradually being integrated into the plants.

##### R&D activities in the back end

##### R&D activities in recycling

#### DEVELOPING SUSTAINABLE SOLUTIONS FOR FUEL TREATMENT AND RECYCLING

##### Supporting and adapting production resources

The la Hague industrial platform consisting of the la Hague and MELOX plants is the culmination of more than 30 years of industrial research and development. It attains the highest levels of performance of treatment and recycling facilities worldwide. Research and development programs are defined based on the design and daily operating experience of these plants, with the goal of constantly improving performance, such as the flexibility of this platform, and harvesting industrial experience for international contracts.

R&D follows four major thrusts:

##### **1) Support to the la Hague and MELOX plants to increase operating flexibility**

Programs are being conducted to anticipate plant aging (corrosion, plugging), meet new post-Fukushima regulatory requirements, and optimize intervention means for hostile environments in order to increase the effective production time of the plants. The R&D programs have enabled new preventive rinsing procedures for head-end equipment at the la Hague plant which are appreciably faster and more efficient than previous procedures and are now routinely implemented at both plants. Ongoing efforts seek to optimize rinsing operations in other facilities and to increase availability.

## 2) Support to the la Hague and MELOX plants to broaden the range of fuel treated

The design and development of equipment and processes making good progress, in particular to adapt the facilities to the treatment of new types of fuel (high-burnup UOx fuel, MOX fuel, fuel from research reactors, most notably silicide fuel, etc.). The project for a new head-end facility to the plant to treat special fuels, the TCP, is part of that objective. This technology development will enable AREVA to diversify its commercial offering and further broaden the range of products that it can treat.

## 3) Search for waste processing solutions to broaden the range of waste processed and/or reduce the quantities of final waste produced

The focus is on reducing final waste volumes, on waste packaging technologies, and on work supporting Andra demonstrations of the performance of the geological repository under construction for waste from treatment and recycling operations.

In particular, R&D spending continues on the cold crucible technology now in industrial operation at la Hague, with the goal of having a fully optimized production plant that can treat a wider range of solutions while boosting performance for solutions currently treated with the hot crucible vitrification technology. A program to develop a new thermal treatment technology for long-lived waste continues in partnership with Andra and the CEA. Initial technology tests on a full-scale mockup were successful. Another R&D program on a new vitrification technology was kicked off in 2016 in partnership with the CEA and Andra. The goal is to develop a compact process specific to the requirements of dismantling waste.

R&D also focuses on the development of computer models, particularly in the vitrification field, to optimize laboratory and full-scale pilot test programs, and on waste radiolysis models to acquire more information about the waste package and facilitate its acceptance for final disposal.

## 4) Multi-recycling: planning for the future

AREVA is working in partnership with EDF and the CEA to define future industrial scenarios for the fuel cycle and reactors.

In particular, the Recycling Business Unit is funding R&D work on fast neutron reactor fuel fabrication to be in a position longer term to supply fuel to the Astrid fast-neutron Gen IV reactor and to transition from the mono-recycling of plutonium to the multi-recycling of MOX.

However, pending the advent of the fast-neutron fleet, brainstorming is underway to define UOx fuels that support multi-recycling.

The needed adaptations to the industrial treatment and recycling platforms that will flow from these changes and related R&D developments are in the process of being defined.

### R&D activities in nuclear logistics

#### IMPROVING USED FUEL SHIPPING AND STORAGE

AREVA develops casks for the shipment of nuclear materials and waste. The development work keeps pace with changes in regulations and in the materials being shipped (higher burnups, new designs, etc.). The new products are also designed to improve and reinforce services relating to the shipment and storage of radioactive materials and waste.

The TN®G3 is still under development and will eventually replace the current TN®12/13 shipping casks. These new casks will ship used fuel with a higher burnup and a shorter cooling time, giving our customers greater flexibility.

To support the development of used fuel storage solutions, a new Extended Optimized Storage (EOS) canister is being developed. Its optimized design helps meet increased utility demand for disposal capacities. EOS development is accompanied by the development of a new “egg carton” concrete shell which enables storage on two levels. The new shell represents significant gains for our customers by reducing the footprint, allowing a wider range of fuel to be stored, and substantially facilitating cask lifecycle management operations, all while enhancing safety.

AREVA is strengthening its position in the waste market by launching the development of its new TNMW product. The TNMW was designed for the nuclear power plant dismantling market. It can contain a wide variety of waste while at the same time offering a single solution for the combined functions of storage, shipping and disposal.

These new product designs are based on the development, qualification and use of new materials for the functions of containment, neutron and radiation protection, heat dissipation and protection against the risk of cask drops.

### R&D activities in dismantling and services

Research and development programs in this field aim for solutions which improve the safety and security of contact work, provide new services or open new markets, and enhance performance in every phase of our operations. They seek a competitive advantage over strong competitors in this segment, in France and internationally.

A very large number of tools and innovative processes have thus been developed and are used operationally following the shortest possible time to market to respond dynamically to the needs of all target markets in the cleanup, dismantling and operator services field. Some typical examples of major and structuring developments which have been completed or implemented in 2016 are given below.

In the field of safety, the multipurpose robotic investigation pack composed of the Riana™ land device and the Dorica™ aerial device received the WNE award in the Nuclear Safety category. The pack is being used by the intervention units of Dismantling and Services for the CEA Marcoule and is evolving with the inclusion of additional functionalities, such as an autonomous carrier module for Riana™.

Also in the field of investigations, for the preparatory phases of contact work such as maintenance, dismantling or others, and to monitor operations, the Manuela™ tool used to reconstruct coupled radiological and spatial maps was demonstrated to our customers and has had its first commercial successes, particularly at EDF's Fessenheim nuclear power station. Its deployment at other nuclear power stations and continued work for its qualification and industrialization are planned in 2017.

In the cleanup field, the know-how and operating experience of AREVA in EDF fuel pool cleanup was applied to the development of a new multipurpose tool, ICLAREC 2, which can perform all of the operations needed for pool water clarification, surface skimming, particle suction and retrieval of items from the pool bottom. EDF qualified the equipment in 2016 and a patent application has been filed.

In the waste area, the development of new processing and packaging processes targets specific markets, such as that for waste for which such processes do not currently exist. For example, the implementation of an AREVA-patented process to stabilize mercury created a new disposition method that was inaugurated in 2016 to process SICN's contaminated mercury metal. Development work continues on new stabilization, encapsulation, destruction, decontamination and recycling solutions to

process mercury waste, asbestos waste, organic waste not accepted at the Centracore incineration facility, acidic waste, activated metals, powder waste and others.

Designed to meet the needs of AREVA's waste retrieval, cleanup and dismantling projects, some of these developments are also of great interest to our Asian partners and customers, particularly for the packaging of radioactive sludge and waste and for contact maintenance and cutting scenarios and technologies used in the cleanup of buildings and reactors.

An important area for improvement is the inclusion of digital and connected tools in all operations in this field. Illustrations include the deployment of a product lifecycle management tool (PLM) to manage the configuration of facilities undergoing dismantling at the la Hague site, the use of touch tablets to monitor projects or to collect and use operating experience, and the development of tools to simulate equipment operations. In particular, a simulator for polar crane operations was developed in 2016 to train operators on this highly specialized equipment. The first presentations and training given in 2016 met with success with the entire profession. The development of other modules is planned, and the prospects of using such a tool opens up opportunities for the sale of new services in this segment.

### R&D activities of AREVA Projects in the fuel cycle

AREVA Projects is a key partner for the research and development programs of the business units. Specifically, AREVA Projects brings the engineering skills and expertise needed in the phases which precede the industrial implementation of products and processes resulting from R&D in the entities: feasibility studies and front-end engineering and design of innovative facilities; final development and qualification of simulation tools and of processes; products and equipment for use in the fuel cycle facilities of AREVA or its customers; and operator support.

The Beaumont-Hague development and testing laboratory (HRB), an AREVA Projects technical center located near the la Hague recycling plant, houses the activities of the two main divisions: Technology, which develops specific tools and response scenarios and also develops and qualifies mechanical equipment; and Chemistry, which deals with a broad range of topics, including the development and qualification of chemical engineering equipment and of waste treatment and packaging processes (cementation, vitrification, drying, etc.) for AREVA's different entities.

### R&D ACTIVITIES OF AREVA NP

#### R&D activities of AREVA NP in nuclear fuel

##### Improving nuclear fuel performance

AREVA NP conducts ambitious research and development programs to adapt its products to its customers' performance requirements, up to high burnup levels, with the goal of continually improving fuel reliability during operations and guaranteeing the highest level of safety. These research and development programs involve:

- developing new fuel designs, in particular to optimize thermo-hydraulic performance and enhance operating robustness;

- adapting to changes in nuclear fleet operating conditions, whether for the cladding or structural materials (new alloys for greater resistance to corrosion and deformation) or for the fuel itself (advanced microstructures to reduce the release of fission gases at high burnups);
- responding to questions from the safety authorities concerning fuel behavior in accident situations, in particular during an earthquake, requiring the development of new methods in an environment of changing safety standards and of new accident-tolerant fuel concepts (ATF);
- developing advanced codes and related methods for PWR and BWR fuel incorporating the neutronics, thermos-hydraulics and thermos-mechanics of the fuel rod;
- working with scientific partners, notably the CEA, to improve the modeling of physical phenomena occurring in the fuel during irradiation, and integrating these models into advanced simulation software.

AREVA continues to develop a new generation of more robust fuel assemblies with enhanced performance and safety margins for boiling water reactors (BWR) and pressurized water reactors (PWR), called Atrium™11 and Gaia respectively:

- following the first Atrium™11 test assemblies, now in their fourth irradiation cycle in the core of the Gundremmingen reactor in Germany (RWE), irradiation continues on other assemblies loaded into the Leibstadt reactor in Switzerland (AXPO) in 2013 and the Olkiluoto 1 reactor in Finland (TVO) in 2014;
- the first Gaia test assemblies delivered to the Vattenfall electric utility in Sweden completed their fourth irradiation cycle in the Ringhals 3 reactor core;
- work to make Gaia test assemblies available in 2018 for EDF's 14ft (N4) reactor made significant progress in 2016 with the completion of mechanical and thermo-hydraulic tests on full-scale assembly mockups;
- deployment of the Gaia and Atrium™11 technologies in the United States continues with the start of test assembly irradiation, initially by two U.S. utilities in 2015;
- development work continued on various types of ATF cladding, including chromium-coated zirconium alloy cladding, as well as on a disruptive concept of SiC-SiCf composite cladding, notably with the introduction of the first test components in Switzerland's Göessgen reactor in 2016. This development was the subject of a number of partnerships, in particular with the CEA, EDF and the U.S. DOE.

#### R&D activities of AREVA NP in reactors and services

##### Widening the range of light water reactors and supporting their deployment

###### EPR REACTOR

Work carried out in partnership with EDF to optimize the EPR reactor design's economic performance was completed in 2014. This paves the way for definition of an optimized design basis which the proposal and project teams may use to define adaptations needed to meet customer specifications.

The start of the Hinkley Point C Project in the United Kingdom represents a culmination of this cooperation. AREVA NP's R&D team mobilized to define and qualify the improvements made to this project, such as pumps with hydrodynamic seals that simplify the architecture of sealing systems in the event of a loss of electrical power, and a more compact instrumentation and control system.



In parallel, the Basic Design of the version adapted to EDF's domestic requirements for fleet replacement (the "EPR NM" version) continued in partnership with EDF. AREVA NP has particular responsibility for the design of the nuclear steam supply system and of the safety instrumentation and control system. This version incorporates certain simplifications (single containment, etc.) in order to reduce capital costs.

#### ATMEA1 REACTOR

The ATMEA1 reactor is being developed within the framework of the ATMEA joint venture created in 2007 with Mitsubishi Heavy Industries (MHI). This 1100 MWe pressurized water reactor (PWR) combines the know-how of both companies. It is designed for medium capacity power grids. Following validation of the reactor's design basis in 2012 by the French nuclear safety authority ASN, the joint detailed generic design was completed by the two companies, providing a model ready for construction, depending on implementation prospects (see Sinop site in Turkey).

#### GENERATION IV SODIUM-COOLED FAST REACTORS (SFR)

To support sustainable development and the international initiative on Generation IV reactors, AREVA continued its cooperation with the CEA on conceptual designs of the nuclear island of Astrid (Advanced Sodium Technological Reactor for Industrial Demonstration), the Generation IV demonstration reactor. This is a sodium-cooled fast reactor (SFR) that will be used for technology and industrial demonstrations.

The front-end engineering and design of the Astrid reactor was finished in late 2015 with the submittal of the Preliminary Design Report and the Nuclear Safety Design Basis document. Under the agreement between France and Japan on the development of the sodium-cooled fast reactor technology and the Astrid reactor, AREVA, as a French industrial company, is a stakeholder in the implementation agreement signed between JAEA, the CEA, AREVA, Mitsubishi Heavy Industries (MHI) and the latter's subsidiary MFBR. The basic design of Astrid, to be carried out over the 2016-2019 period, was kicked off in early 2016 with a milestone of design basis validation by the end of 2017.

#### OTHER REACTOR CONCEPTS: SMR, HTR, MSR...

AREVA NP was selected by NuScale Power as part of its 50-MWe modular reactor project funded by the DOE to carry out a certain number of studies and tests in AREVA NP's technical centers and to design and supply the fuel for this reactor. In France, AREVA NP, alongside AREVA TA, is a member of the EDF-led consortium to respond to the invitation to tender from the UK government related to conceptual designs for small and modular reactors (SMR) with the perspective of being a supplier of "technology building blocks" (components, instrumentation and control system, fuel, etc.).

Concerning high-temperature reactors (HTR), AREVA NP is validating its expertise and experience with this type of reactor by participating in the US Department of Energy's Next Generation Nuclear Plant (NGNP) project. The goal of that project is to design a commercial high-temperature reactor to be used for the co-generation of electricity and industrial process heat. AREVA also continues to follow through with its commitments with regard to European HTR projects.

In addition, AREVA NP is actively monitoring other Generation IV reactor concepts by participating in international collaboration projects such as the European Samofar project for molten salt reactors and collaborating with the CNRS and the CEA (NEEDS program).

#### ITER AND FUSION

As part of a contract with the ITER organization, AREVA NP is building a prototype module of the primary wall of ITER, a highly complex component equipped with beryllium tiles located near the plasma and thus subject to intense thermal flux. AREVA NP is also participating in the activities of the Fusion Industry Innovation Forum, whose prime objective is to define the technology roadmap leading to the construction of the first power-generating fusion facilities.

#### Improving fuel and reactor design tools

AREVA NP puts considerable effort into improving its modeling tools and design codes, both on its own and in collaboration with the CEA. These projects prioritize the development of advanced physical models that make use of expanding computer modeling capabilities. They cover the state of the art of knowledge on PWR and BWR extended validity ranges, architectures for modular applications, and graphical interface ergonomics. Such evolutions help to improve the accuracy of code-based predictions, reduce assembly and reload design costs, and improve design quality. The goal of this research is to design and validate fuels and reactors that deliver even better performance. Within this framework, the Arcadia neutronics calculation software certified by the NRC is now in industrial use, in particular to support the calculation of fuel reload supplies in the United States, with significant gains for the operator in the number of assemblies to be supplied due to its enhanced ability to accurately predict requirements compared with previous systems.

#### Increasing the competitiveness of our products and methods and matching them to power plant operator requirements

AREVA NP continues to improve its products and services for operators of all types of nuclear power plants (PWR, BWR, VVER and Candu), particularly in the following areas:

- safety instrumentation and control systems (TELEPERM® XS), measurement and diagnostics products, safety-related sensors and emergency electrical systems, preparation of advanced generations matched to the requirements of new reactor projects;
- services to operators to extend operating periods: diagnostics and demonstration of the service period of components and structures; component maintenance and replacement; and techniques to increase the resistance of components to external events or for in situ repair, such as the cavitation peening process successfully implemented in the United States: the line of related products is presented to the utilities in the *Forward Alliance* catalogue;
- safety reviews (10-year reviews, supplementary safety assessments) and products to improve nuclear safety (complete range of containment filters for all types of reactors; hydrogen risk management; reassurance of core cooling and of used fuel storage pool cooling; new leak-proof systems for primary coolant pump seals; instrumentation and tools for situation management): the line of related products is presented to the utilities in the *Safety Alliance* catalogue;
- value creation for reactor operators: increased availability; maintenance automation and efficiency; increased power or efficiency; flexibility and load following; new products that give customers increased operational savings and performance; and enhanced worker safety such as dose reduction: the line of related products is presented to the utilities in the *Value Alliance* catalogue;

- increased performance of non-destructive examinations and in-situ work;
- optimization of the design, manufacturing and assembly of replacement components;
- products providing customers with better measurement performance and operational savings, as well as enhanced worker safety.

Supporting these different objectives, AREVA NP is especially involved in efforts to understand and anticipate aging phenomena, in cooperation with the CEA and EDF, with the objective of gaining a better understanding and control of the aging of equipment and materials in the reactor environment (presence of radiation, pressure, temperature and mechanical loads). This in turn reinforces the ability to predict and anticipate materials capabilities and to offer suitable solutions for extending the operating period of reactors and reactor components in response to the needs of power generation companies.

AREVA NP is also heavily involved in efforts to understand and analyze safety issues (risk prevention, management and mitigation) through its own programs and in collaboration with the IRSN, the CEA and EDF, for example through R&D programs on severe accidents carried out under the aegis of the National Research Agency (ANR) or in a European framework (H2020).

#### **Improving industrial processes and adapting them to changing regulations**

The R&D teams of the Saint-Marcel, Jeumont and le Creusot plant sites have concentrated on improving manufacturing processes, aiming for their quality, reproducibility and economic performance. Advances have been made in particular in the pinning of the tube support plate of steam generators, in welding methods and in the inspection of vessels and steam generators.

All of the experts and Metallurgy Technical Centers of AREVA NP have also been fully mobilized to provide the necessary support to the operator EDF to establish the compatibility of forged components supplied by the Creusot forge and other manufacturers with the conditions for their use, applying the new ESPN regulations. This gave the French nuclear safety authority ASN the technical information it needed to authorize, in late 2016, the restart of most of the shutdown reactors. A roadmap to optimize forged component production with regard to these new regulations was also drawn up and is being rolled out in the manufacturing plants of AREVA NP and Industeel, in terms of both the necessary R&D studies and tests and the corresponding investment.

#### **R&D ACTIVITIES OF AREVA TA IN PROPULSION AND RESEARCH REACTORS**

##### **Small Modular Reactor (SMR)**

AREVA TA continued work on the pre-conceptual design of a small-capacity power reactor. This modular, integrated reactor is in the 100-150 MWe range. The ongoing design combines solutions used for high-capacity PWRs and innovative design bases in terms of technologies, industrial optimization, construction and operating flexibility. This concept was the basis of the proposal presented by EDF Energy, teamed with AREVA TA, AREVA NP and other French and English partners, in response to the invitation to tender for SMRs issued in 2016 by the British government.

##### **Research reactor**

AREVA TA continued to set up its technical standards (nuclear safety standards, development or adaptation of design codes and drawings for research reactors, with the CEA's support) as backup to its proposals for international research reactors to countries wishing to invest in R&D or nuclear education, and for the production of medical isotopes.

## **11.2. INTELLECTUAL PROPERTY**

Intellectual property rights, in particular patents, trademarks, domain names and know-how, play an important role in the group's daily operations and thus in the production and protection of the AREVA group's products, services and technology. Protecting the group's knowledge and unique know-how requires a comprehensive

system for developing and managing AREVA's technology assets. This is also the key success factor during negotiations of R&D and industrial partnerships, technology transfer agreements, and process license agreements, now standard practice for large-scale international projects.

### **11.2.1. PATENTS AND KNOW-HOW**



Several years ago, AREVA set the goal of building a portfolio of patent rights consistent with its strategies and right-sized in terms of both quality and quantity, in keeping with the group's research and development efforts.

Today, the group has a portfolio of some 5,600 patents derived from more than 1,200 inventions pertaining to the nuclear fuel cycle, nuclear reactors and related services. In 2016, the group filed 51 priority patent applications from operations held for sale (14 in the NewCo consolidation scope and 37 in the New NP scope).

In addition to the patent portfolios, AREVA has elected to maintain the confidentiality of some of its technology innovations. Accordingly, the group owns and uses valuable know-how recognized for its technical excellence that contributes to AREVA's leadership in its businesses and bolsters the group's technical and commercial offering.

### 11.2.2. TRADEMARKS

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AREVA owns several corporate trademarks. The best known are the AREVA brand name, the figurative mark  and the semi-figurative mark .


These trademarks designate all of the group's operations and are protected in all countries in which the group conducts its operations.

The communication program undertaken to support and accompany the group's development is based on the deployment of these trademarks.

Actions taken in this regard – advertising, websites, brochures, sponsorships and press relations – help strengthen the group's brand awareness in France and abroad and position AREVA as a leading brand in the energy sector. With respect to the

trademark defense policy, in particular on the Internet, the Arbitration and Mediation Center of the World Intellectual Property Organization (WIPO) has emphasized the well-known nature of the AREVA brand.

Protection of AREVA's trademarks is accompanied by initiatives to protect and defend the domain names necessary to its operations.

Specific names or distinctive signs of products and services marketed by the AREVA group are also protected by registered trademarks (e.g. the , Manuela and Sogefibre marks).

### 11.2.3. LEGAL ACTIVITIES

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In 2016, AREVA entered into several research and development and partnership agreements in international markets for which balanced and profitable intellectual property strategies were devised in the interests of the group as well as of its partners.

AREVA endeavors to preserve its intellectual property rights in all agreements with third parties, particularly joint property regulations, license agreements and technology transfer agreements, to optimize the management of its intellectual property and prevent its unauthorized use.

To protect its intellectual property rights, AREVA's policy is both proactive and reactive.

### 11.2.4. IN 2017

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The group intends to pursue, strengthen and organize its intellectual property initiative to support the growth of its research and development efforts and the development of new partnerships, in keeping with the group's industrial and

marketing strategies, and with the goal of making intellectual property a fundamental tool of the group's strategy.

## 12.1. CURRENT SITUATION

Please refer to Section 6.1. *The markets for nuclear power and renewable energies*, which deals in particular with the current economic situation and how it affects the group's operations.

## 12.2. FINANCIAL OBJECTIVES

In 2017, the completion of the AREVA SA and NewCo capital increases and the sale of New NP to EDF and to strategic investors are major milestones for restoring the group's financial position and enabling it to meet its obligations.

In addition, as announced by the French State, subject to the completion of the NewCo capital increase and the loss of control of NewCo by AREVA which will follow, a Public Buyout Offer, followed as applicable by a mandatory squeeze-out, will be launched on AREVA SA's shares at a price consistent with that of the capital increase, set at €4.50 per share.

Not applicable.

# ADMINISTRATIVE, MANAGEMENT AND SUPERVISORY BODIES AND SENIOR MANAGEMENT

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## 14.1. BOARD OF DIRECTORS

### 14.1.1. COMPOSITION OF THE BOARD OF DIRECTORS

In accordance with article 15 of the articles of association, the company is governed by a Board of Directors composed, as of the date of this Reference Document, of twelve members, including three members elected by company personnel\*, one director representing the French State appointed by ministerial order and one director<sup>(1)</sup> appointed by the Shareholders on the proposal of the French State, pursuant to order no. 2014-948 of August 20, 2014 and decree no. 2014-949 of August 20, 2014.

In addition, during its meeting of February 28, 2017, the Board of Directors decided to submit the appointment of two women proposed by the French State

pursuant to order no. 2014-948 of August 20, 2014 to the Annual General Meeting of Shareholders of May 18, 2017: Mrs. Marie-Solange Tissier and Mrs. Florence Touitou-Durand, who will bring added competence to the Board of Directors. The proposed resolutions appear in Appendix 5 of the Reference Document. If the Shareholders vote in favor of these appointments, the Board of Directors will be composed of 13 members at the end of the meeting, 40% of whom are women.

All AREVA directors are French citizens.

\* As from the final sale of AREVA TA, Mrs. Odile Matte will be replaced as director representing company personnel and as director of the Strategy and Investments Committee by Mr. Gilbert Cazenobe, listed second on the ballot for the same labor union during elections of employee representatives.

(1) The Board of Directors was composed of 12 members until October 26, 2016, date of the resignation of Mr. Denis Morin, director appointed on a recommendation of the State.

First name, last name, age, terms of office or functions in the company	Terms of office or principal functions outside the company	Terms of office outside the company over the past five years and now expired
<b>Directors appointed (or coopted <sup>(2)</sup>) by the General Meeting of Shareholders on January 8, 2015</b>		
<b>Philippe Varin</b> Age 64 Director Chairman of the Board of Directors Chairman of the Strategy and Investments Committee Chairman of the Major Commercial Proposals Committee Chairman of the AREVA TA Working Group	<ul style="list-style-type: none"> <li>• Director of Saint-Gobain <sup>(1)</sup></li> <li>• Chairman of the Cercle de l'Industrie</li> <li>• Special envoy of the Minister of Foreign Affairs and International Development to ASEAN countries</li> <li>• Chairman of SASU PRM3C</li> </ul>	<ul style="list-style-type: none"> <li>• Director of EDF <sup>(1)</sup></li> <li>• Chairman of the Managing Board of Peugeot SA</li> <li>• Chairman of the Board of Directors of Peugeot Citroën Automobiles SA</li> <li>• Chairman of the Board of Directors of GEFCO SA</li> <li>• Director of Banque PSA Finance SA</li> <li>• Director of Faurecia SA</li> <li>• Director of PCMA Holding BV</li> <li>• Director of BG Group Plc</li> </ul>
<b>Daniel Verwaerde</b> Age 62 Director Vice Chairman of the Board of Directors Member of the Strategy and Investments Committee Member of the Major Commercial Proposals Committee Member of the End-of-Lifecycle Obligations Monitoring Committee Member of the Ad Hoc Committee	<ul style="list-style-type: none"> <li>• Chairman of the CEA</li> <li>• Chairman of the Board of Directors of CEA</li> <li>• Managing Director of SCI Richard</li> <li>• Managing Director of SCI Guillaume</li> <li>• Managing Director of SCI Mathilde</li> </ul>	<ul style="list-style-type: none"> <li>• Director of Sodern</li> </ul>
<b>Marie-Hélène Sartorius <sup>(2)</sup></b> Age 59 Director Chairman of the Audit and Ethics Committee Member of the Ad Hoc Committee Member of the Compensation and Nominating Committee	<ul style="list-style-type: none"> <li>• Member of the Supervisory Board of ANF Immobilier</li> <li>• Director of BNP ParisbasCardif SA</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Claude Imauven</b> Age 59 Director Chairman of the Compensation and Nominating Committee Chairman of the Ad Hoc Committee Chairman of the End-of-Lifecycle Obligations Monitoring Committee Member of the Strategy and Investments Committee Member of the Major Commercial Proposals Committee	<ul style="list-style-type: none"> <li>• Chief Operating Officer of Saint-Gobain <sup>(1)</sup></li> <li>• Director of Artelia Holding SAS</li> <li>• Chairman of the Board of Directors of the Institut Mines-Télécom (EPESCT) (since February 15, 2016)</li> <li>• Director of Banque CIC Est (term expired May 19, 2016)</li> </ul>	<ul style="list-style-type: none"> <li>• Chief Executive Officer and Director of BPB Limited</li> <li>• Chairman of the Board of Directors of Saint-Gobain Matériaux de Construction SAS (Saint Gobain)</li> <li>• Chairman of the Board of Directors of Saint-Gobain PAM (Saint Gobain)</li> <li>• Chairman of the Board of Directors of Saint-Gobain Isover (Saint Gobain)</li> <li>• Director of the Supervisory Board and Chairman of Saint-Gobain Weber (Saint Gobain)</li> </ul>
<b>Philippe Knoche</b> Age 48 Director Chief Executive Officer	<ul style="list-style-type: none"> <li>• Chairman and Chief Executive Officer of AREVA NC (AREVA)</li> <li>• Chairman of the Board of Directors of AREVA Mines (AREVA) (since February 18, 2016)</li> <li>• Chairman of AREVA NP SAS (AREVA) (term expired June 30, 2016)</li> <li>• Chairman of the Supervisory Board of AREVA GmbH (AREVA) (term expired November 8, 2016)</li> <li>• Chairman of the Board of Canberra Industries Inc. (AREVA) (term expired July 1, 2016)</li> <li>• Permanent representative of AREVA SA to the Board of Directors of AREVA TA (AREVA) (term expired February 11, 2016)</li> </ul>	<ul style="list-style-type: none"> <li>• Chairman of the Board of Directors of AREVA Inc. (AREVA)</li> <li>• Member of the Executive Board of AREVA</li> </ul>

(1) Publicly traded company.

(2) Mrs. Marie-Hélène Sartorius was coopted as a member of the Board of Directors on October 27, 2016 with an effective date of November 1, 2016, replacing Mrs. Sophie Boissard, who resigned on November 1, 2016. The Combined General Meeting of Shareholders ratified this cooptation on February 3, 2017.

First name, last name, age, terms of office or functions in the company	Terms of office or principal functions outside the company	Terms of office outside the company over the past five years and now expired
<p><b>Christian Masset</b> Age 60 Director (proposed by the French State) Member of the Strategy and Investments Committee</p>	<ul style="list-style-type: none"> <li>• Secretary General of the Quai d'Orsay (Ministry of Foreign Affairs and International Development)</li> <li>• Director of EDF <sup>(1)</sup></li> <li>• Director of the École nationale d'administration</li> <li>• Director of the Institut Français</li> <li>• Director of the Agence nationale des titres sécurisés (national agency for secure identity documents)</li> <li>• Director of the Commission de récolement des dépôts d'œuvres d'art (commission for verification of registered works of art)</li> <li>• Director of the Établissement de préparation et de réponse aux urgences sanitaires (health emergency planning and response institution)</li> <li>• Director of France Médias Monde</li> <li>• Member of the Comité de l'énergie atomique (French atomic energy board)</li> </ul>	<ul style="list-style-type: none"> <li>• Member of the Supreme Council of the l'Institut du monde arabe (Arab World Institute)</li> <li>• Director of the Agence pour l'enseignement du français à l'étranger (Agency for French Education Abroad)</li> <li>• Director of France expertise international</li> <li>• Director of the Agence française de développement (French Development Agency)</li> <li>• Director of the France-Israel Foundation</li> </ul>
<p><b>Pascale Sourisse</b> Age 54 Director Member of the Audit and Ethics Committee Member of the Ad Hoc Committee</p>	<ul style="list-style-type: none"> <li>• Senior Executive Vice President of International Development, Thales group <sup>(1)</sup></li> <li>• Director of Vinci <sup>(1)</sup></li> <li>• Director of Renault <sup>(1)</sup></li> <li>• Chairman of Thales International SAS and Thales Europe SAS (Thales)</li> <li>• Director of the Agence nationale des fréquences (French frequency agency)</li> <li>• Director of the Agence nationale de la recherche (French national research agency)</li> <li>• Chairman of the Board of École de Télécom Paris Tech</li> <li>• Permanent representative of Thales as Director of Odas</li> </ul>	<ul style="list-style-type: none"> <li>• Member of the collective body of Thales Security Solutions &amp; Services SAS</li> <li>• Chairman and Chief Executive Officer of Thalès Communications &amp; Security SAS</li> <li>• Chairman of Thales Services SAS</li> <li>• Member of the Supervisory Board of Thales Alenia Space SAS</li> <li>• Member of the Board of Gifas</li> <li>• Member of the Board of Directors of DCNS</li> <li>• Chairman of Thales Canada Inc. Canada</li> <li>• Director of Thalès UK Ltd (United Kingdom)</li> <li>• Director of Thalès Electronics Ltd. (United Kingdom)</li> <li>• Member of the Supervisory Board of Thales Netherland BV (Netherlands)</li> <li>• Director of Thales USA Inc. (USA)</li> <li>• Director of Australian Defence Industries Pty Ltd (Australia)</li> <li>• Director of Thales Australia Holdings Pty Ltd (Australia)</li> <li>• Director of Thales Underwater Systems Pty Ltd (Australia)</li> <li>• Director of Thales Training &amp; Simulation Holdings Pty Ltd (Australia)</li> <li>• Director of ATM Pty Ltd (Australia)</li> <li>• Director of Australia Corporate Finance Pty Ltd (Australia)</li> <li>• Director of Australia Finance Pty Ltd (Australia)</li> <li>• Permanent representative of Thales as Director of Sofresa</li> </ul>

(1) Publicly traded company.



First name, last name, age, terms of office or functions in the company	Terms of office or principal functions outside the company	Terms of office outside the company over the past five years and now expired
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**Director appointed by the French State by ministerial order dated January 7, 2015**


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**Alexis Zajdenweber**

Age 40  
 Director (representing the French State)  
 Member of the Audit and Ethics Committee  
 Member of the Strategy and Investments Committee  
 Member of the Major Commercial Proposals Committee  
 Member of the End-of-Lifecycle Obligations Monitoring Committee  
 Member of the Compensation and Nominating Committee

- Director of Eramet <sup>(1)</sup>
- Member of the Supervisory Board of ERDF
- Director of the French Geological Survey (BRGM)

- Director of La Monnaie de Paris

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**Directors representing the employees elected on October 31, 2014**


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**Françoise Pieri**

Age 49  
 Director (representing the employees)  
 Member of the Audit and Ethics Committee  
 Member of the AREVA TA Working Group

- Integrated management system specialist (AREVA NC)

- None

**Jean-Michel Lang**

Age 54  
 Director (representing the employees)  
 Member of the End-of-Lifecycle Obligations Monitoring Committee  
 Member of the Compensation and Nominating Committee

- Expert to the head of the department that handles product quality deviations (AREVA NC)

- Member of the Board of Directors of MELOX

**Odile Matte**

Age 57  
 Director (representing the employees)  
 Member of the Strategy and Investments Committee

- Project administrator at AREVA TA
- Director elected by the employees of AREVA TA (AREVA)
- Managing Director of SCI Les Cèdres

- None
- 

(1) Publicly traded company.

Pursuant to article 18 of the company's articles of association, the Board of Directors renewed the terms of Mr. Pascal Faure and the CEA, represented by Mr. Christophe Gégout, as censors in 2016 and 2017 to assist the Board in exercising its duties and to attend its meetings without voting rights.

Pursuant to article 3 of the decree no. 83-1116 of December 21, 1983, as amended, the following persons also attend the meetings of the Board of Directors in an advisory capacity: the Director General for Energy and Climate at the Ministry of Energy, Mr. Laurent Michel, who serves as Government Commissioner, and the representative of the Head of the Atomic Energy Control Mission of the General Economic and Financial Control Department, represented by Mr. Christian Bodin, who serves as a member of the body responsible for general economic and financial control of the company. They may also attend sessions of the committees attached to the Board of Directors.

The deliberations of the Board of Directors become ipso facto enforceable if the Government Commissioner or the General Economic and Financial Control Mission does not oppose them in the five days that follow the Board of Directors meeting, if he or she attended it, or the receipt of the minutes of the meeting.

Such opposition, of which the Minister of Economy and the Minister of Energy are immediately informed by the author of same, ceases to have effect if, within a limit of fifteen days, it has not been confirmed by one of those ministers.

Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities & Finance, served as Secretary of the Board of Directors. In the absence of the latter, Mr. David Rubin was deputized from July 28 to December 15, 2016.

## 14.1.2. PERSONAL INFORMATION ON THE MEMBERS OF THE BOARD OF DIRECTORS

### Members appointed by the Shareholders/coopted by the Board of Directors

#### PHILIPPE VARIN

Born August 8, 1952 in Reims, France, Mr. Philippe Varin is an alumnus of École polytechnique and of the École des mines of Paris.

He joined the Pechiney group in 1978 as a researcher and subsequently fills a number of management positions within the group (management control, strategy, project direction) before being appointed in 1995 as Director of the Rhenalu Division then Chief Executive Officer of the aluminum segment and member of the group's Executive Committee in 1999.

In 2003, he joined the Anglo-Dutch steel group Corus as Chief Executive Officer. He was Chairman of the European Steel Association (Eurofer) from 2006 to 2008.

He was appointed Chairman of the Executive Board of PSA Peugeot Citroën in June 2009 and left the group in June 2014.

Mr. Philippe Varin is a *Chevalier* in the Ordre national du Mérite, an *Officier* in the Ordre national de la Légion d'honneur, and a Commander of the British Empire.

He has chaired the Board of Directors of AREVA since January 8, 2015.

#### CLAUDE IMAUVEN

Born September 6, 1957 in Marseille, France, Mr. Claude Imauven is a graduate of École polytechnique and holds the rank of *Ingénieur* in the Corps des mines. He began his career in 1983 at the French Ministry of Industry, where he held several management positions in public administration, most notably as a member of ministerial staffs (Trade and Industry).

His career at Saint-Gobain began in 1993 with the Flat Glass Division, where he was Vice President of Industrial Policy and subsequently Vice President of Industry and Finance. In 1996, he was appointed General Delegate for Spain, Portugal and Morocco. Returning to France in 1999, he joined the Pipe activity as Chief Operating Officer of Pont-à-Mousson SA. In 2001, he became Chairman and CEO of that company and President of the Pipe activity.

From April 2004 to the end of 2015, Mr. Claude Imauven was Senior Vice President of Saint-Gobain and President of the Construction Products Sector.

Mr. Claude Imauven is an *Officier* in the Ordre national du Mérite.

Mr. Claude Imauven has been Chief Operating Officer of Saint-Gobain since January 1, 2016.

He has been a member of the Board of Directors of AREVA since January 8, 2015.

#### PHILIPPE KNOCHE

Born February 14, 1969 in Strasbourg, France, Mr. Philippe Knoche is an alumnus of École polytechnique, where he received a Master's of Science in Materials Science; he is also holds a degree from the École des mines.

He began his career in 1995 in Brussels as a case handler for the European Commission's Antidumping Department.

In 1998, he joined the Consortium de Réalisation as Assistant to the Chairman of the Supervisory Board.

He joined AREVA in 2000 as Senior Vice President in charge of Corporate Strategy. He became Executive Vice President of the Treatment Business Unit in 2004 and, in 2006, Director of the Olkiluoto 3 project. In 2010, he took the helm of the Reactors & Services Business Group as Senior Executive Vice President and became a member of the group's Executive Committee.

In July 2011, Mr. Philippe Knoche was appointed to the Executive Board and named Chief Operating Officer in charge of nuclear operations.

He has been a member of the Board of Directors and Chief Executive Officer of AREVA since January 8, 2015.

#### CHRISTIAN MASSET (PROPOSED BY THE FRENCH STATE)

Born January 23, 1957 in Sète, France, Mr. Christian Masset is an alumnus of the École nationale d'administration (ENA) and a graduate of the Institut d'études politiques of Paris (SciencesPo) and of the École supérieure des sciences économiques et commerciales (ESSEC).

Mr. Christian Masset began his career with the Political Affairs Directorate of the Ministry of Foreign Affairs in 1984. In 1987, he was named First Secretary to the Embassy of France in London before joining the Economic Affairs Directorate of the Ministry of Foreign Affairs in Paris in 1989. From 1991 to 1994, he was First Counsellor to the Embassy of France in Pretoria then, from 1994 to 1997, Counsellor to the Permanent Representation of France to the European Union. From 1997 to 1999, he was appointed Technical Advisor to the Cabinet of the Minister of Foreign Affairs.

Mr. Masset was Minister-Counsellor to the Embassy of France in Rome from 1999 to 2002, the Deputy Permanent Representative of France to the European Union from 2002 to 2007, and then Director of Economic and Financial Affairs at the Ministry of Foreign Affairs. In 2009, he was named Director General of Globalization, Development and Partnerships. In that capacity, he held the office of Chairman of the Board of Directors of the Agence pour l'enseignement du français à l'étranger (agency for French education abroad) and of the France cooperation international public interest grouping.

He was Ambassador of France to Japan from January 2012 to July 2014.

Mr. Christian Masset is a *Chevalier* of the Ordre national de la Légion d'honneur and a *Chevalier* of the Ordre national du Mérite.

Since August 1, 2014, Mr. Christian Masset has been Secretary General of the Ministry of Foreign Affairs and International Development.

He was appointed to the Board of Directors on January 8, 2015 on the proposal of the French State.

**MARIE-HÉLÈNE SARTORIUS**

Born January 23, 1957 in Lyon, France, Mrs. Marie-Hélène Sartorius is an alumnus of École polytechnique and of the École nationale des ponts et chaussées.

She began her career with Banque Paribas, which later became BNP Paribas, where she held a number of different functions in management control and in the financing bank before being appointed to head up specialized financing operations for Europe (LBO, finance project).

In 1995, she joined the department of market operations of the Paribas group in London as Risk Manager and later, in 1999, launched a new credit derivatives trading business.

In 2001, she joined PricewaterhouseCoopers (PwC) as an associate in charge of consulting activities in France, where she was an advisor to major international groups until 2016. She worked mainly with large financial market investment banks and players in the energy sector in the field of risk management, performance optimization and major transformation programs.

Internationally, Mrs. Marie-Hélène Sartorius was a member of EMEA Financial Services Leadership Team (EMEA FSLT) and of the Global Financial Services Advisory Leadership Team (GFSALT) of PwC.

Mrs. Marie-Hélène Sartorius was coopted as an independent director by the Board of Directors of AREVA SA on October 27, 2016, replacing Mrs. Sophie Boissard, who resigned on November 1, 2016.

The Combined General Meeting of Shareholders ratified this cooptation on February 3, 2017.

**PASCALE SOURISSE**

Born March 7, 1962 in Nantes, France, Mrs. Pascale Sourisse is an alumnus of École polytechnique and the École nationale supérieure des télécommunications (ENST).

She began her career in management positions with France Telecom, Jeumont-Schneider and the Compagnie Générale des Eaux, as well as with the Ministry of Industry. She joined Alcatel in 1995 as Vice President, Planning and Strategy of Alcatel Space. In 1997, she was appointed Chairman and CEO of SkyBridge. In 2001, she became President and CEO of Alcatel Space, and in 2005 President and CEO of Alcatel Alenia Space. In 2007, she joined Thales as a member of the Executive Committee Senior Vice President of the Space Division and President and CEO of Thales Alenia Space. In 2008, she was appointed Senior Vice President of the Land & Joint Systems Division of Thales and, in February 2010, she became Senior Vice President of the Defense & Security C41 Systems Division. Until 2012, she was also President and CEO of Thales Communications & Security and President of Thales Services.

Mrs. Pascale Sourisse is an *Officier* of the Ordre national de la Légion d'honneur and a *Commander* of the Ordre national du Mérite.

In February 2013, Mrs. Pascale Sourisse was appointed Senior Executive Vice President, International Development of the Thales group. She is also President of Thales International.

She has been a member of the Board of Directors of AREVA since January 8, 2015.

**DANIEL VERWAERDE**

Born August 17, 1954 in Sedan, France, Mr. Daniel Verwaerde is an engineer and graduate of the École centrale of Paris and auditor of the 32nd session of the Centre des hautes études de l'armement (CHEAr).

He joined the Commissariat à l'énergie atomique (CEA) in 1977 as an engineer-mathematician and worked until 1996 on the development of numerical methods and major weapons simulation software. In the capacity, he directed the Applied Mathematics Department responsible for them at the CEA from 1991 to 1996.

In 1996, following France's signature of the Nuclear Test Ban Treaty, he was in charge of implementing the Simulation program, based on three components: numerical simulation, theoretical physics and experimental physics, in particular with the Megajoule laser built near Bordeaux.

In July 2000, he was appointed Director of the CEA DAM/Ile de France Center in Bruyères-le-Châtel, home of the teams engaged in weapons design, numerical simulation and monitoring of non-proliferation treaties and efforts. In 2002, he launched the Ter@tec project aimed at promoting numerical simulation in France and developing the European IT industry.

In January 2004, he became Director of Nuclear Weapons at the CEA's Defense Applications Department. In that capacity, he was responsible for French nuclear weapons projects in the Simulation program.

On April 3, 2007, he was appointed Director of Defense Applications. In addition to weapons and simulation programs, he was in charge of nuclear propulsion programs, strategic materials supply, and nuclear non-proliferation activities entrusted to the CEA.

Mr. Daniel Verwaerde has taught numerical analysis at the École centrale of Paris since 1981, where he became Professor in 1991.

Mr. Daniel Verwaerde is an *Officier* in the Ordre national de la Légion d'honneur and a *Chevalier* in the Ordre national du Mérite.

He was appointed Chairman of the Commissariat à l'énergie atomique et aux énergies alternatives by decree dated January 29, 2015 and Chairman of the Board of Directors of the CEA on April 3, 2015.

Mr. Daniel Verwaerde was appointed member and Vice Chairman of the Board of Directors of AREVA on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to that function on January 8, 2015.

### Member representing the French State, appointed by ministerial order

#### ALEXIS ZAJDENWEBER

Born May 18, 1976 in Paris, France, Mr. Alexis Zadjenweber is an alumnus of the Institut d'études politiques of Paris (SciencesPo) and an alumnus of the École nationale d'administration (ENA).

His career has been entirely with the Treasury Directorate of the Ministry of Economy and Finance, with particular responsibility for cases involving the regulation of financial services (banks, financial markets, insurance), corporate financing and anti-money-laundering efforts. He also worked at the Permanent Representation of France in charge of relations with the Directorate General for Competition of the European Commission. Before joining the Agence des participations de l'État, he was an advisor to Pierre Moscovici, Minister of Economy and Finance, in charge of financial services and the financing of the economy.

Mr. Alexis Zajdenweber was appointed representative of the French State to the AREVA Board of Directors as from January 8, 2015 by ministerial order of January 7, 2015.

### Members of the Board of Directors representing the employees

#### JEAN-MICHEL LANG

Born March 30, 1962 in Metz, France, Mr. Jean-Michel Lang holds a two-year technical degree in health and safety and senior technician's certificate in radiation protection.

From 1985 to 1990, he was a radiation protection technician at a regulated nuclear facility.

From 1991 to 1993, he was Radiation Protection Zone Officer at a regulated nuclear facility.

From 1994 to 1999, he was Radiation Protection Manager in a production building.

From 1999 to 2000, he was the Manager of the Technical, Environmental and Methods Office of the Radiation Protection Department.

From 2001 to 2008, he was a technician in charge of the treatment of product quality deviations.

Since 2008, Mr. Jean-Michel Lang has the status of expert to the head of the department that handles product quality deviations (AREVA NC).

Mr. Jean-Michel Lang was elected by the employee electoral college on October 31, 2014 as director representing the employees.

#### ODILE MATTE

Born September 16, 1959 in Algrange, France, Mrs. Odile Matte studied accounting and finance at the master's level.

In May 2000, she joined Technicatome, which later became AREVA TA, as a management controller of quality for defense-related projects.

Based at the engineering office in Aix en Provence, she was a director representing the employees to the AREVA TA Board of Directors for 12 years.

She has also been a member of the Supervisory Board of the AREVA fonds monétaire group savings plan since 2007.

Mrs. Odile Matte is currently a project administrator with AREVA TA and was elected by the management personnel electoral college during the elections of October 31, 2014 as director representing the employees.

#### FRANÇOISE PIERI

Born September 21, 1967 in Saint Just d'Ardèche, France, Mrs. Françoise Pieri was a secretary with the Testing Department of SGN from 1987 to 1989.

From 1990 to 2010, she held various secretarial positions at Socatri.

Since October 2010, Mrs. Françoise Pieri has been an integrated management system specialist with AREVA NC.

Mrs. Françoise Pieri was elected by the employee electoral college during the elections of October 31, 2014 as director representing the employees.

### 14.1.3. CHANGE MADE DURING THE PERIOD

Two changes were made to the composition of the Board of Directors in 2016:

- Mrs. Marie-Hélène Sartorius was coopted as director as from November 1, 2016 by a decision of the Board of Directors dated October 27, 2016 upon the recommendation of the Compensation and Nominating Committee dated October 24, 2016, replacing Mrs. Sophie Boissard, who has resigned as director, for the remainder of the latter's term, i.e. until the Ordinary General Meeting of Shareholders convened to approve the financial statements for the period ending

December 31, 2018. The Combined Annual General Meeting of Shareholders ratified this cooptation on February 3, 2017;

- Mr. Denis Morin, a director appointed by the General Meeting on a proposal from the French State, resigned from his term of office as director on October 26, 2016; The composition of the Board of Directors' committees was modified as a consequence (refer to section 3.5 of Appendix 1 of this Reference Document).

First name, last name, age, terms of office or functions in the company	Current terms of office/principal functions outside the company	Terms of office outside the company over the past five years and now expired
<b>Denis Morin</b> Age 61 From January 8, 2015 to October 26, 2016: Director Member of the Audit and Ethics Committee	<ul style="list-style-type: none"> <li>● Director of SNCF<sup>(1)</sup></li> <li>● Director of Budget1 at the French Ministry of Economy and Finance (term expired December 22, 2016)</li> <li>● President of the Second Chamber of the Cour des Comptes (since February 24, 2017)</li> </ul>	<ul style="list-style-type: none"> <li>● Director of ED</li> </ul>
<b>Sophie Boissard</b> Age 46 From January 8, 2015 to November 1, 2016: Director Chairman of the Audit and Ethics Committee Member of the Compensation and Nominating Committee Member of the Ad Hoc Committee	<ul style="list-style-type: none"> <li>● CEO of Korian<sup>(1)</sup> (since January 26, 2016)</li> <li>● Chairman of the Board of Directors of Korian Management (Korian) (since February 27, 2016)</li> <li>● Chairman of the Board of Directors of Curanum (Korian) (since February 27, 2016)</li> <li>● Chairman of the Institut du Bien Vieillir Korian (Korian) (since February 26, 2016)</li> <li>● Director of Segesta SpA (Korian) (since February 26, 2016)</li> <li>● Director of Senior Living Group NV (Korian) (since February 26, 2016)</li> <li>● Director of the KOR Foundation (Korian) (since February 26, 2016)</li> <li>● Director of Sanef</li> <li>● Chairman of the ICF Habitat group (SNCF) (term expired January 25, 2016)</li> <li>● Chairman of Espaces Ferroviaires (SNCF) (term expired February 1, 2016)</li> </ul>	<ul style="list-style-type: none"> <li>● Director of Eurostar International Limited (SNCF)</li> </ul>

(1) Publicly traded company.

## 14.2. EXECUTIVE OFFICERS

Under the provisions of article L. 225-51-1 of the French Commercial Code, the Board of Directors opted to dissociate the duties of Chairman of the Board of Directors from those of Chief Executive Officer, with Mr. Philippe Varin performing the duties of Chairman of the Board and Mr. Philippe Knoche performing the duties of Chief Executive Officer.

The dissociation of these duties is intended to establish a clear distinction between the strategic direction, decision-making and control duties of the Chairman of the Board and the operational and executive duties of the Chief Executive Officer. It is also intended to improve the functioning of the Board through the presence of a person dedicated to chairing it, and the balanced distribution of powers limiting the isolation of a single executive and promoting dialogue among peers.

Executive management procedures are described in Section 3.6 of the report of the Chairman of the Board of Directors on governance, internal control procedures and risk management (Appendix 1).

The Chief Executive Officer is supported by an Executive Committee in which all of the group's businesses are represented.

This committee examines and discusses all matters pertaining to the group's operations and strategy. In principle, it meets each week.

Since July 1, 2016, AREVA has been organized into two operating entities, New AREVA Holding (hereinafter called "NewCo") and AREVA NP, each with an Executive Committee in charge of steering operations.

As of the date this Reference Document was filed, the composition of the Executive Committees was as follows:

### **COMPOSITION OF THE NEWCO EXECUTIVE COMMITTEE <sup>(1)</sup>**

<b>Name</b>	<b>Title</b>
Philippe Knoche	Chief Executive Officer
Stéphane Lhopiteau	Chief Legal and Financial Officer
François Nogué	Senior Executive Vice President of Human Resources and Communications
Guillaume Dureau	Senior Executive Vice President of Customers, Strategy, Innovation and R&D
Éric Chassard	Senior Executive Vice President of the AREVA Projects BU and Director of Performance
Jacques Peythieu	Senior Executive Vice President of the Mining BU
Antoine Troesch	Senior Executive Vice President of the Chemistry/Enrichment BU
Pascal Aubret	Senior Executive Vice President of the Recycling BU
Alain Vandercruyssen	Senior Executive Vice President of the Dismantling and Services BU
Frédéric de Agostini	Senior Executive Vice President of the Logistics BU
Christian Barandas	Special Advisor to the Chief Executive Officer

### **COMPOSITION OF THE AREVA NP EXECUTIVE COMMITTEE**

<b>Name</b>	<b>Title</b>
Bernard Fontana	President of AREVA NP
Philippe Braidy	Chief Operating Officer
David Emond	Senior Executive Vice President of the Components BU
Lionel Gaiffe	Senior Executive Vice President of the Fuel BU
Frédéric Lelièvre	Senior Executive Vice President of Sales, Regional Platforms, and Instrumentation and Control Systems
Nicolas Maes	Senior Executive Vice President of the Installed Base BU
Alexis Marincic	Senior Executive Vice President of the Technical and Engineering BU
Jean-Bernard Ville	Senior Executive Vice President of the Large Projects BU
Yves Merel	Senior Executive Vice President of Operational Excellence

(1) NewCo is the temporary name of the entity which combines all of the operations of AREVA related to the nuclear fuel cycle, whose legal name is New AREVA Holding.

### 14.3. LEGAL INFORMATION, CONFLICTS OF INTEREST AND SERVICE CONTRACTS

The rules of procedure of the Board of Directors calls for a procedure for preventing conflicts of interest applicable to all directors. Conflict of interest situations are examined and prevented on a case-by-case basis (refer to paragraph 3.2.5 of Appendix 1 of this Reference Document).

As of the date of this Reference Document and to the best of AREVA's knowledge:

- no member of the Board of Directors or senior management has been convicted of fraud over the past five years. None of these members participated in any bankruptcy, receivership or liquidation proceeding in an executive capacity during the past five years, and none was indicted and/or officially sanctioned by a statutory or regulatory authority, including officially appointed professional organizations. Over the past five years, no court has barred any of these members

from becoming a member of an administrative, executive or supervisory body of a securities issuer, or from participating in the management or business operations of an issuer;

- no member of the Board of Directors or senior management has been selected as a corporate officer or board member of a major shareholder, customer, supplier or other pursuant to an arrangement or an agreement;
- no service agreement providing for the granting of any benefit exists between AREVA or any of its subsidiaries and any member of the Board of Directors or senior management.

### 14.4. TRANSACTIONS ON THE COMPANY'S SHARE CAPITAL BY EXECUTIVE OFFICERS

Executive officers and similar persons<sup>(1)</sup> of companies whose shares are admitted for trading on a regulated market must declare transactions carried out on the company's shares to the AMF and to the company<sup>(2)</sup> within three days of completion of the trade when the total amount of the transactions carried out over the calendar year exceeds 20,000 euros<sup>(3)</sup>. In addition, the Board of Directors of AREVA must report the above-mentioned transactions declared in the last financial year to the Shareholders in its annual report.

The number of shares held by Mr. Philippe Knoche has not changed; he still holds 100 shares.

No transaction on AREVA shares was declared to the AMF or to the company during the 2016 financial year by members of the Board of Directors or of the company's Executive Committee<sup>(4)</sup>.

(1) In AREVA, persons "similar to officers" are members of the company's Executive Committee.

(2) Article L. 621-18-2 of the French Monetary and Financial Code.

(3) Since July 3, 2016, any transaction on company shares by executive officers and similar persons in an amount of more than 20,000 euros (5,000 euros previously) must be reported to the AMF within three days (versus five days) of the date of the transaction or the placement of an order.

(4) It being noted that, due to a computer error, transactions carried out by Mr. Philippe Knoche in financial year 2014 and reported to the AMF in 2014 in accordance with the provisions of article L. 621-18-2 of the Monetary and Financial Code were not officially registered until 2016: the sale of 1,000 shares on August 11, 2014, and the acquisition of 100 shares on December 18, 2014.

<b>15.1. COMPENSATION OF OFFICERS AND DIRECTORS</b>	<b>142</b>	<b>15.2. STOCK OWNED BY OFFICERS AND DIRECTORS</b>	<b>149</b>
15.1.1. Compensation of the CEO	142		
15.1.2. Compensation of the Chairman and members of the Board of Directors	144	<b>15.3. AUDIT FEES</b>	<b>150</b>

## 15.1. COMPENSATION OF OFFICERS AND DIRECTORS

The compensation of AREVA's officers and directors is determined in accordance with the provisions of the French Commercial Code and the Afep-Medef Code of Governance to which the company defers (see Appendix 1 of this Reference Document).

The Board of Directors sets the compensation for the Chairman and for the Chief Executive Officer on the proposal of the Compensation and Nominating Committee, and the Shareholders set the total amount of attendance fees paid to members of the Board of Directors, which divide it among themselves.

The components of compensation are approved by the Minister of Economy pursuant to decree no. 53-707 of August 9, 1953, as amended, on government control of national public sector companies and certain organizations serving an economic or social purpose.

In addition, pursuant to article 3 of said decree, the gross annual compensation for work <sup>(1)</sup> of directors and officers is capped at 450,000 euros.

In accordance with applicable regulations, the tables below include the compensation and benefits of any kind paid by AREVA to officers and directors in 2015 and 2016. No compensation or benefits are paid to these individuals by companies controlled by AREVA.

### 15.1.1. COMPENSATION OF THE CEO

#### 15.1.1.1. COMPENSATION OF THE CEO

The gross annual compensation of Mr. Philippe Knoche for 2016 remains at the amount of 420,000 euros for his annual fixed compensation, to which is added, by a decision of the Board of Directors dated February 24, 2016 and on the recommendation of the Compensation and Nominating Committee of February 16, 2016, the amount of 4,416 euros for non-cash benefits (corresponding to a company car). This compensation was approved by ministerial decision dated April 4, 2016.

Mr. Philippe Knoche does not receive variable compensation.

At its meeting of February 28, 2017, and on the recommendation of the Compensation and Nominating Committee, the Board of Directors decided to pay exceptional compensation for the year of 2016 to Mr. Philippe Knoche in the amount of 30,000 euros, in particular for:

- the leadership of the group's restructuring and of the implementation of the different conditions necessary to the group's recapitalization;
- the conduct of operations and continued financial turnaround.

This exceptional compensation was approved by ministerial decision dated March 15, 2017.

AREVA does not have any system for performance-based stock allotments, or any stock options or stock purchase plan, either for employees or for the officers.

Mr. Philippe Knoche does not have an employment agreement.

The table below shows Mr. Philippe Knoche's compensation since January 1, 2015, including the period up to January 8, 2015 when he served as a member of the Executive Board.

Mr. Philippe Knoche holds 100 shares of the company.

(1) Not including non-cash benefits and severance payments.



Summary of compensation and benefits for Philippe Knoche

(euros) AREVA officers and directors	2015 <sup>(1)</sup>		2016 <sup>(1)</sup>	
	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>	due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>
Fixed compensation	417,060	417,060	420,000	418,589 <sup>(4)</sup>
Variable compensation	NA	NA	NA	NA
Exceptional compensation	NA	NA	30,000	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car) <sup>(5)</sup>	2,940	3,375	4,416	4,416
<b>TOTAL</b>	<b>420,000</b>	<b>420,435</b>	<b>454,416</b>	<b>423,005</b>

(1) Compensation due for the year, regardless of payment date or employment status of Mr. Philipp Knoche.

(2) Compensation due for the year, regardless of payment date.

(3) Sum total of compensation paid during the year, including that paid for the previous year.

(4) Excess payments of 976 euros for 2014 and of 435 euros for 2015 were equalized.

(5) Non-cash benefits are not included in the cap of 450,000 euros set by the decree of August 9, 1953.

15.1.1.2. SEVERANCE AND NON-COMPETITION PAYMENTS

Executive director	Employment contract		Supplemental retirement benefits		Compensation or benefits due or that may be due in the event of termination or change in duties, including payments relative to a non-competition clause	
	Yes	No	Yes	No	Yes	No
Name: Philippe Knoche Office: Chief Executive Officer Date of start of term: January 8, 2015 Date of end of term: 2019 Annual General Meeting		X		X	X <sup>(1)</sup>	

(1) Excluding exceptions hereunder.

Severance payments

On the recommendation of the Compensation and Nominating Committee dated April 23, 2015, the Board of Directors decided at its meeting of April 29, 2015 that Mr. Philippe Knoche is entitled to a severance payment in a maximum amount equal to twice the cumulative amount of his annual compensation on the day his duties terminate.

If Mr. Philippe Knoche (i) wishes to exercise his right to retire shortly after the end of his term, regardless of the reason, even if constrained to do so, or (ii) occupies another function within the group, he shall not be entitled to a severance payment.

The above-mentioned severance payment would be paid only in the event of Mr. Philippe Knoche's dismissal, in particular in the event of a change of control or strategy, it being noted that it would not be paid in the event of dismissal for just cause.

This severance payment is subject to performance conditions, according to the following terms:

- the severance payment will be paid automatically if the rate of achievement of quantitative and qualitative objectives of the last two financial periods exceeded an average of 60%;

- if the rate of achievement of quantitative and qualitative objectives for the last two financial periods was less than an average of 60%, the Board of Directors will assess the performance of the party concerned with regard to circumstances affecting the company's functioning during the financial year.

At its meeting of February 24, 2016 and on the recommendation of the Compensation and Nominating Committee dated February 16, 2016, the Board of Directors also decided on said objectives for 2016 as follows:

- 60% are quantitative objectives to be met which are a function of net cash flow, operating income, progress on the performance plan, commercial objectives and Safety-Health-Security objectives;
- 40% are qualitative objectives to be met related to the group's transition and to the strategic roadmap of New AREVA, to the compliance action plan and to operational excellence.

The principle of the severance payment's subordination to the achievement of the performance criteria was authorized by ministerial decision on May 19, 2015 and approved by the Combined General Meeting of Shareholders of May 21, 2015.

All severance payments shall first be approved by the Board of Directors in accordance with article L. 225-42-1, paragraph 5 of the French Commercial Code and approved by the Minister of the Economy pursuant to the above-mentioned decree no. 53-707 of August 9, 1953.

**Non-competition payments**

The Board of Directors may decide to grant a payment to Mr. Philippe Knoche in return for a non-competition clause. The amount of that payment shall be deducted from the amount of the severance payment made, if any, to Mr. Philippe Knoche under the above conditions. In the absence of a severance payment, the amount of the payment due in return for a non-competition clause shall be set by the Board of Directors in accordance with common practices.

Any non-competition payment must first be approved by the Board of Directors in accordance with article L. 225-42-1, paragraph 5 of the French Commercial Code and be approved by the Minister of the Economy pursuant to the above-mentioned decree no. 53-707 of August 9, 1953.

**15.1.1.3. PENSIONS AND RETIREMENT BENEFITS**

The company did not subscribe to any supplemental retirement plan with defined benefits for the Chief Executive Officer. He participates in the supplemental retirement plans applicable to the company's executive employees.

**15.1.1.4. UNEMPLOYMENT INSURANCE**

The company subscribed to an unemployment insurance plan set up by Medef and underwritten by Garantie sociale des chefs et dirigeants d'entreprise (GSC) in favor of the Chief Executive Officer. Membership allows officers to benefit from 12 months of severance payments with a payment level of 70% of net revenue from employment received for the calendar year preceding membership in the case of tax brackets A and B, and 55% in the case of tax bracket C. Seventy percent of the premiums for this insurance are paid by AREVA and 30% by the beneficiary officer.

**15.1.2. COMPENSATION OF THE CHAIRMAN AND MEMBERS OF THE BOARD OF DIRECTORS****15.1.2.1. COMPENSATION OF THE CHAIRMAN OF THE BOARD OF DIRECTORS**

The gross fixed annual compensation for 2016 of Mr. Philippe Varin as Chairman of the Board of Directors did not change compared with 2015, remaining at 120,000 euros for the duration of his term of office by decision of the Board of

Directors of April 29, 2015 on the recommendation of the Compensation and Nominating Committee of April 23, 2015. This compensation was approved by ministerial decision dated May 19, 2015.

Mr. Philippe Varin does not receive variable compensation.

(euros)

**Summary of compensation and benefits of Philippe Varin**

	Financial Year 2015		Financial Year 2016	
	Amounts due <sup>(1)</sup>	Amounts paid <sup>(2)</sup>	Amounts due <sup>(1)</sup>	Amounts paid <sup>(2)</sup>
<b>AREVA officers and directors</b>				
Fixed compensation	120,000	120,000	120,000	120,000
Variable compensation	NA	NA	NA	NA
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Benefits in kind	NA	NA	NA	NA
<b>TOTAL</b>	<b>120,000</b>	<b>120,000</b>	<b>120,000</b>	<b>120,000</b>

(1) Compensation due for the year, regardless of payment date.

(2) Sum total of compensation paid during the year.

**15.1.2.2. SEVERANCE AND NON-COMPETITION PAYMENTS**

Mr. Philippe Varin is not entitled to severance or non-competition payments.

Executive director	Employment contract		Supplemental retirement benefits		Compensation or benefits due or that may be due in the event of termination or change in duties, including payments relative to a non-competition clause	
	Yes	No	Yes	No	Yes	No
Name: Philippe Varin						
Office: Chairman of the Board of Directors						
Date of start of term: January 8, 2015						
Date of end of term: 2019 Annual General Meeting						
		X		X		X

### 15.1.2.3. COMPENSATION OF THE MEMBERS OF THE BOARD OF DIRECTORS

The members of the Board of Directors receive attendance fees during their terms of office.

In accordance with the wish they expressed to the Board, the Board of Directors decided that Messrs. Philippe Varin, Philippe Knoche and Daniel Verwaerde will not receive attendance fees for 2016.

At the request of Jean-Michel Lang, Françoise Pieri and Odile Matte\*, directors elected by company personnel, AREVA pays their attendance fees to the labor unions to which they belong.

On January 8, 2015, the Shareholders set the maximum total amount of attendance fees allocated to the members of the Board of Directors at 610,000 euros for the period beginning January 8, 2015 and ending at the end of the 2015 financial year and for the following years. In accordance with article 3 of decree no. 53-707 of August 9, 1953, these deliberations were approved by ministerial decision dated April 7, 2015.

For 2016, to ensure that a majority of the compensation received by each member of the Board is linked to a variable component, the Board of Directors established rules for the distribution of attendance fees at its meetings of February 24, 2016 and December 15, 2016, as follows:

The members of the Board of Directors are entitled to a fixed component as consideration for their duties as directors and to variable component as a function of their effective attendance at meetings of the Board and, if applicable, at meetings of the committees (or of the Select Committee) of which they are members. Furthermore, the Board may allocate additional attendance fees to directors residing outside France to take into account their travel requirements.

#### 1/ Amounts for meetings of the Board:

- a) A flat annual fee of 10,000 euros in consideration of the responsibilities related to the term of office; this sum may be withheld in the event of repeated absences.
- b) 1,500 euros per meeting.

#### 2/ Amounts for meetings of the Board's committees<sup>(1)</sup> (and of the Select Committee):

- a) 3,000 euros per meeting for the chairman of the Audit and Ethics Committee.
- b) 2,500 per meeting for each committee chairman (excluding the Chairman of the Audit and Ethics Committee), including those of temporary committees and the Select Committee.
- c) 1,500 euros per meeting for each committee member (excluding the chairman of said committee), including those of temporary committees and the Select Committee.

For members residing outside France, the amounts indicated in points 1 b) and 2 above are doubled when the member physically attends the meetings.

The fee is paid within 45 days of the end of the financial year.

A director who attends a meeting of the Board of Directors or of a committee by teleconference or videoconference receives an attendance fee equal to half of the attendance fee paid to a director residing in France and attending in person.

As an exception, only one attendance fee is paid for two meetings when the Board of Directors meets on the day of and before and after a General Meeting of Shareholders.

As of the date of this Reference Document and pursuant to changes within the Board of Directors, as explained in Appendix 1 of this Reference Document, the percentage of representation of women on the Board of Directors – it being stated that directors representing company personnel are not counted in calculating that percentage – does not meet the provisions of law no. 2011-103 of January 27, 2011 relative to the balanced representation of men and women on boards of directors and supervisory boards and to gender equality, known as the “Copé-Zimmerman Law”, which requires that publicly traded companies have a proportion of directors of each gender equal to at least 40%.

This obligation applies at the end of the first Ordinary General Meeting held after January 1, 2017.

As concerns AREVA SA, the legal obligation should therefore have been met following the Combined General Meeting of February 3, 2017 inasmuch as that meeting included an “ordinary” component.

The company and the State give great importance to matters of balanced representation and have done their best over the course of 2016 to meet that obligation. Unfortunately, they were unable to reach the required proportion within the period of time prescribed by the law, due in particular to the legal and financial restructuring in progress and the future changes in governance which this implies.

Due to the non-compliance with the equality requirements within the allotted period of time, payment of attendance fees has been suspended since the General Meeting of February 3, 2017, pursuant to article L. 225-45 of the Commercial Code.

In its meeting of February 28, 2017, the Board of Directors decided to submit the appointment of two women proposed by the French State pursuant to order no. 2014-948 of August 20, 2014 to the Annual General Meeting of Shareholders of May 18, 2017: Mrs. Marie-Solange Tissier and Mrs. Florence Touitou-Durand, who will bring added competence to the Board of Directors. The proposed resolutions appear in Appendix 5 of the Reference Document. If the Shareholders vote in favor of these appointments, 40% of the members of the Board of Directors will be women at the end of the meeting.

\* As from the final sale of AREVA TA, Mrs. Odile Matte will be replaced as director representing company personnel and as director of the Strategy and Investments Committee by Mr. Gilbert Cazenobe, listed second on the ballot for the same labor union during elections of employee representatives.

(1) Including the ad hoc working groups.

## 15.1.2.4. SUMMARY OF ATTENDANCE FEES ALLOCATED DURING THE YEAR

Members of the Board of Directors <sup>(1)</sup>	2015 <sup>(2)</sup>	2016 <sup>(3)</sup>
Sophie Boissard	99,250	67,750 <sup>(4)</sup>
Claude Imauven	75,584	77,250
Jean-Michel Lang	25,000	43,750
Christian Masset	34,000	37,750
Odile Matte	37,750	41,500
Denis Morin	20,500	25,000 <sup>(5)</sup>
Françoise Pieri	50,500	50,500
Marie-Hélène Sartorius	NA	14,050 <sup>(6)</sup>
Pascale Sourisse	91,000	99,000
Alexis Zajdenweber	85,917	81,250
<b>TOTAL</b>	<b>519,501</b>	<b>537,800</b>

(1) List of members of the Board of Directors who received attendance fees during the 2015 and 2016 financial years.

(2) Amounts of attendance fees allocated in 2015 as from the change of governance on January 8, 2015.

(3) Amounts of attendance fees allocated in 2016.

(4) Mrs. Sophie Boissard resigned from her functions on the Board of Directors, effective November 1, 2016.

(5) Mr. Denis Morin resigned from his functions on the Board of Directors, effective October 26, 2016.

(6) Mrs. Marie-Hélène Sartorius was coopted by the Board of Directors on October 27, 2016, effective November 1, 2016, to replace Mrs. Sophie Boissard. The Combined General Meeting of Shareholders ratified this cooptation on February 3, 2017.

## 15.1.2.5. SUMMARY OF COMPENSATION OF MEMBERS OF THE BOARD OF DIRECTORS DURING THE YEAR (GROSS COMPENSATION AND ATTENDANCE FEES)

Pursuant to applicable regulations, the following information is provided:

- the total gross compensation of Philippe Varin corresponds to the lump sum that had been paid by AREVA for his service as Chairman of the Board of Directors. He does not receive any attendance fees;
- the total gross compensation of Daniel Verwaerde corresponds to the compensation (including bonuses and exceptional items) paid by the CEA for his duties with the CEA, which controls AREVA. Daniel Verwaerde does not receive

any attendance fees from AREVA for his duties as director or any compensation for his duties as Vice Chairman of the Board of Directors;

- the total gross compensation paid to Jean-Michel Lang, Françoise Pieri and Odile Matte, members elected by company personnel in 2015, corresponds to the compensation (including optional profit-sharing) paid by the AREVA subsidiary that employs them during their terms of office and to the attendance fees paid for their services as members of the Board of Directors. At their request, their attendance fees are paid by AREVA to the labor unions to which they belong.

(euros)	2015			2016		
	Gross compensation	Attendance fees	Total gross compensation	Gross compensation	Attendance fees	Total gross compensation
	(a)	(b)	(c = a + b)	(a)	(b)	(c = a + b)
<b>Board of Directors</b>						
Sophie Boissard	-	99,250	99,250	-	67,750 <sup>(1)</sup>	67,750
Claude Imauven	-	75,584	75,584	-	77,250	77,250
Philippe Knoche	420,435	- <sup>(2)</sup>	420,435	423,005	- <sup>(3)</sup>	423,005
Jean-Michel Lang <sup>(4)</sup>	44,729	25,000	69,729	36,047	43,750	79,797
Christian Masset	-	34,000	34,000	-	37,750	37,750
Odile Matte <sup>(4)</sup>	72,187	37,750	109,937	68,906	41,500	110,406
Denis Morin	-	20,500	20,500	-	25,000 <sup>(5)</sup>	25,000
Françoise Pieri	44,777	50,500	95,277	44,505	50,500	95,005
Marie-Hélène Sartorius <sup>(6)</sup>	NA	NA	NA	-	14,050	14,050
Pascale Sourisse	-	91,000	91,000	-	99,000	99,000
Philippe Varin	120,000	- <sup>(2)</sup>	120,000	120,000	- <sup>(3)</sup>	120,000
Daniel Verwaerde <sup>(7)</sup>	177,272	- <sup>(2)</sup>	177,272	291,642	- <sup>(3)</sup>	291,642
Alexis Zajdenweber	-	85,917	85,917	-	81,250	81,250

(1) Mrs. Sophie Boissard resigned from her functions on the Board of Directors, effective November 1, 2016.

(2) Messrs. Philippe Varin, Philippe Knoche and Daniel Verwaerde did not receive attendance fees for their respective terms of office on the Board of Directors in 2015.

(3) Messrs. Philippe Varin, Philippe Knoche and Daniel Verwaerde did not receive attendance fees for their respective terms of office on the Board of Directors in 2016.

(4) At the request of Jean-Michel Lang, Françoise Pieri and Odile Matte, directors elected by company personnel, AREVA pays their attendance fees to the labor unions to which they belong.

(5) Mr. Denis Morin resigned from his functions on the Board of Directors, effective October 26, 2016.

(6) Mrs. Marie-Hélène Sartorius was coopted by the Board of Directors on October 27, 2016, effective November 1, 2016, to replace Mrs. Sophie Boissard. The Combined General Meeting of Shareholders ratified this cooptation on February 3, 2017.

(7) Mr. Daniel Verwaerde was appointed member and Vice Chairman of the Board of Directors on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to that function on January 8, 2015.

Pursuant to article 6 of order no. 2015-948 of August 20, 2014, attendance fees allocated to directors appointed by the Shareholders on a proposal from the State and who are public officials of the State are paid into the State budget.

Concerning the Representative of the State appointed pursuant to article 4 of the order of August 20, 2014, all compensation received by him for serving his term of office is paid into the State budget.

#### 15.1.2.6. REPORT OF THE BOARD OF DIRECTORS ON THE COMPENSATION OF OFFICERS

In accordance with the provisions of article L. 225-37-2 of the French Commercial Code stemming from law no. 2016-1691 of December 9, 2016 related to transparency, the fight against corruption and the modernization of economic life, known as the "Sapin 2 Law", the Board of Directors drew up a report on the compensation of company officers.

"Dear Shareholders,

The Ordinary General Meeting of Shareholders of AREVA SA ("AREVA" or "the Company") has been convened by the Board of Directors for May 18, 2017 at 11:00 am at the company's head office.

In this report, pursuant to article L. 225-37-2 of the Commercial Code arising from law no. 2016-1691 of December 9, 2016 relating to transparency, the fight against corruption and the modernization of economic life, known as the "Sapin 2 Law", we present the principles and criteria for determining, distributing and allocating fixed, variable and exceptional items making up total compensation and benefits of any kind attributable to AREVA's officers.

It should be noted that for a company whose shares are admitted to trading on a regulated market, article L. 225-100 of the Commercial Code provides that the amounts resulting from the implementation of these principles and criteria will be submitted to the shareholders for approval during the general meeting convened to approve the 2017 financial statements.

Payment of items of variable and exceptional compensation is conditioned on that approval.

#### 1. General principles of the compensation policy applicable to officers

The major principles of the compensation policy are set by the Board of Directors after receiving the opinion of the Compensation and Nominating Committee. In accordance with the structure of governance currently in place, the officers are:

- the Chairman of the Board of Directors (non-executive officer), and
- the Chief Executive Officer (executive officer).

The compensation policy defined by the Board of Directors for executive and non-executive officers is established in the framework of:

- the constraints of article 3 of decree no 53-707 of August 9, 1953 relating to State control of national public companies and certain organizations with an economic or social purpose, as amended by decree no. 2012-915 of July 26, 2012 capping executive compensation<sup>(1)</sup> at 450,000 euros (the "Cap") and submitting it for ministerial authorization;
- the related recommendations of the Afep-Medef Code revised in November 2016, to which the company defers.

The Board of Directors adapts the compensation policy to the company's strategy, situation and shareholding structure.

To serve these objectives effectively, the Board of Directors determines in detail and moderates the different components of officer compensation.

## 2. Principles and criteria for determining, distributing and allocating the different components of compensation currently provided by type of function

### 2.1 - Chairman of the Board of Directors

#### A - FIXED COMPENSATION

The Chairman of the Board of Directors receives a fixed annual component within the limit of the Cap, to the exclusion of any other item of compensation except for attendance fees.

The amount of that fixed component is determined as a function of criteria specific to the person concerned (in particular background, experience, seniority and responsibilities), and criteria related to the business segment and the general economic environment and to the public share ownership of the company.

Mr. Philippe Varin, Chairman of the Board of Directors as of this writing, receives an annual fixed component of 120,000 euros authorized by ministerial decision of May 19, 2015.

#### B - ATTENDANCE FEES

At their meeting of January 8, 2015, the Shareholders decided to set the annual budget for attendance fees at 610,000 euros for 2015 and subsequent years, barring a decision to the contrary.

The Chairman of the Board of Directors may receive attendance fees for his service as director within the limit of the Cap.

In accordance with the wish expressed by Mr. Philippe Varin, the Board of Directors decided not to pay him attendance fees for 2015, 2016 and 2017.

### 2.2 - Chief Executive Officer

#### A - FIXED COMPENSATION

The Chief Executive Officer receives a fixed annual component within the limit of the Cap.

The amount of that fixed component is determined as a function of criteria specific to the person concerned (in particular background, experience, seniority and

responsibilities), and criteria related to the business segment and the general economic environment and to the public share ownership of the company.

Mr. Philippe Knoche, Chief Executive Officer as of this writing, received an annual fixed component of 420,000 euros authorized by ministerial decision of April 4, 2016.

#### B - VARIABLE COMPENSATION

An annual variable component related to performance may be paid to the Chief Executive Officer in addition to his fixed component, within the limit of the Cap.

The Board of Directors defines the qualitative and quantitative criteria for determining the annual variable component, which must be precise and pre-established.

Mr. Philippe Knoche does not receive variable compensation.

#### C - EXCEPTIONAL COMPENSATION

In the interests of the group and of its stakeholders, it is possible to pay exceptional compensation to officers in very special circumstances. The payment of such compensation, within the limit of the Cap, must be motivated by reasons which are explained.

In any event, this type of compensation would have to meet the requirements of the Afep-Medef Code and in particular would have to comply with the principles of moderation and a fair balance between the different interests present.

Mr. Philippe Knoche received exceptional compensation of 30,000 euros in 2017 for 2016 motivated by the results achieved in 2016, in particular as regards:

- the leadership of the group's restructuring and of the implementation of the different conditions necessary to the group's recapitalization;
- the conduct of operations and continued financial turnaround.

This exceptional compensation was approved by ministerial decision dated March 15, 2017.

#### D - ATTENDANCE FEES

At their meeting of January 8, 2015, the Shareholders decided to set the annual budget for attendance fees at 610,000 euros for 2015 and subsequent years, barring a decision to the contrary.

The Chief Executive Officer may receive attendance fees for his service as director within the limit of the Cap.

In accordance with the wish expressed by Mr. Philippe Knoche, the Board of Directors decided not to pay him attendance fees for 2015, 2016 and 2017.

#### E - NON-CASH BENEFITS

The Chief Executive Officer may receive non-cash benefits in the form of the use of a company car. This non-cash benefit is not included in the compensation subject to the Cap.

Mr. Philippe Knoche's company car benefits amount to 4,416 euros, authorized by ministerial decision of April 4, 2016.

#### F - LONG-TERM COMPENSATION: FREE SHARE ALLOCATION AND ALLOCATION OF SHARE OPTIONS

The allocation of performance shares or share options to officers is not allowed.

(1) This concerns attendance fees and severance payments allocated in particular to directors and items of compensation for the work of the officers. Benefits of any kind related to operations, and items of compensation, severance payments or benefits due or likely to be due to the officers concerned because of the termination of their work or their change of positions, or subsequent to them, are not taken into account in connection with this Cap, but must nonetheless receive ministerial approval.

#### G - SEVERANCE PAYMENTS

The Chief Executive Officer may receive severance pay in the maximum amount of twice the cumulative amount of his annual compensation on the day that his functions cease.

If the Chief Executive Officer (i) wishes to exercise his right to retire shortly after the end of his term, regardless of the reason, even if constrained to do so, or (ii) occupies another function within the group, he shall not be entitled to a severance payment.

The severance payment will only be paid if the Chief Executive Officer is dismissed, unless it is for just cause.

The severance payment will be subject to performance conditions, according to the following terms:

- Severance compensation will be paid automatically if the rate of achievement of quantitative and qualitative objectives was more than 60% on average for the periods ended the two previous years.
- If the rate of achievement of quantitative and qualitative objectives for the last two financial periods was less than an average of 60%, the Board of Directors will assess the performance of the party concerned with regard to circumstances affecting the company's functioning during the financial year.

The Board of Directors sets the performance objectives for each year.

In addition, the Board of Directors may decide to grant a severance payment to the Chief Executive Officer in exchange for a non-competition clause. The amount of that severance payment shall be deducted from the amount of the severance

payment made, if any, paid to the Chief Executive Officer under the above conditions. In the absence of a severance payment, the amount of the payment due in return for a non-competition clause shall be set by the Board of Directors in accordance with common practices.

These severance payments are not included in the compensation subject to the Cap.

Mr. Philippe Knoche is entitled to a severance payment corresponding to the above criteria, authorized by ministerial decision of May 19, 2015.

#### H - OTHER

The Chief Executive Officer may receive:

- unemployment insurance set up by Medef with the Garantie sociale des chefs et dirigeants d'entreprise (GSC), of which he pays part of the premiums;
- a supplemental retirement plan applicable to the company's management employees.

Mr. Philippe Knoche benefits from the above-mentioned unemployment insurance and the supplemental retirement plan.

The proposed resolutions appear in Appendix 5 of this Reference Document (resolutions 15 and 16).

As a consequence of the foregoing, we invite you to approve the compensation policy concerning the Chairman of the Board of Directors and the Chief Executive Officer as presented in this report."

## 15.2. STOCK OWNED BY OFFICERS AND DIRECTORS

Mr. Philippe Knoche, Chief Executive Officer, holds 100 AREVA shares.

#### Stock options allowing subscription and/or acquisition of shares – Bonus issue of shares

The group does not have a stock option plan. No bonus issue of shares was undertaken or authorized.

## 15.3. AUDIT FEES

The fees listed in the table below include the fees relative to operations sold or held for sale and exclude fees relative to companies consolidated using the proportionate consolidation method.

<i>(in thousands of euros)</i>	2015 Fees				2016 Fees			
	EY Audit	Mazars	Other	Total	EY Audit	Mazars	Other	Total
<b>Statutory auditors</b>								
Issuer	588	637	0	1,225	572	622	0	1,194
Subsidiaries	2,258	2,272	692	5,222	2,133	2,119	678	4,930
<b>Other reviews and services directly linked to the statutory auditors' mission</b>								
Issuer	80	23	0	103	489	623	0	1,112
Subsidiaries	250	295	9	554	155	180	8	343
<b>Sub-total</b>	<b>3,176</b>	<b>3,228</b>	<b>701</b>	<b>7,105</b>	<b>697</b>	<b>803</b>	<b>8</b>	<b>7,579</b>
<b>Other services rendered by the networks to fully consolidated subsidiaries</b>								
Legal, tax, labor	175	0	0	175	53	0	0	53
Other	0	0	0	0	0	0	0	0
<b>Sub-total</b>	<b>175</b>	<b>0</b>	<b>0</b>	<b>175</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>53</b>
<b>TOTAL</b>	<b>3,351</b>	<b>3,228</b>	<b>701</b>	<b>7,280</b>	<b>3,402</b>	<b>3,544</b>	<b>686</b>	<b>7,632</b>

For the 2016 financial year, as concerns the issuer, the other services mainly concern the contractual audit of the combined financial statements of NewCo and New NP; the review of environmental, social and societal information; and the limited review of AREVA SA at June 30, 2016.

As concerns the fully consolidated subsidiaries, the other services mainly concern agreed-upon procedures concerning AREVA NP and AREVA TA; certifications concerning AREVA Mines; and the contractual audit of the AREVA NP consolidated financial statements.



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## 16.1. FUNCTIONING OF MANAGEMENT

The Chief Executive Officer is responsible for the company's management and represents the company in its relations with third parties.

Full powers are vested in him to act on behalf of the company in all circumstances, except for powers attributed by law to the Board of Directors and to the Shareholders, and as stipulated in the company's own rules of governance.

The Chief Executive Officer reports on major events in the group at each meeting of the Board of Directors.

The Chief Executive Officer is supported by an Executive Committee in which all of the group's businesses are represented.

Since July 1, 2016, AREVA has been organized into two separate operating entities, New AREVA Holding (hereinafter called "NewCo") and AREVA NP, each with an Executive Committee in charge of steering operations.

As of the date this Reference Document was filed, the composition of the Executive Committees was as follows:

#### **COMPOSITION OF THE NEWCO EXECUTIVE COMMITTEE <sup>(1)</sup>**

<b>Name</b>	<b>Title</b>
Philippe Knoche	Chief Executive Officer
Stéphane Lhopiteau	Chief Legal and Financial Officer
François Nogué	Senior Executive Vice President of Human Resources and Communications
Guillaume Dureau	Senior Executive Vice President of Customers, Strategy, Innovation and R&D
Éric Chassard	Senior Executive Vice President of the AREVA Projects BU and Director of Performance
Jacques Peythieu	Senior Executive Vice President of the Mining BU
Antoine Troesch	Senior Executive Vice President of the Chemistry/Enrichment BU
Pascal Aubret	Senior Executive Vice President of the Recycling BU
Alain Vandercruyssen	Senior Executive Vice President of the Dismantling and Services BU
Frédéric de Agostini	Senior Executive Vice President of the Logistics BU
Christian Barandas	Special Advisor to the Chief Executive Officer

#### **COMPOSITION OF THE AREVA NP EXECUTIVE COMMITTEE**

<b>Name</b>	<b>Title</b>
Bernard Fontana	President of AREVA NP
Philippe Braidy	Chief Operating Officer
David Emond	Senior Executive Vice President of the Components BU
Lionel Gaiffe	Senior Executive Vice President of the Fuel BU
Frédéric Lelièvre	Senior Executive Vice President of Sales, Regional Platforms, and Instrumentation and Control
Nicolas Maes	Senior Executive Vice President of the Installed Base BU
Alexis Marincic	Senior Executive Vice President of the Technical and Engineering BU
Jean-Bernard Ville	Senior Executive Vice President of the Large Projects BU
Yves Merel	Senior Executive Vice President of Operational Excellence

The Executive Committee of NewCo and the Chief Executive Officer rely on seven specialized committees (see Appendix 1, Section 4.2.1. *Organization of AREVA*).

## **16.2. FUNCTIONING OF THE BOARD OF DIRECTORS**

Information concerning the functioning of the Board of Directors appears in Section 3.2 of the report of the Chairman of the Board of Directors on governance and internal control and risk management procedures (Appendix 1 of this Reference Document).

<sup>(1)</sup> NewCo is the temporary name of the entity which combines all of the operations of AREVA related to the nuclear fuel cycle, whose legal name is New AREVA Holding.

### **16.3. FUNCTIONING OF THE COMMITTEES INSTITUTED BY THE BOARD OF DIRECTORS**

Information concerning the functioning of the committees instituted by the Board of Directors appears in Section 3.5 of the report of the Chairman of the Board of Directors on governance and internal control and risk management procedures (Appendix 1 of this Reference Document).

### **16.4. REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS ON GOVERNANCE AND INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES**

The report of the Chairman of the Board of Directors on governance AND internal control and risk management procedures appears in Appendix 1 of this Reference Document.

### **16.5. REPORT OF THE STATUTORY AUDITORS PREPARED PURSUANT TO ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE <sup>(1)</sup>**

Article L. 225-235 of the French Commercial Code provides, among other things, that the statutory auditors shall present their observations on the report of the Chairman of the Board of Directors on internal control procedures.

These observations may be consulted in Appendix 2 of this Reference Document.

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*(1) Statutory auditors' report prepared pursuant to article L. 225-235 of the French Commercial Code on the report of the Chairman of the Board of Directors of AREVA concerning internal control procedures related to the preparation and treatment of financial and accounting information.*

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The year of 2016 was marked by the implementation of the performance plan defined in 2015, featuring in particular a component related to workforce reduction; by the transformation of the group's organizations into two entities, New AREVA and AREVA NP, which have operated independently since July 1, 2016; and by further sales of operations. After a year of 2015 largely devoted to explaining the changes in the group's economic and financial situation

to stakeholders, to sharing the goals for its recovery with management and employees, and to preparing for in-depth organizational transformation, the performance plan was implemented in 2016, anchored in detailed social dialogue with employee representatives to determine methods of supporting the group's organizational and strategic change.

## 17.1. EMPLOYMENT

### 17.1.1. TOTAL WORKFORCE AND DISTRIBUTION OF EMPLOYEES BY GENDER, AGE AND REGION

The group had 36,469 employees at December 31, 2016, versus 39,761 employees at the end of December 2015.

Employees by business within the group's consolidation scope	2016	2015
AREVA Projects	1,463	1,597
Mining	3,449	3,536
Chemistry - Enrichment	2,807	3,012
Recycling	5,263	5,445
Dismantling & Services	4,517	4,408
Logistics	1,161	1,197
Corporate and other cross-business functions	1,012	1,689
<b>Sous-total NEW AREVA</b>	<b>19,672</b>	<b>20,884</b>
Installed Base	4,384	4,714
Equipment	1,639	1,854
Fuel	3,664	3,591
Large Projects	856	
Instrumentation and Control Systems	1,020	4,363
Technical and Engineering Department	2,081	
Corporate and other cross-business functions	1,473	1,513
<b>Sub-total AREVA NP</b>	<b>15,117</b>	<b>16,035</b>
Propulsion and Research Reactors	1,660	1,733
Renewable Energies	20	162
Nuclear Measurements	-	947
<b>TOTAL</b>	<b>36,469</b>	<b>39,761</b>

Note: The group's total workforce presented in this section includes a share of the workforces of the group's joint ventures in Canada, giving a total workforce of 36,469 versus 36,241 in sections 3, 9 and 20 of this document. In addition, the distribution of the workforce between New AREVA and AREVA NP and the distribution among the different operations reflect the group's operating organization in effect since July 1, 2016.

Ninety-six percent of the group's workforce was divided among five countries: France, Germany, the United States, Kazakhstan and Niger.

Engineers and managers represent more than one third of the workforce (39.7%), while technical and administrative personnel account for a little less than half

(45.5%). Skilled workers represented 14.8% of the workforce at December 31, 2016. As of the end of December 2016, 22.5% of the group's worldwide engineers and management staff were women, an increase of 0.3 percentage point from the previous year.

<b>Employees by gender</b>		
<i>Percentage calculated based on active permanent employees</i>		
	2016	2015
Women (global)	21.1%	21.4%
Men (global)	78.9%	78.6%
Women in executive positions	11%	18%
Women in governance bodies (Boards of Directors)	34.8%	31.5%
Women in management positions	22.5%	22.2%
Women in non-management positions	20.1%	20.8%
<b>Distribution of employees by age group</b>		
Less than age 21	0%	0%
21 to 30 years	10.7%	11.4%
31 to 40 years	28.7%	27.6%
41 to 50 years	25.5%	25.6%
51 to 60 years	30.8%	30.2%
More than age 60	4.3%	5.2%
<b>Distribution of employees by region</b>		
France	69.5%	68.0%
Europe (excluding France)	12.3%	13.2%
North and South America	10.2%	11.3%
Africa and Middle East	3.2%	3.0%
Asia-Pacific	4.8%	4.4%
<b>Distribution of employees by occupational category</b>		
Engineers and management staff	39.7%	40.5%
Technical and administrative personnel	45.5%	45.5%
Skilled workers	14.8%	14.0%

### 17.1.2. HIRING AND REDUNDANCY

Consistent with the commitment in its 2015-2017 performance plan, the group's total global workforce was close to 3,300 employees in 2016 (including the impact of asset disposals), with the number permanent full-time employment contracts falling by 3,608. In France and excluding asset disposals, the workforce decreased by 1,239 employees. This reduction was made possible mainly by the roll-out of six Voluntary Departure Plans in France over a footprint representing 70% of the national workforce (AREVA NP, AREVA NC, AREVA BS, AREVA Mines, SET and Eurodif Production).

Hiring thus slowed further in relation to 2015 (909 permanent employment contracts), in addition to 676 redundancies. The workforce stabilized at 36,469 employees at the end of 2016.

Intent on securing its skills, the group nonetheless maintained a work-study program in France from March to May, allowing more than 1,000 work-study positions in France to be maintained.

	2016*	2015
Number of external hires (total external hires under permanent and temporary employment contracts)	1,875	1,735
Number of redundancies	676	710

\* Excluding asset disposals.

### 17.1.2.1. SIX VOLUNTARY DEPARTURE PLANS IN FRANCE

Under the provisions of the Voluntary Departure Plans (VDP), 2,040 departures were recorded, 1,450 of which occurred under various retirement or early retirement formulas and close to 600 of which were employees who left the group.

In line with legal procedures, job cuts were defined by company, by site and by occupational category. Eligibility for departure was then determined based on a grid of more than 500 occupational categories. Under the employment pacts, proposed voluntary departures may be opposed based on the protection of “critical skills”. In this regard, all workforce movements (age-related retirement, mobility, external departures) have been monitored at the corporate level in real time across the entire scope of the plan since November 2015 in order to regulate departures in line with specific targets, to prevent the risk of understaffing of critical skills in each business, and to offer preventive training and employment programs:

- systematic experience interviews by the direct manager for any voluntary departure: The purpose of this interview is to identify the employee’s sensitive skills, to establish an action plan and schedule for harvesting those skills or effectively transmitting them to others (beneficiary, methods, etc.), and a longer-term assessment of the skills transfer;
- systems to transfer skills for older employees planning to leave the company:
  - in the form of a reminder in the company up to a maximum of 40 working days during the period before leaving (transfers of technical expertise, transmission of “discipline practices”, etc.),
  - in the form of a 6-month period before the work dispensation phase devoted to skills transfer based on an analysis and a schedule drawn up with the supervisor.

In addition, for that same scope, nearly a thousand non-VDP departures have been recorded since August 30, 2015, chiefly for conventional early retirement in some companies, for resignations, or for retirement before the voluntary departure plans started.

Moreover, a thousand internal mobility assignments were attributable both to the roll-out of the new organizations and to the redeployment of personnel during departures recorded per occupational category of the VDPs.

Lastly, Canberra was sold in July 2016 and Elta was sold in November 2016, which affected 979 employees.

### 17.1.2.2. KICK-OFF IN MAY 2016 OF A PROGRAM TO STEER CRITICAL SKILLS

The risks inherent in the group’s demerger and in the implementation of the performance plan have made it necessary to fine-tune the management of discipline know-how and skills within the group. A managerial initiative to steer critical skills across the entire NA/NP footprint was set up, built on:

- a project manager for each NA and NP footprint with a network of discipline/BU coordinators in the group’s three major categories of technical disciplines: Engineering, Production and Services;
- a new inventory of critical skills and the resources concerned after the final impact of the VDPs, with the involvement of the field managers;
- rapid roll-out of best practices inspired by the field and external benchmarks, with a view in particular to the principle of the annual skills review;
- inclusion of skills goals in the annual corporate management cycle (strategic action plans and annual budget) for full managerial control.

A preliminary analysis was carried out by the Key Discipline Leaders, drawing on a network of specialized coordinators across the business units. Thirteen critical disciplines were identified in this way, and specific action plans for them for 2017 were developed. The action plans generally include a highly targeted recruitment component, a professional training component, and a “career path” component (Nuclear Safety, Project Management, Operations, etc.) aimed at accelerating the acquisition of skills in the nuclear disciplines.

## 17.1.3. COMPENSATION AND TRENDS

The compensation policy under which employees around the world are paid rests on four pillars: compensate performance, be consistent with the budget, be equitable internally and heed the competitiveness of other companies while taking into account the group’s economic and financial situation.

In France, total compensation is broken down into:

- fixed compensation: base salary, seniority benefits, etc.;
- variable compensation: linked to specific jobs (hardship allowances, on-call pay, etc.), to individual performance (bonus/variable component or allowance) or to collective performance;
- benefits: health and insurance benefits that are identical for all companies in France;
- mandatory and optional profit-sharing: based on criteria for rewarding collective performance.

Compensation is based on industry agreements and collective bargaining agreements. Every year, the budget for wage increases is negotiated with the labor unions. In view of its economic performance, the group decided to eliminate salary reviews in most countries in 2016 for the second consecutive year, but set aside a budget devoted to internal mobility and professional promotion in those countries.

In Germany, the compensation of “tariff” employees is negotiated at the regional level. Fixed compensation for tariff employees consists of the base salary and variable components linked to performance.

In the United States, compensation is regulated by several state and federal laws. The most important is the Fair Labor Standards Act (FLSA), which defines which classifications of employees are concerned, overtime pay and the minimum wage. Compensation is pegged to the market, including bonuses and variable compensation, which evolve as a function of the employee’s position in the organization. Collective bargaining negotiations resulted in the signature of an agreement on compensation and benefits in three entities based in Washington State and California, both states having a strong and influential labor union presence.

In China, compensation is aligned with market conditions. Every year, AREVA China participates in a wage review organized by a consulting firm, which examines salary levels for the different positions in the organization. AREVA also signed a collective bargaining agreement on equal pay for men and women.

#### 17.1.3.1. BONUSES AND VARIABLE COMPENSATION

The group's variable compensation program, based on both collective financial performance and individual objectives, is gradually being brought into alignment and expanded to include all of the group's entities around the world. The target percentages for variable compensation depend on local practices and are structured by level of responsibility.

In view of the group's financial and economic situation, the policy for the variable component was adjusted for the collective component and guidelines were given for the individual component as a reminder of the importance of the employee's performance level in his/her evaluation.

An HR information system tool interfaced with the annual performance interview is used to collect individual objectives. It is used by the majority of the group's entities in Belgium, Canada, China, France, Germany, India, Slovakia, the United Kingdom and the United States.

In Germany, non-tariff employees are eligible to participate in the group's variable compensation program. Tariff employees receive variable pay based on the group's financial objectives.

In the United States, most employees (except for those of a few entities and those eligible for the variable compensation program) participate in the group's financial performance under the All Employee Incentive Program (AEIP). Profits generated by the group at the regional level are redistributed to the employees if objectives are met. The amount of this incentive varies according to a regional and collective safety objective and based on each individual's performance.

In China, employees are eligible to participate in the group's variable compensation program. The variable compensation system connects team objectives to individual objectives.

#### 17.1.3.2. EMPLOYEE SAVINGS PLANS AND COLLECTIVE PERFORMANCE

The group establishes collective compensation systems based on economic indicators and entity-specific criteria, according to local practices and legislation.

In France, compensation based on collective performance takes the form of optional profit-sharing agreements and of mandatory profit-sharing plans applicable to the

group's companies. The sums distributed in 2016 for 2015 represented a total of close to 74 million euros for the group as a whole. Employees chose to invest 72% of the optional profit-sharing remuneration and 76% of the mandatory profit-sharing paid in 2016 in the group's savings plan.

In addition, in view of the group's difficult financial situation, 14 companies have decided to cap optional profit-sharing at 4% of payroll as from 2016. Additionally, a trigger for calculating optional profit-sharing based on a financial criterion was set up.

#### 17.1.3.3. CORPORATE SAVINGS PLAN AND INVESTMENT VEHICLES

In France, a Group Savings Plan (AREVA GSP) common to all of the group's companies was created in 2005. The AREVA GSP consists of a complete range of funds covering all asset categories. It includes a money market fund, a bond fund, an equity fund, a social responsibility fund and three diversified funds. A diversified pool of fund managers was sought to optimize investor returns. At December 31, 2016, the funds managed in the AREVA GSP represent more than 826 million euros.

In Germany, a retirement plan including an employer fund and an employee fund is offered to employees. In addition, the group's employees in Germany may put their variable compensation into a dedicated savings fund.

In the United States, a 401(K) retirement plan allows employees to voluntarily save for their retirement. AREVA's contribution to the plan comes to 3% of each employee's salary. The company also matches 100% of the employee's contributions for the first 5 percentage points of the employee's contributions. The average amount saved by an employee is 10.5% of his/her base salary.

#### 17.1.3.4. EMPLOYEE SHAREHOLDING

In 2013, the group set up an employee share-ownership operation concerning France, Germany and the United States. In all, 14,700 people participated in this transaction.

The employee shareholding transaction has not been repeated since then.

## 17.2. WORK ORGANIZATION

### 17.2.1. ORGANIZATION OF WORKING HOURS

In countries in which the group is based, the average number of working hours per week is generally set by law.

France and Germany in particular set up initiatives for a better balance between work and personal life by offering flexible work hours at the site or work at home.

For example:

- in Germany, full-time tariff employees work between 35 and 40 hours per week. A local company-wide agreement governs the work of tariff employees, who have flexible working hours;

- in France, on July 4, 2013, AREVA signed a telecommuting addendum to the group's agreement on the Quality of Working Life of May 31, 2012. This addendum regulates the use of telecommuting while promoting a better balance between work and personal life. It helps improve the quality of working life and keeps disabled employees at work or in therapeutic part-time. At the end of 2016, more than 600 employees from all of the group's sites benefited from this new work organization. At the end of 2014, an agreement on annualized part-time employment was signed in the AREVA NP company. Around sixty employees benefitted from this system in 2016;



- in the United Kingdom, full-time employees work an average of 37 hours per week. Overtime is not paid. AREVA authorizes telecommuting in exceptional circumstances. This working-hour arrangement is possible under certain conditions for employees who have completed their trial period;
- in China, the standard work schedule is 8 hours per day, 40 hours per week.

## 17.2.2. ABSENTEEISM

The method for collecting and calculating absenteeism data has been in place since 2013. It covers the group's largest footprints, representing 94% of AREVA's global workforce <sup>(1)</sup>.

	2016	2015
France	9.6	9.1
Germany	15.4	13.9
United States	5.6	5.7
Rest of World	3.0	2.8

## 17.3. LABOR RELATIONS

### 17.3.1. ORGANIZATION OF SOCIAL DIALOGUE, IN PARTICULAR PROCEDURES FOR INFORMING, CONSULTING WITH AND NEGOTIATING WITH PERSONNEL

The group's social relations are founded on mutual respect and dialogue. It is in that spirit that social partners and senior management meet regularly to talk, negotiate, reach agreements and monitor their implementation. During the year, these encounters primarily concerned the group's reorganization following the guidelines set by the President of the French Republic on June 3, 2015; implementation of the performance plan; compensation policies; and the proposed Voluntary Departure Plans resulting from the economic difficulties encountered by the group.

The three countries of France, Germany and the United States represented 90% of the group's workforce at December 31, 2016. Social dialogue is not organized the same way in these different countries. Local requirements, and in particular national legislation, call for a customized approach. Social dialogue may take place at the national, regional or company level, whether for information, consultation or negotiation.

#### SOCIAL DIALOGUE

##### Europe

AREVA's European Works Council (EWC) is comprised of 19 members and 1 observer. The EWC represents active employees in the seven European Union countries in which the group is based: Belgium, France, Germany, Slovakia, Spain, Sweden and the United Kingdom.

In 2016, that body met six times: on February 10, March 17, June 23, July 19, October 5 and November 10. The meetings centered on the sale of the Canberra company; the proposed subsidiarization of AREVA SA units connected with nuclear fuel to New AREVA Holding; the sale of the operations of AREVA NP and of its

subsidiaries to EDF; the sale of operations in renewable energies; and the proposed capital increases of AREVA SA and of New AREVA Holding.

##### Germany

In Germany, the management teams and the labor unions meet regularly to talk about the group's operations and future.

In 2016, the Offenbach employees were transferred to Erlangen, enabling the closure of the Offenbach site. Employees not willing to transfer left in the framework of the redundancy plan negotiated in 2015.

##### France

The French Works Council (FWC) set up in 2011 is a body for information, exchange and dialogue that has a comprehensive, crosscutting view of all of the group's operations and strategy in relation to employment. In this regard, the FWC constitutes a special venue for discussions with employee representatives.

The FWC, which has 30 incumbent members, 5 representatives of representative labor unions at the group level, and 5 of the group's labor coordinators, met on 7 occasions in 2016, particularly in connection with the implementation of the group's refinancing plan and the group's reconfiguration (new managerial organization, sale of Canberra, sale of AREVA TA, sale of AREVA NP's operations to EDF, creation of New AREVA Holding, etc.). The meetings were held on February 17, March 31, June 15 and 21, July 21, October 4 and November 15. These meetings provided an opportunity to present and talk about changes in the strategy, the redefinition of the nuclear industry, organizational changes, and jobs.

(1) The calculation method used is the average number of calendar days of absence per year due to sickness (including pathological pregnancy and therapeutic part-time, but excluding maternity leave and occupational injuries or commuting accidents) or to care for a sick child, per permanent employee. The definitions reflect the variety of local practices.

In addition, a number of information and consultation meetings were held on the implementation of the group's refinancing plan and the group's reconfiguration (new managerial organization, sale of Canberra, sale of AREVA TA, sale of AREVA NP's operations, creation of New AREVA Holding, etc.).

Lastly, the development phase continued for the group's independent health service, which was established by the October 18, 2012 agreement signed in September 2013 by the Regional Department of Business, Competition, Consumption, Work and Employment for the Ile-de-France region (DIRECCTE). Presently, 63% of the employees are covered by this group health service.

### China

In China, the group signs collective bargaining agreements negotiated with the labor unions. These agreements regularly include a commitment to compliance with labor laws, to fair compensation and to a work environment that complies with rules for protecting the health and safety of employees.

## 17.3.2. STATUS OF COLLECTIVE BARGAINING AGREEMENTS

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Please refer to Section 17.3.1.

## 17.4. HEALTH AND SAFETY

### 17.4.1. HEALTH AND OCCUPATIONAL SAFETY CONDITIONS

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Please refer to Appendix 3.

#### HISTORICAL HEALTH DATA

Please refer to Appendix 3.

### 17.4.2. STATUS OF AGREEMENTS ON HEALTH AND OCCUPATIONAL SAFETY SIGNED WITH LABOR UNIONS OR EMPLOYEE REPRESENTATIVES

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In France, AREVA signed an agreement on the development of the Quality of Working Life on May 31, 2012. This agreement is monitored jointly by the Safety, Health, Security, Quality and Environment Department and by the Human Resources Department through quarterly Steering Committee meetings on occupational stress prevention and on the quality of working life. For the past three years, during the Committee's confidential meetings with coordinating physicians of the group's four regions in France, occupational stress prevention and measures taken by the sites in France are discussed in qualitative terms, and the robustness and relevance of the group's Quality of Working Life initiatives are reviewed in order to support and measure the occupational stress prevention policy. This agreement was renewed on April 2, 2015.

As part of its occupational stress prevention policy, the group set up 35 programs to listen to and counsel all of its employees in France and performed 23 surveys in France covering close to 80% of the workforce, enabling it to identify risk factors and propose occupational stress prevention actions.

Also, since 2010, the group has provided occupational stress prevention training to 424 members of Management Committees and to more than 1,700 line managers. Special training for the Human Resources function and the members of Health, Safety and Working Conditions Committee (CHSCT) was deployed over the year, and close to 200 people were trained in 2015 and 2016.

As part of the deployment of the Quality of Working Life agreement, a chart on the "human impacts of change and reorganizations" was established. The chart has been used more than 200 times since September 2012 in connection with various projects, both at the group level and at the sites (Convergence, Phileas, Tricastin Platform, Shared Service Centers). As part of the group's transformation plan, 90 charts were integrated into the notes of the Health, Safety and Working Conditions Committee (CHSCT) of the 6 companies of the group concerned by the Voluntary Department Plans. At the same time, various occupational stress prevention tools rolled out in the group since 2009 were strengthened and supplemented to better respond to the challenges of the performance plan.

In Germany, several initiatives addressing the balance between work and personal life were showcased on the intranet or during events. Most of the measures adopted relate to occupational safety, part-time work, balancing work and family life, and conflict management.

In the United States, several programs were set up to ensure that the work environment is respectful of employees' personal and family commitments. This is the case, for example, with different forms of part time work (alternative classifications), telecommuting, flex schedules, and vacation arrangements (compensated time off and unpaid leave).

The Employee Assistance Program (EAP) provides support to employees in all matters related to work-life balance. In that same spirit, an Employee Concerns Program (ECP) dedicated to the quality of working life was deployed to prevent and fight discrimination.

Employees are invited to answer questionnaires about their overall health and well-being and to identify their problems. Support programs designed to improve their situation are set up as appropriate and are followed up.

### 17.4.3. FREQUENCY AND SEVERITY RATES OF OCCUPATIONAL INJURIES AND ACCOUNTING OF OCCUPATIONAL DISEASES

Please refer to Appendix 3.

## 17.5. TRAINING

### 17.5.1. TRAINING POLICIES

In France, the Training Department is organized into four Jobs-Training Shared Services Centers (Cotentin, Ile-de-France, Lyon-Alps-Burgundy and Southeast). All of them share the same system of management and operation. The Jobs-Training Department is strengthening its priority lines of action with the development of employee certification programs and widespread roll-out of digital training for the most recurrent training in the entity training plans.

In Germany, a training program for experts is in place. This 18-month program consisting of 4 modules offering a wide variety of content aims to develop the necessary human resources skills to manage expert careers. A mentoring program was set up to help key talent acquire knowledge and develop their networks in the companies and at the sites, thus increasing their visibility.

In the United Kingdom, performance evaluation interviews take place twice a year, at mid-year and year-end. The result is a Personal Development Plan which describes how the individual training objectives will be met. Employees are encouraged to become members of a recognized professional association and to remain active in it as long as they are AREVA employees. Membership expenses are paid by AREVA.

In the United States, a training governance infrastructure was established. It offers a structured procedure for a partnership between the North American Training Department and the region's business units. The members of the Training

Governance Committee are managers and individual contributors representing each of the business units. Decisions concerning training and development are made in a collegial manner by the managers and individual contributors, who possess the expertise and knowledge necessary to achieve the objectives for the various professions. One of the most significant results achieved through transformation of training in North America is the deployment of the 70:20:10 Model for Learning and Development, which incorporates collaboration and training at the workplace into the training program. The main characteristics of the Model are the use of real work situations for training and the development of self-starting learners. The goal is to help proactive employees optimize their learning opportunities in order to help them face daily challenges at work and seize opportunities for advancement. The state of mind of the self-starting learner allows our employees to respond more quickly and in a more structured manner to challenges and opportunities, thus helping to ensure AREVA's future in a fast-changing industry.

In China, an annual training plan is drawn up as a function of the employee's expectations of development and in agreement with the managerial objectives discussed during the development interviews. AREVA University programs, such as the Sales Academy and leadership training, are also deployed in China.

### 17.5.2. TOTAL HOURS OF TRAINING

In France, 711,264 hours of training were dispensed in 2015, giving an average of 27 hours of training per employee.

Number of hours of training per permanent employee per year	2016	2015
France	NA	27
Germany	25.7	26.5
United States	16.31	16.82

The 2016 data for France will be available in April 2017.

## 17.6. EQUAL TREATMENT

In France, an audit was carried out in the first quarter of 2014 for the renewal of AREVA's Diversity Label. The certification was confirmed for a four-year period on July 6, 2014. In particular, the auditors validated the sustainability and maturity of AREVA's approach to diversity and appreciated its evolutionary nature and its alignment with changes in the group. The follow-up audit scheduled for mid-2016 was postponed to mid-2017 due to the transformation plan.

In Germany, to promote diversity in the technical professions, AREVA participated in activities aimed at raising interest in technology among young girls. During Women's Day in Erlangen and the Science, Technology, Engineering and Mathematics (STEM) Day in Lingen, young girls were able to visit several laboratories and learn about the manufacturing process. Girls were also given an opportunity to work on a research project in a company during the Women Scientists Week held in Erlangen. AREVA organized a scientific competition for the girls in the field of instrumentation and control systems.

In the United States, AREVA is recognized as an Equal Opportunity Employer (EOE). It expresses its commitment to minorities, women, seniors, veterans and people with disabilities through various measures, such as partnerships with subcontractors committed to diversity, membership in Direct Employers (an employment agency dedicated to helping recruit minorities, women, veterans and persons with disabilities), and participation in training and employment initiatives.

In France, the equal opportunity policy implemented since AREVA's creation in 2001 is founded on the European Agreement on Equal Opportunities signed in November 2006 with the European Metalworkers' Federation and its 2010 amendment.

This policy translated into the signature in 2012 and 2013 of group agreements on the development of the Quality of Working Life, on gender equality, on the integration of persons with disabilities and on "generation" contracts. The group agreement on gender equality was renewed on June 28, 2016.

### 17.6.1. MEASURES IN FAVOR OF GENDER EQUALITY

In France, AREVA signed its first group agreement in favor of gender equality on December 12, 2012. This three-year agreement addresses all of the themes covered by the French law of November 9, 2010: promoting gender equality in hiring and employment, guaranteeing equivalent career paths to men and women, guaranteeing equivalent compensation and promotions, ensuring equal access to training, improving work-life balance, increasing employee awareness, and communicating with employees.

The agreement provides for an equal opportunity budget used to offset unjustified compensation gaps at equal levels of responsibility. During the three-year term of the agreement, close to 1.5 million euros was devoted to the reduction of these unjustified gaps, readjusting the compensation levels of 1,900 people. The

agreement allows employees on parental leave to contribute to their retirement. It also allows for the establishment of an annualized part-time work program.

AREVA sets a particularly high value on women's career development. In addition to having women join their teams, AREVA takes care to ensure their fair promotion for equivalent skills throughout their careers. AREVA has been able to maintain that coherence for several years, with women accounting for 19.4% of all new hires, including 24.4% of all new management hires, and 21.1% of the general workforce, including 22.5% as managers. Women make up 26% of the Management Committees of the business units and support functions, exceeding the objective of 25%.

It should be noted that, in 2013, the group and 16 other major groups signed an agreement in favor of gender equality with the Minister of Women's Rights.

### 17.6.2. MEASURES IN FAVOR OF THE EMPLOYMENT AND INCLUSION OF PERSONS WITH DISABILITIES

Since 2006, AREVA has led a group policy in favor of the development of all talent and of openness to difference in the workplace.

In France, this proactive policy was launched in 2007 with the first agreement on the employment of persons with disabilities. The rate of employment of persons with disabilities has risen since then, from 2.93% in 2007 to 5.04% in 2015.

A third group agreement for France on the employment of persons with disabilities was signed on July 4, 2013 for the 2013-2016 period. It addresses the hiring, integration and training of persons with disabilities; support to companies in the protected and adapted sector; awareness activities; and job retention.

The principal commitments made for the duration of the agreement are a disabled worker hiring target of 3.3% of all new hires, with a minimum of 120 disabled persons employed, 120 work-study positions for the disabled, and 180 internship positions over the term of the agreement, and 20 million euros dedicated to purchases from companies in the protected sector.

## 17.7 Promotion and compliance with the stipulations of fundamental agreements of the international labor union

	2016	2015
Disabled workers in France	NA	5.04%
Disabled workers in Germany	4.78%	4.13%

The 2016 data for France will be available in April 2017.

### 17.6.3. THE FIGHT AGAINST DISCRIMINATION

Employees have multiple paths of recourse in connection with the group's anti-discrimination measures. They may contact their local HR manager, their manager, the business ethics advisor or the labor partners. In France, an additional recourse was established: the Alert and Claim System. In France, for all systems combined, management was alerted to eight instances of discrimination or alleged

discriminatory behaviors. Two cases proved justified after examination. Corrective measures have been taken.

In general, HR processes concern the diversity policy as a whole and particularly verification that managerial decisions affecting employees are made according to the principle of equal opportunity.

## 17.7. PROMOTION AND COMPLIANCE WITH THE STIPULATIONS OF FUNDAMENTAL AGREEMENTS OF THE INTERNATIONAL LABOR UNION

With its Code of Ethics, which replaced the Values Charter in 216, AREVA has and implements a process of ethics and respect for human rights and the fundamental conventions of the International Labor Organization (ILO). The Code of Ethics is updated regularly to include best practices in light of changes in the group's national and international environment. Individual behaviors and management activities may be audited for compliance with the Code, which serves as a set of standards and a code of conduct in this regard.

AREVA's Code of Ethics reiterates that the group is a signatory to the United Nation's Global Compact. It also adheres to the Guidelines for Multinational Enterprises of the Organization for Economic Cooperation and Development (OECD), the Extractive Industries Transparency Initiative (EITI) and the Nuclear Power Plant Exporters' Principles of Conduct published by the Carnegie Endowment.

### 17.7.1. RESPECT FOR THE FREEDOM OF ASSOCIATION AND THE RIGHT TO COLLECTIVE BARGAINING

In the introduction to the ten principles of the UN Global Compact to which it subscribes, AREVA draws inspiration from the ILO's Declaration on Fundamental Principles and Rights at Work.

The third principle is explicitly quoted: "Businesses are asked to uphold the freedom of association and the effective recognition of the right to collective bargaining".

### 17.7.2. ELIMINATION OF DISCRIMINATION RELATED TO EMPLOYMENT AND OCCUPATION

AREVA's action principles for stakeholder relations state, as regards employees, that "AREVA's workforce is constituted without discrimination". To facilitate the reporting of any discrimination and to comply with the obligations conferred by the Diversity Label, AREVA's HR Department deployed an Alert and Claim System in France.

This system supplements other internal corporate systems to report actual or alleged discrimination in the group. It follows rules and a process developed in concert with the group's Director of Compliance and is the subject of authorization by the National Commission on Informatics and Liberty (CNIL).

### 17.7.3. ELIMINATION OF FORCED OR COMPULSORY LABOR

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In accordance with the principles of the UN Global Compact, AREVA works for “the elimination of all forms of forced or compulsory labor.”

### 17.7.4. EFFECTIVE ABOLITION OF CHILD LABOR

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In accordance with the principles of the UN Global Compact, AREVA works for “the effective abolition of child labor.”

By explicitly reiterating these tenets, AREVA underscores its commitment to these international values and principles, which every employee is expected to uphold. AREVA's rules of conduct state that each employee must alert the group in full

confidentiality and may refrain from executing any instruction in patent conflict with the Code of Ethics, without any risk of retaliation when acting in good faith. By itself, this commitment is a major guarantee of compliance with the values, principles and rules of AREVA's Code of Ethics.

<b>18.1. ALLOCATION OF CAPITAL AND VOTING RIGHTS</b>	<b>165</b>	<b>18.4. AGREEMENTS KNOWN TO THE ISSUER WHOSE IMPLEMENTATION COULD SUBSEQUENTLY RESULT IN A CHANGE OF ITS CONTROL</b>	<b>168</b>
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## 18.1. ALLOCATION OF CAPITAL AND VOTING RIGHTS

As of the date of this Reference Document, AREVA's share capital amounted to 95,801,213 euros, divided into 383,204,852 ordinary shares with a par value of 0.25 euro per share.

The General Meeting of Shareholders of February 3, 2017 approved a reduction of AREVA's share capital motivated by losses, at the end of which the share capital of AREVA was brought from 1,456,178,437.60 euros to 95,801,213 euros by reduction of the par value of AREVA's shares from 3.80 euros to 0.25 euro.

To AREVA's knowledge, no person that is not a member of an administrative, executive or supervisory body holds, directly or indirectly, a percentage of AREVA's capital or voting rights which would be subject to disclosure in accordance with the national legislation applicable to AREVA.

AREVA's allocation of capital for the last three financial years was as follows:

	December 31, 2016	December 31, 2015	December 31, 2014
	Theoretical % of voting rights <sup>(1)</sup> & number of shares (% of share capital)	Theoretical % of voting rights <sup>(1)</sup> & % of share capital	Theoretical % of voting rights <sup>(1)</sup> & % of share capital
CEA	57.02%, representing 208,349,383 shares (54.37%)	54.37% <sup>(2)</sup>	54.37% <sup>(3)</sup>
French State	29.97%, representing 110,487,336 shares (28.83%)	28.83%	28.83% <sup>(3)</sup>
Kuwait Investment Authority (KIA)	5.05%, representing 18,461,538 shares (4.82%)	4.82%	4.82%
Bpifrance Participations SA	1.74%, representing 12,712,910 shares (3.32%)	3.32%	3.32%
EDF	2.35%, representing 8,571,120 shares (2.24%)	2.24%	2.24%
Total group	1%, representing 3,640,200 shares (0.95%)	0.95%	0.95%
FCPE AREVA France actions salariés, FCPE AREVA International actions salariés & US-Employee Stock Purchase Plan	0.63%, representing 4,616,478 shares <sup>(4)</sup> (1.20%)	1.23%	1% <sup>(4)</sup>
Framépargne (employees)	0%, representing 0 shares <sup>(5)</sup> (0%)	0%	0.226%
Public	2.11%, representing 15,395,371 shares (4.02%)	3.99%	4.02%
Members of the Supervisory Board <sup>(2)</sup>	NA	ns	ns
Treasury shares <sup>(6)</sup>	0.1%, representing 740,490 shares (0.19%)	0.19%	0.19%
Liquidity contract <sup>(6)</sup>	0.03%, representing 230,026 shares (0.06%)	0.05%	0.04%

(1) Theoretical voting rights are calculated based on the total number of shares to which a voting right is attached, including shares without voting rights (treasury shares and shares under the Company's control).

(2) The members of the Supervisory Board appointed by the Shareholders (other than the CEA) each held 10 shares until January 8, 2015, the date of the change of governance and the date on which said shares were respectively retransferred to the CEA.

(3) On December 11, 2014, the CEA sold 27,412,875 shares representing 7.15% of AREVA's share capital to the French State for the amount of 334,300,010.63 euros.

(4) The offer of AREVA shares to the Group's employees in May 2013 was carried out via a disposal of existing treasury shares bought previously by AREVA in connection with a share purchase program authorized by the Shareholders on May 10, 2012 pursuant to article L. 225-209 of the French Commercial Code.

(5) The Framépargne fund merged with the AREVA France actions salariés investment fund on August 6, 2015.

(6) Pursuant to article L. 225-210 of the French Commercial Code, shares held directly by the Company or through a person acting in his or her own name do not carry voting rights.



## 18.2. DIFFERENT VOTING RIGHTS

Article L. 225-123 of the French Commercial Code, stemming from law no. 2014-384 of March 29, 2014 aimed at reconquering the real economy, provides that, in companies whose shares are admitted for trading on a regulated market, double voting rights are allowed for all fully paid-up shares shown to be registered for two years in the same shareholder's name as from the day after the law enters into force, unless otherwise provided in the articles of association adopted after promulgation of the law.

Considering the specific nature of the Company's shareholding structure and insofar as this provision fosters and strengthens stable shareholding with a long-term vision, the articles of association were not amended to eliminate the establishment of double voting rights; consequently, the provisions of article L. 225-123 of the Commercial Code remain applicable.

Thus, since April 3, 2016, a double voting right is attached to all fully paid-up shares registered in the name of a single holder for at least two years as from April 3, 2014.

In the event of a capital increase by incorporation of reserves, profits or issue premiums, the double voting right will be conferred as soon as bonus registered shares are issued to a shareholder at the rate of former shares for which the shareholder holds that right. It should be noted that, in accordance with the law, the double voting right ceases for any share converted into a bearer share or whose ownership is transferred, unless that transfer is the result of a succession, a liquidation of community property between spouses, or a donation to a spouse or a relative entitled to inherit.

## 18.3. CONTROL OF THE ISSUER

At December 31, 2016, the French State held 28.83% of the capital and 29.97% of the voting rights of AREVA directly; jointly with the CEA, it held 83.20% of the capital and 86.99% of the voting rights.

AREVA is subject to order no. 2014-948 of August 20, 2014 relative to governance and to transactions on the capital of publicly owned companies, and to decree no. 83-1116 of December 21, 1983, amended in particular on January 14, 2016, which requires the State, or the CEA or other public institutions of the State, or companies in which they hold a majority interest, directly or indirectly, singly or severally, to keep more than half of the share capital of the company.

This decree also stipulates that the Director General of Energy and Climate performs the duties of Government Commissioner and that the head of the control mission to the Commissariat à l'énergie atomique et aux énergies alternatives performs those of a member of the general economic and financial control body of the company.

The Government Commissioner and the Head of the Control Mission <sup>(1)</sup> attend the meetings of AREVA's Board of Directors and of its committees.

The Government Commissioner may attend meetings of the Boards of Directors of first-tier subsidiaries of the Company.

By virtue of article 3 of decree no. 83-1116 of December 21, 1983 relating to the AREVA company, the deliberations of the Board of Directors become effective and valid if the Government Commissioner or the Head of the Control Mission do not oppose them within five days following the Board of Directors meeting, if they attended it, or of the receipt of the minutes of the meeting.

Such opposition, of which the Minister of Economy and the Minister of Energy are immediately informed by the author of same, ceases to have effect if, within a limit of fifteen days, it has not been confirmed by one of those ministers.

As stipulated in the Board of Directors' rules of procedure, the Head of the Control Mission and the Government Commissioner may designate one of their employees to represent them at meetings of the committees.

The Shareholders, meeting on February 3, 2017, approved a capital increase reserved for the French State in the amount of 1,999,999,998 euros (including issue premium) by the issue of ordinary shares, subject to the fulfillment of the conditions accompanying the European Commission decision in conformance with European regulations on State aid.

At the end of the reserved capital increase, if it is completed, the French State would hold 67.05% of the company's capital directly and 92.22% of the capital of the company jointly with the CEA.

Consequently, in accordance with the provisions of order no. 2014-948 of August 20, 2014, those same Shareholders approved an amendment to the Articles of Association providing in particular the appointment and dismissal of the Chief Executive Officer by decree, subject to the completion of the reserved capital increase.

(1) Pursuant to decree no. 55-733 of May 26, 1955,

## **18.4. AGREEMENTS KNOWN TO THE ISSUER WHOSE IMPLEMENTATION COULD SUBSEQUENTLY RESULT IN A CHANGE OF ITS CONTROL**

None.

# TRANSACTIONS WITH RELATED PARTIES

# 19

<b>19.1. RELATIONS WITH THE FRENCH STATE</b>	<b>169</b>	<b>19.3. RELATIONS WITH GOVERNMENT-OWNED COMPANIES</b>	<b>170</b>
<b>19.2. RELATIONS WITH THE CEA</b>	<b>170</b>	19.3.1. Sale of AREVA NP's operations	170
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Significant transactions with related parties are described in this section. This information is also the subject of note 29. *Related party transactions* of Section 20.

## 19.1. RELATIONS WITH THE FRENCH STATE

At December 31, 2016, the French State held 28.83% of the capital and 29.97% of the voting rights of AREVA directly; jointly with the CEA, it held 83.20% of the capital and 86.99% of the voting rights.

Pursuant to decree no. 2004-963 of September 9, 2004, as amended, the Agence des participations de l'État (APE, the state shareholding agency) exercises the responsibilities of the French State as shareholder under the direction of the Commissioner for State Shareholdings. The latter, under the authority of the Minister of Economy, leads the French State's shareholding policy from an economic, industrial and social perspective. The APE makes proposals to the Minister of Economy on the French State's position, as shareholder, on the company's strategy and examines in particular the company's main financing and investment programs, proposed acquisitions and disposals, and commercial, cooperative, and research and development agreements.

Following the European Commission's decision of January 10, 2017, the Board of Directors authorized on February 3, 2017 an advance to the company from the shareholder current account of the French State in the total amount of 3.3 billion euros.

The Shareholders, meeting on February 3, 2017, approved a capital increase reserved for the French State in the amount of 1,999,999,998 euros (including issue premium) by the issue of ordinary shares, subject to the fulfillment of the conditions accompanying the European Commission decision in conformance with European regulations on State aid.

Moreover, at December 31, 2016 and pursuant to the resignation on October 26, 2016 of Mr. Denis Morin (director appointed by the Shareholders on the recommendation of the French State), one of the eleven directors of the Board of Directors is a representative of the State and one is a director appointed by the Shareholders on the recommendation of the State.

In its meeting of February 28, 2017, the Board of Directors decided to submit the appointment of two women proposed by the French State pursuant to order no. 2014-948 of August 20, 2014 to the Annual General Meeting of Shareholders of May 18, 2017: Mrs. Marie-Solange Tissier and Mrs. Florence Touitou-Durand, who will bring added competence to the Board of Directors. The proposed resolutions appear in Appendix 5 of the Reference Document.

In accordance with decree no. 83-1116 of December 21, 1983, as amended, and decree no. 55-733 of May 26, 1955, the Director General of Energy and Climate performs the duties of Government Commissioner, and the Head of the Control Mission to the Commissariat à l'énergie atomique et aux énergies alternatives performs those of a member of the General Economic and Financial Control Body of the company.

(For more information, see Section 4. *Risk factors*, Section 5. *Information concerning the issuer*, and Section 14. *Administrative, management and supervisory bodies and executive management*.)

In addition, AREVA is subject to the control of the French Cour des Comptes (government accounting office), which examines the quality and consistency of its financial statements and of its management, pursuant to articles L. 133-1 and L. 133-2 of the French Code of the Financial Courts.

## 19.2. RELATIONS WITH THE CEA

At December 31, 2016, the CEA, a public scientific, technical and industrial organization, held a 54.37% interest in the capital and 57.02% of the voting rights of AREVA.

Decree no. 83-1116 of December 21, 1983, as amended on January 14, 2016, requires that the French State, or the Commissariat à l'énergie atomique et aux énergies alternatives, or the other public institutions of the State, or the companies in which they hold a majority share, directly or indirectly, singly or severally, are required to hold more than half of the capital of the company.

The Chairman of the CEA sits on the Board of Directors of the company, and the CEA, as legal entity, has been designated as censor.

The CEA and AREVA also have a research and development partnership relationship concerning the nuclear operations.

For more information, see Section 11. *Research and Development programs, patents and licenses* and Section 18. *Principal shareholders*.

Upon authorization of the Board of Directors, at its meeting of April 29, 2015, AREVA SA, AREVA TA and the CEA signed a tripartite memorandum of understanding on July 20, 2015 for the final settlement of the RJH program. This agreement was ratified by the Annual General Meeting of Shareholders on May 21, 2015.

During its meeting of April 28, 2016, the Board of Directors authorized the signature of amendment no. 1 (expressing the provisions of article 2.3 of the tripartite memorandum of understanding) to the bilateral agreement signed with the CEA on December 22, 2006 (the detail of that amendment appears in Appendix 2 of this Reference Document).

## 19.3. RELATIONS WITH GOVERNMENT-OWNED COMPANIES

### 19.3.1. SALE OF AREVA NP'S OPERATIONS

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The group routinely carries out transactions with publicly held companies, mainly EDF.

Following the memorandum of understanding signed on July 28, 2016, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 setting the terms and conditions for the sale of an interest giving EDF the exclusive control of a new entity, New NP, a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of nuclear reactor and equipment design and supply,

fuel assemblies, and services to the installed base of the group, for a selling price of 2.5 billion euros for 100% of the shares of New NP, excluding possible price adjustments and supplements, and without debt assumption at the closing of the transaction. Contracts related to the OL3 project and the resources needed for project completion, along with certain contracts related to forgings at the Creusot plant, will be kept within AREVA NP in the AREVA consolidation scope.

### 19.3.2. SALE OF AREVA TA

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As part of its refocusing on the nuclear fuel cycle operations, the company announced on December 17, 2015 and confirmed on January 27, 2016 the plan to sell AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

On December 15, 2016, the company signed a share purchase agreement for all of its shares in AREVA TA (corresponding to 83.56% of the capital before prior transactions) to a consortium of buyers composed of the Agence des participations de l'État (APE, 50.32% of the share capital), the Commissariat à l'énergie atomique et aux énergies renouvelables (CEA, 20.32% of the share capital) for a price based on a maximum valuation of 559 million euros for 100% of the equity. EDF will retain its 9.03% interest in the capital.

The sale, for which the plan has already been the subject of consultation with the employee representative bodies and which has been approved by AREVA's governance, is scheduled to close in the first quarter of 2017. On the date the sale closes, the French State will control AREVA TA.

(Explanations on the nature of relations and transactions with public companies appear in Section 4. *Risk factors*; in Section 20. *Notes to the consolidated financial statements for the period ended December 31, 2016*, note 1.1. *Highlights of the year* and note 29. *Transactions with related parties*; in Section 6. *Business overview*; and in Section 22. *Major contracts*).

# FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITION AND FINANCIAL PERFORMANCE

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## 20.1. CONSOLIDATED FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2016

### 20.1.1. STATUTORY AUDITORS' REPORT ON THE CONSOLIDATED FINANCIAL STATEMENTS

This is a free translation into English of the statutory auditors' report on the consolidated financial statements issued in French and it is provided solely for the convenience of English-speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the audit opinion on the consolidated financial statements and includes an explanatory paragraph discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the consolidated financial statements taken as a whole and not to provide separate assurance on individual account balances, transactions or disclosures.

This report also includes information relating to the specific verification of information given in the group's management report.

This report should be read in conjunction with and construed in accordance with French law and professional auditing standards applicable in France.

To the Shareholders,

In compliance with the assignment entrusted to us by your General Meeting of Shareholders, we hereby report to you, for the year ended 31 December 2016, on:

- the audit of the accompanying consolidated financial statements of AREVA;
- justification of our assessments;
- the specific verification required by law.

These consolidated financial statements have been approved by the Board of Directors. Our role is to express an opinion on these consolidated financial statements based on our audit.

#### I - OPINION ON THE CONSOLIDATED FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the group as at 31 December 2016 and of the results of its operations for the year then ended in accordance with International Financial Reporting Standards as adopted by the European Union.

Without qualifying our opinion, we draw your attention to the matters set out in the following notes to the consolidated financial statements:

- Notes 1.1, 25 and 31, which set out the liquidity situation and the information relating to the application of the going concern principle;
- Note 1.1, which sets out the context of the closing, the implementation of the group's restructuring project, the quality issues impacting the AREVA NP sites and the signature of the share purchase agreement with EDF fixing the terms and conditions for the sale of New NP;
- Notes 1.1, 1.3.1.1, 3 and 37, which set out the accounting treatment and effects of the discontinued operations, in particular the transaction expected with EDF for the sale of New NP, and the entry of the French State into the capital of NewCo, leading to the loss of AREVA SA's control of NewCo;
- Note 24, which sets out the reasons which led AREVA, as from the second half of 2013, to apply paragraph 32 of IAS 11, and the methods of recognition applicable to the Olkiluoto 3 ("OL3") EPR construction agreement. In addition, this note specifies the conditions of completion of this agreement, in particular for the end-of-construction and testing until the reactor is put into service, the uncertainties which remain as to the end of the project and the legal risks related to the arbitration in progress;
- Notes 1.3.17 and 13, which set out the methods for valuation of the provisions for end-of-cycle operations, and their sensitivity to the assumptions used in terms of technical procedures, costs, outflow schedules and inflation and discount rates;
- Note 9, which sets out the valuation of the deferred tax assets of AREVA Inc., subject to the effective implementation of a legal restructuring within the framework of the sale of New NP to EDF.

## II - JUSTIFICATION OF OUR ASSESSMENTS

In accordance with the requirements of article L. 823-9 of the French Commercial Code (*Code de commerce*) relating to the justification of our assessments, we bring to your attention the following matters:

- In the framework of our assessment of the going concern approach, we examined the group's liquidity situation detailed in notes 1.1 and 31 to the consolidated financial statements. We acknowledged the cash flow forecasts, the debt repayment schedules, the current credit lines and the related covenants, as well as the future capital increase transactions and the related conditions and shareholders' commitments;
- The criteria for classification, recognition and valuation of the activities held for sale or in the process of being sold pursuant to IFRS 5 are described in note 1.3.1.1 to the consolidated financial statements. We verified the correct application of this accounting principle and verified that notes 1.1.3 and 37 to the consolidated financial statements disclose appropriate information;
- AREVA recognizes the profit or loss on long-term contracts according to the methods described in notes 1.3.7 and 24 to the consolidated financial statements. We assessed the data and assumptions on which the estimated income at completion and changes therein are based. We examined the procedures for management's approval of these estimates and reviewed the calculations made;
- Goodwill, intangible assets and property, plant and equipment have been tested for impairment according to the principles and assumptions described in notes 1.3.8, 10, 11 and 12 to the consolidated financial statements. We examined the methods used to perform these tests and assessed the consistency of the assumptions used with the group's forecast data and the approach used to estimate the fair value of some mining assets. We also verified that the notes to the consolidated financial statements provide appropriate disclosures;
- Deferred tax assets were analysed according to the methods described in Notes 1.3.22 and 9 to the consolidated financial statements. We examined the conditions for implementing this analysis and assessed the consistency of the assumptions used to value these deferred tax assets with the group's forecast data. We also verified that the notes to the consolidated financial statements provide appropriate disclosures;
- The provisions for end-of-lifecycle operations were measured according to the methods described in notes 1.3.17 and 13 to the consolidated financial statements. We reviewed the implementation of these conditions, the assumptions used and the cost estimates obtained, and verified that the notes to the consolidated financial statements provide appropriate disclosures. To offset these provisions, AREVA recognizes financial assets to cover the end-of-lifecycle operations which include a dedicated portfolio composed of directly held shares and units of equity and bond mutual funds. The portfolio management objectives and measurement principles are described in Note 13 to the consolidated financial statements. We assessed the appropriateness of the methods used and the measurement of the provisions for impairment of the financial assets;
- The accounting principles relating to employee benefits are described in Notes 1.3.15 and 23 to the consolidated financial statements. We assessed the appropriateness of the methods used and reviewed the measurement of the hedging assets at market value;
- Provisions for risks, litigation and contingent liabilities are described in Notes 24 and 34 to the consolidated financial statements. We examined the existing procedures for the identification, evaluation and presentation in the accounts of AREVA's risks, litigation and contingent liabilities. We also verified that the main disputes identified during the implementation of these procedures are described appropriately in the notes to the consolidated financial statements.

As referred to in Note 1.2 to the consolidated financial statements, several items mentioned in the preceding paragraphs are based on assumptions whose actual results may differ from current estimates. These assessments were made as part of our audit of the consolidated financial statements taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report.

## III - SPECIFIC VERIFICATION

As required by law, we have also verified in accordance with professional standards applicable in France the information presented in the group's management report.

Except for the potential impact of the facts set out in the first part of this report, we have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

Courbevoie and Paris-La Défense, March 9, 2017

French original signed by

The Statutory Auditors

MAZARS

Cédric Haaser

Jean-Louis Simon

ERNST & YOUNG Audit

Aymeric de La Morandière

Jean Bouquot



**20.1.2. CONSOLIDATED STATEMENT OF INCOME**

<i>(in millions of euros)</i>	Note	2016	2015*
<b>REVENUE</b>	<b>4</b>	<b>10</b>	<b>33</b>
Other income from operations		1	-
Cost of sales		(419)	(950)
<b>Gross margin</b>		<b>(408)</b>	<b>(917)</b>
Research and development expenses		(13)	(13)
Marketing and sales expenses		(9)	(3)
General and administrative expenses	7	(126)	(88)
Other operating expenses	7	(80)	(274)
Other operating income	7	195	8
<b>OPERATING INCOME</b>		<b>(442)</b>	<b>(1,287)</b>
Share in net income of joint ventures and associates	14	(14)	(26)
<b>Operating income after share in net income of joint ventures and associates</b>		<b>(456)</b>	<b>(1,314)</b>
Income from cash and cash equivalents		38	87
Gross borrowing costs		(111)	(68)
<b>Net borrowing costs</b>		<b>(73)</b>	<b>19</b>
Other financial expenses		(33)	(77)
Other financial income		38	12
<b>Other financial income and expenses</b>		<b>5</b>	<b>(65)</b>
<b>NET FINANCIAL INCOME</b>	<b>8</b>	<b>(68)</b>	<b>(46)</b>
<b>Income tax</b>	<b>9</b>	<b>118</b>	<b>93</b>
<b>NET INCOME FROM CONTINUING OPERATIONS</b>		<b>(405)</b>	<b>(1,267)</b>
Net income from operations sold, discontinued or held for sale	3	(365)	(770)
<b>NET INCOME FOR THE PERIOD</b>		<b>(770)</b>	<b>(2,036)</b>
Including:			
Group:			
Net income from continuing operations		(405)	(1,267)
Net income from operations sold, discontinued or held for sale		(260)	(771)
<b>NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT</b>		<b>(665)</b>	<b>(2,038)</b>
Minority interests:			
Net income from continuing operations		0	0
Net income from operations sold, discontinued or held for sale		(105)	2
<b>NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS</b>		<b>(105)</b>	<b>2</b>
Number of shares outstanding		383,204,852	383,204,852
Average number of shares outstanding		383,204,852	383,204,852
Average number of treasury shares		956,422	908,871
Average number of shares outstanding, excluding treasury shares		382,248,430	382,295,981
Earnings per share from continuing operations		(1.06)	(3.31)
Basic earnings per share		(1.74)	(5.33)
Net income attributable to owners of the parent per diluted share <sup>(1)</sup>		(1.74)	(5.33)

(1) AREVA has not issued any instruments with a dilutive impact on capital.

\* In application of IFRS 5, the 2015 financial statements were restated in relation to the data reported for the previous year. The impacts of these restatements are detailed in note 37.

## CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015*</b>
<b>Net income</b>	<b>(770)</b>	<b>(2,036)</b>
<b>Items not recyclable to the income statement</b>	<b>(127)</b>	<b>292</b>
Actuarial gains and losses on the employee benefits of consolidated companies	3	-
Income tax related to non-recyclable items	(0)	-
Share in non-recyclable items from joint ventures and associates, net of tax	-	-
Non-recyclable items related to operations sold, discontinued or held for sale, net of tax	(129)	292
<b>Items recyclable to the income statement</b>	<b>88</b>	<b>(160)</b>
Currency translation adjustments on consolidated companies and other	-	-
Change in value of available-for-sale financial assets	-	-
Change in value of cash flow hedges	-	4
Income tax related to recyclable items	-	-
Share in recyclable items from joint ventures and associates, net of tax	-	-
Recyclable items related to operations sold, discontinued or held for sale, net of tax	88	(164)
<b>Total other items of comprehensive income (net of income tax)</b>	<b>(39)</b>	<b>132</b>
<b>COMPREHENSIVE INCOME</b>	<b>(809)</b>	<b>(1,905)</b>
• Attributable to equity owners of the parent	(753)	(1,825)
• Minority interests	(56)	(80)

\* In application of IFRS 5, the 2015 financial statements were restated in relation to the data reported for the previous year. The impacts of these restatements are detailed in note 37.

### 20.1.3. CONSOLIDATED STATEMENT OF FINANCIAL POSITION

#### ASSETS

<i>(in millions of euros)</i>	Note	December 31, 2016	December 31, 2015
<b>NON-CURRENT ASSETS</b>		<b>312</b>	<b>17,747</b>
Goodwill on consolidated companies	10	0	1,272
Intangible assets	11	42	1,648
Property, plant and equipment	12	25	7,642
End-of-lifecycle assets (third party share)	13	-	178
Assets earmarked for end-of-lifecycle operations	13	-	6,122
Investments in joint ventures and associates	14	10	100
Other non-current assets	15	234	573
Deferred tax assets	9	1	212
<b>CURRENT ASSETS</b>		<b>28,417</b>	<b>11,240</b>
Inventories and work-in-process	16	2	1,216
Trade accounts receivable and related accounts	17	154	941
Other operating receivables	18	252	865
Current tax assets	9	7	51
Other non-operating receivables		142	81
Cash and cash equivalents	19	686	804
Other current financial assets	20	143	207
Assets of operations held for sale	3	27,032	7,076
<b>TOTAL ASSETS</b>		<b>28,729</b>	<b>28,987</b>

## LIABILITIES AND EQUITY

<i>(in millions of euros)</i>	Note	December 31, 2016	December 31, 2015
<b>EQUITY AND MINORITY interests <sup>(1)</sup></b>		<b>(3,427)</b>	<b>(2,281)</b>
Capital	21	1,456	1,456
Consolidated premiums and reserves		(4,611)	(3,797)
Actuarial gains and losses on employee benefits		(420)	(293)
Deferred unrealized gains and losses on financial instruments		93	166
Currency translation reserves		64	(48)
<b>Equity attributable to owners of the parent</b>		<b>(3,417)</b>	<b>(2,516)</b>
Minority interests	22	(10)	235
<b>NON-CURRENT LIABILITIES</b>		<b>1,354</b>	<b>14,676</b>
Employee benefits	23	4	1,455
Provisions for end-of-lifecycle operations	13	-	6,921
Other non-current provisions	24	-	238
Share in negative net equity of joint ventures and associates	14	-	59
Long-term borrowings	25	1,351	5,905
Deferred tax liabilities	9	0	100
<b>CURRENT LIABILITIES</b>		<b>30,802</b>	<b>16,592</b>
Current provisions	24	2,060	3,990
Short-term borrowings	25	831	1,440
Advances and prepayments received	26	30	2,895
Trade accounts payable and related accounts		265	941
Other operating liabilities	27	222	1,904
Current tax liabilities	9	1	39
Other non-operating liabilities	27	3	64
Liabilities of operations held for sale	3	27,391	5,320
<b>TOTAL LIABILITIES AND EQUITY</b>		<b>28,729</b>	<b>28,987</b>

(1) Including other items of total comprehensive income related to operations held for sale not recyclable to the statement of income in the amount of (376) million euros and recyclable to the statement of income in the amount of 135 million euros at December 31, 2016.

**20.1.4. CONSOLIDATED STATEMENT OF CASH FLOWS**

<i>(in millions of euros)</i>	Note	Financial Year 2016	Financial year 2015*
<b>Net income for the period</b>		<b>(770)</b>	<b>(2,036)</b>
Less: income from operations sold, discontinued or held for sale		365	770
<b>Net income from continuing operations</b>		<b>(405)</b>	<b>(1,267)</b>
(Profit)/loss of joint ventures and associates		14	26
Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months		6	40
Goodwill impairment		0	26
Net increase in (reversal of) provisions		(278)	648
Net effect of unwinding of assets and provisions		0	0
Income tax expense (current and deferred)		(118)	(93)
Net interest included in borrowing costs		82	(26)
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value		9	(8)
Other non-cash items		(2)	9
Dividends from joint ventures and associates		0	0
<b>Cash flow from operations before interest and taxes</b>		<b>(693)</b>	<b>(643)</b>
Net interest received (paid)		(73)	40
Income tax paid		71	49
<b>Cash flow from operations after interest and tax</b>		<b>(695)</b>	<b>(554)</b>
Change in working capital requirement	28	100	111
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>		<b>(595)</b>	<b>(442)</b>
Investment in PP&E and intangible assets		(7)	(13)
Loans granted and acquisitions of non-current financial assets		(7)	(77)
Acquisitions of shares of consolidated companies, net of acquired cash		0	0
Disposals of PP&E and intangible assets		0	1
Loan repayments and disposals of non-current financial assets		39	26
Disposals of shares of consolidated companies, net of disposed cash		0	0
<b>NET CASH FLOW FROM INVESTING ACTIVITIES</b>		<b>25</b>	<b>(64)</b>
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries		0	0
Treasury shares sold/(acquired)		0	0
Transactions with minority interests		0	0
Dividends paid to minority shareholders of consolidated companies		0	0
Increase in borrowings		2,776	12
Decrease in borrowings		(1,451)	(889)
Change in other borrowings		(119)	119
<b>NET CASH FLOW FROM FINANCING ACTIVITIES</b>		<b>1,207</b>	<b>(758)</b>
(Increase) decrease in securities recognized at fair value through profit and loss		0	35
Impact of foreign exchange movements		2	(1)
<b>NET CASH FROM OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE</b>	<b>3</b>	<b>(597)</b>	<b>419</b>
<b>INCREASE (DECREASE) IN NET CASH</b>		<b>41</b>	<b>(811)</b>
<b>NET CASH AT THE BEGINNING OF THE YEAR</b>		<b>745</b>	<b>1,556</b>
Cash at the end of the year	19	686	804
Less: short-term bank facilities and non-trade current accounts (credit balances)	25	(6)	(91)
Net cash from operations held for sale		107	32
<b>NET CASH AT THE END OF THE YEAR</b>		<b>786</b>	<b>745</b>

\* In application of IFRS 5, the 2015 financial statements were restated in relation to the data reported for the previous year. The impacts of these restatements are detailed in note 37.

## 20.1 Consolidated financial statements for the year ended December 31, 2016

**Net cash taken into account in establishing the Statement of Cash Flows consists of:**

- Cash and cash equivalents (see note 19), which includes:
  - cash balances and non-trade current accounts, and
  - risk-free investments initially maturing in less than three months, and money market funds;
- after deduction of bank facilities and non-trade current accounts included in short-term borrowings (see note 25);
- net cash from operations held for sale (see note 3).

**20.1.5. CONSOLIDATED STATEMENT OF CHANGES IN EQUITY**

<i>(in millions of euros)</i>	Number of shares outstanding	Capital	Consolidated premiums and reserves	Actuarial gains and losses on employee benefits	Deferred unrealized gains and losses on financial instruments	Currency translation reserves	Equity attributable to owners of the parent	Minority interests	Total equity and minority interests
<b>JANUARY 1, 2015</b>	<b>382,324,869</b>	<b>1,456</b>	<b>(1,756)</b>	<b>(583)</b>	<b>204</b>	<b>(12)</b>	<b>(691)</b>	<b>447</b>	<b>(244)</b>
Net income for 2015			(2,038)				(2,038)	2	(2,036)
Other items of comprehensive income				289	(39)	(37)	213	(81)	132
<b>Comprehensive income</b>			<b>(2,038)</b>	<b>289</b>	<b>(39)</b>	<b>(37)</b>	<b>(1,825)</b>	<b>(80)</b>	<b>(1,905)</b>
Dividends paid **							0	(133)	(133)
Treasury shares sold/ (acquired)	(53,615)		(0)				(0)		(0)
Other transactions with shareholders			(2)	1	2	1	(1)	0	1
<b>DECEMBER 31, 2015</b>	<b>382,271,254</b>	<b>1,456</b>	<b>(3,797)</b>	<b>(293)</b>	<b>166</b>	<b>(48)</b>	<b>(2,516)</b>	<b>235</b>	<b>(2,281)</b>
Net income for 2016			(665)				(665)	(105)	(770)
Other items of comprehensive income (see note 21)				(127)	(73)	113	(88)	49	(39)
<b>Comprehensive income</b>			<b>(665)</b>	<b>(127)</b>	<b>(73)</b>	<b>113</b>	<b>(753)</b>	<b>(56)</b>	<b>(809)</b>
Dividends paid **							0	(112)	(112)
Treasury shares sold/ (acquired)	(36,918)		(0)				(0)		(0)
Other transactions with shareholders			(148)	0	(0)	0	(148)	(77)	(225)
<b>DECEMBER 31, 2016</b>	<b>382,234,336</b>	<b>1,456</b>	<b>(4,611)</b>	<b>(420)</b>	<b>93</b>	<b>64</b>	<b>(3,417)</b>	<b>(10)</b>	<b>(3,427)</b>

\*\* Dividend paid per share (in euros) -

- in 2015 from 2014 net income -
- in 2016 from 2015 net income -

**20.1.6. OPERATING SEGMENTS**

For all reporting periods, income items from operations sold, discontinued or held for sale are presented on a separate line of the statement of income, "Net income from operations sold, discontinued for held for sale". Balance sheet items of operations and assets held for sale are presented on a separate line of the statement of financial position under "Assets from operations held for sale" on the assets side and under "Liabilities of operations held for sale" on the liabilities side.

Continuing operations do not constitute operating segments and are principally located in France. Consequently, AREVA does not report operating segment information for the financial years ended December 31, 2015 and December 31, 2016.

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All amounts are presented in millions of euros unless otherwise indicated. Certain totals may have rounding differences.

## INTRODUCTION

AREVA's consolidated financial statements for the period January 1 to December 31, 2016 were approved by the Board of Directors on February 28, 2017. The financial statements will be presented to the Annual General Meeting of Shareholders for approval on May 18, 2017.

The AREVA group is fully consolidated by the Commissariat à l'énergie atomique et aux énergies alternatives (see note 21).

Information for 2014 reported in the 2015 Reference Document filed with the Autorité des marchés financiers (AMF) on April 12, 2016, is incorporated for reference.

"AREVA" designates AREVA SA and all of the subsidiaries and interests held directly or indirectly.

"AREVA NP" designates AREVA NP SA and all of the subsidiaries and interests held directly or indirectly.

"New NP" designates the target consolidation scope, as defined in the share purchase agreement signed with EDF.

"NewCo" designates the target consolidation scope of the nuclear fuel cycle operations.

## NOTE 1. HIGHLIGHTS OF THE PERIOD, ESTIMATES AND JUDGMENTS, AND ACCOUNTING PRINCIPLES

### 1.1. HIGHLIGHTS OF THE PERIOD

To restore its competitiveness and reestablish its financial position, the group designed and has started to implement the Restructuring Plan, consistent with the 2016-2020 roadmap presented to the market on June 15, 2016.

The Restructuring Plan includes the following three main sections:

- conversion of the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) into subsidiaries within the NewCo entity, a wholly owned subsidiary of AREVA;
- capital increases of AREVA and NewCo in the total amount of 5 billion euros; and
- asset sales in order to withdraw from certain operations and refocus on the nuclear fuel cycle operations.

At the end of the implementation of the Restructuring Plan, and subject to its execution, AREVA's main mission will be to complete the Olkiluoto 3 EPR reactor project ("OL3") in Finland with the necessary resources, in compliance with its contractual obligations. Another objective of AREVA will be to close out the remaining renewable energy projects; it will keep the responsibility associated with outstanding component contracts and potentially with non-outstanding component contracts for which serious anomalies might be identified and unresolved by the completion of the sale of New NP (see below, "Quality action plan concerning AREVA NP"). Lastly, AREVA will assume responsibility for the repayment of bank borrowings which remain on its balance sheet (bilateral lines of credit and RCF) in 2017 and 2018.

#### Subsidiarization of the nuclear fuel cycle operations in NewCo

The creation of subsidiaries involved contributing the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) to the NewCo entity, within which strategic investors are authorized to invest alongside the French State.

The bearers of bonds issued by AREVA maturing in 2017, 2019, 2020, 2021, 2022, 2023 and 2024, assembled in general meetings, and the sole holder of the 2018 bond approved the contribution on September 19, 2016 and September 27, 2016 respectively.

On November 3, 2016, AREVA's shareholders, assembled in an Extraordinary General Meeting, also approved the contribution, the draft partial asset contribution

agreement between AREVA and NewCo, and the valuation of and payment for the contribution, and delegated authority to the Board of Directors to effect the contribution. Furthermore, the contribution and correlative capital increase of NewCo were approved by the NewCo shareholders on November 3, 2016.

The contribution was effected on November 10, 2016, giving rise to a capital increase for NewCo in the amount of 45 million euros.

Other insignificant assets and liabilities attached to the nuclear fuel cycle operations will also be transferred to finalize the planned consolidation scope between now and the execution of the capital increase.

#### European Commission consent for the Restructuring Plan

On April 29, 2016, the French authorities notified the European Commission of a restructuring aid measure which takes the form of twin capital increases by the injection of public capital in the amount of 2 billion euros in AREVA and in the maximum amount of 2.5 billion euros in NewCo.

On January 10, 2017, at the end of the review of the matter by the European Commission, the latter authorized the French State's participation in the capital increases of AREVA and of NewCo, finding in particular that (i) the planned aid measures enable the group's return to long-term viability, (ii) the group is contributing significantly to the costs of its restructuring and (iii) the compensatory measures proposed by the group are sufficient and adequate.

The European Commission's authorization is conditioned on the fulfillment of the following two preconditions:

- the findings of the Autorité de sûreté nucléaire ("ASN") on the results of the demonstration program concerning the problem of carbon segregation identified in parts of the EPR reactor vessel of the Flamanville 3 project, without calling into question the suitability for service of the vessel parts due to that segregation or, alternatively, a decision by EDF, duly notified to the group in view of the sale of New NP, to waive the condition precedent related to the EPR reactor of the Flamanville 3 project as concerns the carbon segregation identified in parts of that reactor's vessel; and
- the European Commission's authorization of the merger between EDF and New NP.

Moreover, the European Commission's authorization is accompanied by a certain number of commitments on the part of the group until the end of its restructuring plan, i.e. the end of 2019. In particular, it covers the obligation not to proceed with acquisitions of interests in companies which it does not already control (except for (i) a certain number of already identified projects and (ii) after the European Commission's authorization of projects which would be necessary to its return to viability), and the obligation to withdraw completely from reactor and fuel assembly operations. By that date, neither AREVA nor NewCo will have a capitalistic relationship with New NP.

On January 10, 2017, the European Commission also authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros, to enable the group to meet its financial obligations until the effective completion of the AREVA and NewCo capital increases.

These advances from the shareholder current account, to be credited to the amount of the above-mentioned capital increases reserved for the French State, will be reimbursed by converting the State's receivable into capital within the framework of those capital increases, subject to the fulfillment of the two preconditions described above.

#### **Commitments from strategic investors to participate in the NewCo capital increase**

The industrial groups Mitsubishi Heavy Industries and Japan Nuclear Fuel Ltd have expressed interest in participating in the NewCo capital increase and formulated offers to that effect on December 15, 2016.

These strategic investors have committed to participating in the NewCo capital increase at the level of 500 million euros, corresponding to a 10% target interest, and will thus become NewCo shareholders alongside the French State and AREVA, subject to the signature of the final agreements and the completion of the above-mentioned capital increase.

#### **Capital increase of AREVA SA**

Within the framework of the group's Restructuring Plan, AREVA plans to carry out a capital increase reserved for the French State with cancellation of the shareholders' preemptive subscription right (the "Reserved Capital Increase"). In its meeting of December 15, 2016, AREVA's Board of Directors approved the principle of the Reserved Capital Increase and convened a General Meeting of Shareholders on February 3, 2017 for the purpose of authorizing the Reserved Capital Increase. AREVA's Board of Directors met again on January 11, 2017 to set the main terms and conditions of the Reserved Capital Increase, including the subscription price.

The Reserved Capital Increase was approved by the Combined General Meeting of Shareholders held on February 3, 2017, with a view to carrying it out upon the fulfillment of the conditions accompanying the European Commission's authorization, in conformance with European regulations relative to State aid.

The total amount of the Reserved Capital Increase, including the share premium, will be 2 billion euros, corresponding to the sum of the 444,444,444 new shares issued multiplied by the subscription price per new share of 4.50 euros.

The purpose of the Reserved Capital Increase, as a supplement to the income from asset sales in progress, is to enable AREVA to meet its cash requirements and in particular to undertake the successful completion of the OL3 project.

Subject to the completion of the Reserved Capital Increase, the admission of the shares thus issued to trading on the Euronext Paris regulated market will be the subject of a prospectus which will be submitted to the AMF for approval.

The French State confirmed its commitments to participating in the Reserved Capital Increase at the level of 2 billion euros.

#### **Capital increase of NewCo**

The capital increase of NewCo in the total amount of 3 billion euros is to be subscribed by the French State and strategic investors.

The objective of this capital increase is to enable NewCo to meet its financial obligations and to develop, before being in a position in the medium term to refinance on the markets. The French State confirmed its commitments to participating in the Capital Increase at the maximum level of 2.5 billion euros, alongside strategic investors.

The proposed NewCo capital increase was submitted for approval to the General Meeting of NewCo Shareholders held on February 3, 2017. The execution of this capital increase is subject to the fulfillment of the conditions accompanying the European Commission's authorization of January 10, 2017 (see above).

Following this capital increase, and subject to its completion, AREVA would hold a minority interest in NewCo of approximately 40% of the capital and voting rights, leading to the loss of AREVA's control of NewCo.

Furthermore, the execution of the NewCo capital increase is subject to the consent of third parties for the change of NewCo's control and for the change in the nature of AREVA's operations.

#### **Public buyout offer for AREVA's shares**

Considering the loss of control of NewCo resulting from its capital increase, and in accordance with the provisions of article 236-6 of the AMF's general regulations, the French State announced its intention of filing a public buyout offer, followed as applicable by a mandatory squeeze-out. The price of this public offer would be identical to the issue price of the Reserved Capital Increase, i.e. 4.50 euros per share, on the condition that no significant event occurs which might lead to a change of price, upwards or downwards, between now and the launch of the public buyout offer.

The proposed public buyout offer remains subject to AMF's Conformity Decision.

#### **Sale of New NP**

Following the memorandum of understanding signed on July 28, 2016, AREVA, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 which sets the terms and conditions for the sale of an interest giving EDF exclusive control of an entity tentatively called "New NP", a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base of the group.

The selling price for 100% of the capital of New NP was set at 2.5 billion euros, excluding any price adjustments and/or supplements (see note 3).

#### **Sale of Canberra**

On July 1, 2016, AREVA announced the completion of the sales of its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in radioactivity detection and measurement instrumentation, to the industrial group Mirion Technologies Inc. (see note 3).

#### **Sale of the interest in Adwen**

Consistent with its objective of refocusing on the nuclear fuel cycle operations, AREVA announced that at the conclusion of a three-month competitive process designed to solicit and assess proposals from potential third-party investors, the

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

company's Board of Directors had given authority to management to exercise the option to sell its 50% interest in Adwen's capital, signed on June 17, 2016 with Gamesa.

This option to sell was exercised on September 14, 2016, and the sale closed on January 5, 2017. Adwen was classified as an asset held for sale at December 31, 2016 (see note 3).

**Sale of AREVA TA**

The Company announced on December 17, 2015 and confirmed on January 27, 2016 the plan to sell AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

On December 15, 2016, the company signed a share purchase agreement for all of its shares in AREVA TA with a consortium of buyers composed of the Agence des participations de l'État (APE, 50.32% of the capital), the Commissariat à l'énergie atomique et aux énergies renouvelables (CEA, 20.32%), and DCNS (20.32%). EDF will keep its 9.03% interest in the capital.

The sale, for which the plan has already been the subject of consultation with employee representative bodies and which has been approved by AREVA's governance, is scheduled to close in March or April 2017, subject in particular to the publication of the ministerial orders related to the sale and the absence of any unfavorable significant event with an impact of more than 55 million euros on the value of the company's equity. On the date of completion of the sale, the French State will control AREVA TA (see note 3).

**Liquidity position and continuity of operations**

In 2016, the group's liquidity was ensured by draws on available lines of credit in the amount of approximately 2 billion euros on January 4 and 5.

At December 31, 2016, the short-term borrowings of AREVA's continuing operations amounted to 831 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA guarantees NewCo's borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the NewCo capital increase planned in 2017.

To meet these commitments and ensure the continuity of operations in 2017, the main sources of financing in 2017 are spread out as follows:

- rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros, was authorized by the European Commission on January 10, 2017. These advances from the shareholder current account, to be credited to the capital increases planned in 2017, fill in the gap with the latter;
- the purpose of said capital increases and the income expected from asset sales in 2017 (AREVA TA, Adwen and New NP) is to strengthen the financial structure of AREVA and NewCo and enable them to meet their liquidity requirements with regard to their obligations in 2017 and beyond, subject to, as concerns AREVA and 2017, the sale of New NP no later than the fourth quarter;
- if the sale of New NP were to occur late in the year, AREVA SA has secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and with a maturity date of January 8, 2018. Draws on this financing is conditioned on the French State's subscription to the AREVA and NewCo capital increases. With regard to the milestones already met and the work remaining to be accomplished in connection with the process of selling New NP, AREVA has not identified items likely to compromise the completion of the New NP sale before the end of 2017. Moreover, AREVA is maintaining tight control of the sales process and

of the fulfillment of the conditions precedent stipulated in the share purchase agreement.

Taken together, these items will ensure the continuity of operations for the 2017 financial year.

Beyond 2017, the last significant maturity of AREVA's debt consists of the reimbursement of the syndicated line of credit of 1.25 billion euros in January 2018. Although it is not presently expected that the sale of New NP in 2018 will be delayed, alternative solutions are being examined in addition to the internal optimization measures already identified (monetization of receivables, factoring, etc.) with a view to being able to ensure AREVA's financing until the receipt of the income from the sale of New NP, if it were to be delayed in 2018.

**Voluntary Departure Plan and adaptation of the group's workforce**

On March 4, 2015, when the group's 2014 results were reported, AREVA announced the deployment of a performance plan to achieve 1 billion euros in operational gains in 2018 compared with 2014. The plan rests on four pillars: control of payroll and compensation, productivity improvement, selectivity in purchasing, and marketing and sales strategy.

In July 2015, as part of its performance plan, the group had announced its intention of reducing its international workforce by 6,000 people by the end of 2017 in relation to December 31, 2014.

In France, voluntary departure plans were launched for AREVA Mines, AREVA NC, AREVA NP, AREVA Business Support, SET and Eurodif Production, with the goal of 3,400 job cuts over the 2016-2017 period. The voluntary period of these departure plans ended in late November 2016.

At the end of 2016 (i.e. after the end of the voluntary departure periods), a total of 3,042 departures had been recorded (including those to come) within the scope of the above-mentioned six companies, 2,046 of which were within the framework of the voluntary departure plans and 996 of which were outside those plans (non-VDP retirement, dismissals, resignations, etc.).

The performance plan also contains an international component. In Niger (at the mining sites), in Germany (closure of the Offenbach site) and in the United States, the job cuts concerned close to 2,000 employees as of the end of 2016.

At December 31, 2016, the AREVA group (consolidation scope) had a global workforce of 36,241 employees, compared with 41,847 employees at December 31, 2014, for a reduction of approximately 13.5% representing 5,632 employees (including 927 employees of the Canberra subsidiary, sold on July 1, and 85 employees of Elta, sold in December 2016).

The group's global workforce at December 31, 2016 was distributed as follows:

- continuing operations: 46 employees;
- New NP consolidation scope: 16,410 employees;
- NewCo consolidation scope: 18,125 employees;
- Other operations in the process of being sold (particularly AREVA TA and renewable energies): 1,660 employees.

**OL3 contract maintained in consolidation scope of continuing operations**

Discussions were entered into with TVO in early 2016 with the main objective of getting TVO's consent for the transfer of the contract for the project to construct the Olkiluoto 3 EPR power plant ("OL3") to AREVA SA and for the signature of a comprehensive settlement ending the arbitration between TVO and the AREVA-Siemens consortium. These negotiations did not lead to an agreement and were suspended during the first half of 2016.

In the absence of an agreement with TVO, the OL3 contract (currently held by AREVA NP) was not transferred to AREVA, and it was thus kept within AREVA NP.

Following the sale of its operations to EDF (previously transferred to New NP), AREVA NP will be kept within the AREVA consolidation scope and will keep all of the resources needed to complete the OL3 project, in compliance with its contractual obligations.

### Test program for the bottom and closure heads of the FA3 reactor vessel

In 2016, AREVA carried out the test program concerning the problem of carbon segregation in the bottom head and closure head of the Flamanville 3 reactor vessel, in accordance with the framework of the nuclear safety authority ASN's requirements, as defined in its letter of December 12, 2015 and supplemented by that of September 26, 2016.

Throughout the conduct of this program, it was subject to surveillance by the Notified Organization designated by the nuclear safety authority ASN. EDF was associated with those tests.

As a reminder, this program involves carrying out mechanical tests to characterize the properties of the materials and verify their conformity. Three sacrificial parts were used.

The final report was sent to the nuclear safety authority ASN on December 16, 2016. It is under review by the latter together with the IRSN. The review will end with an opinion from the ESPN Standing Group, expected in June 2017.

Based on that opinion, ASN will issue a technical evaluation of the vessel's conformity and will refer the matter to the Higher Council for the Prevention of Technological Risks (CSPRT). In addition, the Chinese safety authority conditioned the commissioning of the Taishan 1 power plant under construction on the acceptance of the Flamanville vessel demonstration report by the French safety authority.

AREVA considers the results included in the report sent to the safety authority to be satisfactory. A favorable decision by the CSPRT was assumed in the financial statements for the period ended December 31, 2016.

### Carbon segregation of steam generator channel heads

The discovery of high concentrations of carbon on the channel heads of steam generators in EDF's fleet gave rise in 2016 to a large program of inspections, tests and analyses to demonstrate the suitability for service of those components and to recommend strengthened manufacturing processes to ASN to guarantee that these phenomena are under control. The channel heads concerned are mainly subcontracted parts and are not forged at le Creusot. The analyses provided in 2016 enabled the restart of the reactors in the EDF fleet.

Some channel heads manufactured at le Creusot for steam generators in the process of being manufactured will be replaced by new channel heads. All of the corresponding work was evaluated and factored into the costs at completion of the projects concerned.

### Quality action plan concerning AREVA NP

The quality audit of the Creusot plant launched at the end of 2015 continued in 2016. In connection with the audit, all of the quality processes were reviewed, and improvement measures are being implemented.

Concerning the Creusot plant, this quality audit was supplemented by exhaustive analysis of one category of manufacturing files of forged parts (marked files), with the objective of identifying potential anomalies. Files presenting practices that are not in compliance with Creusot's quality assurance rules were identified. The anomalies found were the subject of a technical characterization which was submitted to a technical committee. This work was carried out with the operators and customers

concerned. The objective of this work is to validate the characterization performed and to deal with the anomalies by providing customers and the safety authorities appropriate technical justification in terms of the contractual and regulatory requirements ensuring the operability of the parts. An information and discussion process has been implemented in which the nuclear safety authority ASN in particular is involved. All of the customers concerned by the anomalies identified have been informed by AREVA.

To date, the analyses have found that no reported anomaly compromises the mechanical integrity of the parts concerned. Additional tests and analyses are in progress, in particular on an equipment item delivered to the Fessenheim 2 power plant, in order to respond to requests from the nuclear safety authority ASN following the suspension of the test certificate of one of the steam generators.

A more extensive analysis of the manufacturing files (unmarked files) is in progress and concerns more than 6,000 files. Additional identified anomalies are being dealt with in the same way. In this regard, an anomaly on a steam generator delivered to the Flamanville 3 site was the subject of characterization for purposes of responding to requests from the safety authority.

In addition, since May 2016, the audit has been extended to the St-Marcel and Jeumont sites. No similar anomalies have been identified at those two sites as of the date of these financial statements.

See note 24 for more detail.

### Tensile tests performed at the Creusot laboratory

Following the deficiencies found in April 2015 concerning tensile test protocols at the Creusot laboratory, systematic verification was undertaken to justify the parts concerned through analyses or retesting on test specimens. Deviations for the identified anomalies are being dealt with in coordination with the customers (see note 24).

### Result of the Creusot site inspection performed by the NRC

At ASN's invitation, the safety authorities of several countries carried out an inspection of the Creusot site at the end of 2016 following the inspection protocol of the Multinational Design Evaluation Program (MDEP). Following that inspection, the U.S. Nuclear Regulatory Commission (NRC) published its report on February 22, 2017. In the report's conclusion, the NRC estimates in particular that AREVA NP continues to meet the applicable requirements of the Code of the American Society of Mechanical Engineers (ASME).

However, the NRC presented its site visit report to ASME. The Committee on Nuclear Certification (CNC) of ASME could decide to conduct an audit at le Creusot in order to identify potential deficiencies with regard to ASME's requirements and launch a procedure for the suspension or withdrawal of the certificate(s). CNC's concerns focus more particularly on the equipment delivered under ASME certificates other than the forgings installed in the United States, which the NRC report did not call into question.

A decision to suspend or withdraw could concern all of the designs and components delivered or to be delivered by the Creusot and/or St Marcel sites. A suspension decision would prevent AREVA NP from claiming ASME certification as from the date of the suspension decision and would affect ANP's ability to meet its contractual obligations when it has committed to delivering certified parts. However, the scope of this restriction should be put into perspective in view of the low level of backlog in progress. A decision to withdraw certification would be effective only as from its date of delivery, i.e. August 2015.

Based on our information, the CNC apparently has decided to contact the ASN for an update on the situation. It is probable that the Chalon site will be inspected by ASME in connection with this line of questioning about the current certificate.

### Concerning the quality subjects mentioned previously

For all of the quality subjects, AREVA has not constituted a specific provision associated with potential liability-related actions. In fact, as of this date, AREVA is not aware of customer or third-party claims for any of the quality subjects mentioned above.

However, the group cannot exclude the possibility of claims from third parties. In early February 2017, EDF notified AREVA in particular that the company reserves the right to ask for redress and to take any legal action as the result of AREVA NP breaches of its contractual, legal or regulatory obligations or related to the industrial code. Independently of these potential claims, AREVA continues discussions with customers, the safety authorities and the certifying bodies in order to deal with these subjects as quickly as possible for the benefit of the safety of the facilities.

For more information on disputes, see note 34.

### 1.2. ESTIMATES AND JUDGMENTS

To prepare its financial statements, AREVA must make estimates, assumptions and judgments impacting the carrying amount of certain assets and liabilities, income and expense items, or information provided in some notes to the financial statements. AREVA updates its estimates and judgments on a regular basis to reflect past experience and other factors deemed pertinent, based on economic conditions. As a function of changes in these assumptions or in circumstances, the amounts appearing in its future financial statements may differ from current estimates, particularly in the following areas:

- the highly probable nature of the loss of control of assets and operations classified in the "held for sale" category, in accordance with IFRS 5 (see notes 1.3.1.1 and 3), and estimates relative to the net income from sales of assets and operations classified as "held for sale" (see note 3);
- operating margins on contracts recognized according to the percentage of completion method (see notes 1.3.7 and 24), which are estimated by the project teams and reviewed by management following the group's procedures;
- cash flow forecasts and the discount and growth rates used for impairment tests for goodwill and other plant, property and equipment and intangible assets (see notes 1.3.9, 10, 11 and 12);
- all assumptions used to assess the value of pension commitments and other employee benefits, including future payroll escalation and discount rates, retirement age and employee turnover (see notes 1.3.15 and 23);
- all assumptions used to assess the value of provisions for end-of-lifecycle operations and the assets corresponding to the third-party share, in particular:
  - the estimated costs of those operations,
  - the inflation and discount rates,
  - the schedule of future disbursements,
  - the operating period of the facilities (see notes 1.3.17 and 13),
  - the scenario chosen with regard to knowledge of the initial condition of the facilities, of the target final condition, and of the waste treatment and removal methods,
  - the procedures for final shut-down;
- the assumptions used to assess provisions for contract completion, in particular for waste treatment methods that do not presently exist: the estimated costs of those operations, the schedule of future disbursements, and the inflation and discount rates;

- the assumptions used to value provisions for restructuring and provisions for voluntary departure plans (see notes 1.3.16 and 24);
- estimates and judgments regarding the outcome of disputes in progress and, more generally, estimates regarding all of the provisions and contingent liabilities of the AREVA group (see notes 1.3.16, 24 and 34);
- estimates and judgments relative to the recoverability of accounts receivable from the group's customers and other accounts receivable (see notes 1.3.11 and 1.3.12.3);
- estimates and judgments regarding the material or durable nature of the impairment of available-for-sale financial assets (see notes 1.3.12, 13 and 15);
- estimates of future taxable income used to recognize deferred tax assets (see notes 1.3.22 and 9);
- the share in equity and net income of joint ventures and associates that had not yet reported their year-end financial statements at the date of year-end closing of AREVA's financial statements.

### 1.3. ACCOUNTING PRINCIPLES

Pursuant to European Regulation 1606/2002 of July 19, 2002, AREVA's consolidated financial statements were prepared in accordance with International Financial Reporting Standards (IFRS) adopted by the European Union at December 31, 2016. They include the International Accounting Standards (IAS), the IFRS and the interpretations issued by the IFRS Interpretations Committee (IFRS-IC) and by the former Standing Interpretation Committee (SIC). These financial statements are also consistent with IFRS standards drawn up by the International Accounting Standards Board (IASB), insofar as the mandatory adoption date of the standards and amendments published by the IASB and not yet adopted by the European Union at December 31, 2016 is later than that date.

#### Mandatory effective date of January 1, 2016 for new standards and interpretations

- Amendments resulting from annual improvement processes for the 2010-2012 period;
- Amendments resulting from annual improvement processes for the 2012-2014 period;
- Amendment to IAS 19 "Employee Benefits: employee contributions to defined benefit plans";
- Amendment to IFRS 11 "Acquisition of an interest in joint operations";
- Amendments to IAS 16 and IAS 38 "Acceptable methods of depreciation and amortization";
- Amendments to IFRS 10, IFRS 12 and IAS 28 "Investment Entities";
- Amendment to IAS 1, first part of the "Disclosure Initiative".

The mandatory effective date of January 1, 2016 of the amendments has no significant impact on the group's consolidated financial statements.

#### New standards and interpretations which do not yet have a mandatory effective date

##### New standards and interpretations adopted by the European Union which do not yet have a mandatory effective date

- IFRS 9 "Financial Instruments" was published on July 24, 2014 and adopted by the European Union on November 22, 2016. It will be mandatory for financial years beginning January 1, 2018 and will replace IAS 39 "Financial Instruments: Recognition and Measurement". It defines new principles for the classification and measurement of financial instruments, the impairment of financial assets due to credit risk, and general hedge (or micro-hedge) accounting. The group carried

out an analysis of the issues and potential impacts which Phase 1 "Classification and Measurement" and Phase 2 "Impairment" of this new standard could have on assets earmarked for end-of-lifecycle operations. In fact, according to IFRS 9, the classification and measurement of financial assets will depend on the business model and contractual characteristics of the instruments. During their initial recognition, the financial assets will be classified at amortized cost in fair value through equity or in fair value through profit and loss. The application of these two criteria could lead to a different classification and measurement of assets earmarked for end-of-lifecycle operations than in IAS 39. In addition, Phase 2 of the standard, "Impairment", introduces a new impairment model for credit risk based on expected losses. This model will require recognition of 12-month expected credit losses on purchased or originated instruments (resulting from the risk of defaults in the next 12 months) at their initiation. Full lifetime expected credit losses (resulting from the risk of defaults over the remaining life of the instrument) will have to be recognized if the credit risk has increased significantly since initial recognition. The group is analyzing the potential impacts that application of this model would bring to its portfolio of earmarked assets. At this stage of the analysis, the principal impacts expected are an increase in the volatility of the statement of income, unless the group changes the terms for management of its earmarked funds. However, optimization of the yields of assets in the earmarked funds will remain the group's priority, independently of the volatility that their recognition will bring about in the financial statements.

- IFRS 15 "Revenue from Contracts with Customers" was published on May 28, 2014 and adopted by the European Union on September 22, 2016. The mandatory effective date is January 1, 2018. It will replace several standards and interpretations related to recognition of revenue, in particular IAS 18 "Revenue Recognition" and IAS 11 "Construction Contracts". This standard rests on principles described in a five-step model to determine when and in what amount income from ordinary operating activities should be recognized. The group has spent considerable effort on the training of its financial and operating teams to raise their awareness of the changes that the new standard could bring. The different types of contracts and identification of the issues that the standard might bring are being analyzed.

#### **New standards and interpretations not yet adopted by the European Union**

- IFRS 16 "Leases";
- IFRS 15 "Revenue from Contracts with Customers" - Clarifications;
- Amendment to IAS 12 "Income Taxes": recognition of deferred tax assets for unrealized losses on debt instruments measured at fair value;
- Amendment to IAS 7 "Statement of Cash Flows": reconciliation of net debt between opening and closing;
- Amendment to IFRS 4 "Insurance Contracts";
- Amendment to IFRS 2 "Share-based Payment": clarification on the measurement and in the event of modification of a cash-settled or equity-settled plan.

### **1.3.1. Presentation of the financial statements**

#### **1.3.1.1. Operations sold, discontinued and held for sale**

Operations sold, discontinued and held for sale are presented in the financial statements in accordance with IFRS 5. Operations held for sale correspond to distinct, principal operating segments within the group for which management has initiated a disposal plan expected to lead to a loss of control and an active program to search for buyers, and whose sale is deemed highly probable within the 12 months following the end of the financial year (which may be extended in the event of particular circumstances).

Discontinued operations correspond to operating segments whose operation was terminated at the date of closing of the financial year.

The planned restructuring operations described in note 1.1 will have the effect of a loss of control of New NP, NewCo and other operations held for sale (in particular AREVA TA and renewable energies). The group believed that the conditions for classification as operations held for sale had been met, which had the following consequences, pursuant to the provisions of IFRS 5:

#### **VALUATION**

- Before proceeding to classification as "operations held for sale", all of the assets and liabilities concerned were valued in accordance with the accounting principles historically applied by AREVA, described in note 1.3.
- As from their date of classification as "operations held for sale":
  - non-current assets such as goodwill, intangible assets, property, plant and equipment, and interests in joint ventures and associates follow specific rules imposed by IFRS 5. In particular:
    - amortization of amortizable assets ceases,
    - interests in joint ventures and associates cease to be consolidated by the equity method;
  - the other assets and liabilities continue to be valued according to the principles described in note 1.3.

Thus determined, the group's carrying amount of assets held for sale and related liabilities is compared with its fair value less disposal costs, giving rise if necessary to the recognition of impairment.

#### **PRESENTATION**

- The assets and liabilities of operations held for sale are presented in their total amount under specific headings of the statement of financial position. The payables and debt of these operations towards the group's other entities continue to be eliminated on consolidation. The comparative statement of financial position is not restated.
- Net income from operations sold, discontinued and held for sale is presented under a specific heading of the statement of income, which includes the net income after tax of those operations until the date of their termination or disposal and the net gain after tax on the disposal itself. The statement of income from the previous year is presented for purposes of comparison and restated in identical fashion. This heading also includes the impact on the statement of income of post-disposal price adjustments and warranties granted to the buyer. The elimination of the income and expenses of these operations with respect to the group's other entities aims to present the revenue earned with companies outside the group and reflects the manner in which the transactions will be continued.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

- Net cash flows from operations sold, discontinued and held for sale are also presented under a specific heading of the statement of cash flows, which includes cash flows generated by those operations until the date of their termination or disposal and the net cash flow after tax generated on the disposal itself. The statement of cash flows of the previous year, presented for comparison, is restated in identical fashion. This heading also includes the impact of post-disposal price adjustments on the statement of cash flows and warranties granted to the buyer. The cash flow from these operations with respect to the group's other entities continue to be eliminated in consolidation.

**APPENDED INFORMATION**

IFRS 5 contains specific provisions concerning assets which have their own valuation methods.

- For non-current assets (including those belonging to a group of assets held for sale) falling within the scope of IFRS 5, the other standards do not apply unless they contain provisions specifically concerning those assets.
- For the other assets and liabilities included in a group of assets held for sale, the other standards apply.

**1.3.1.2. Presentation of the statement of financial position**

The statement of financial position makes a distinction between current and non-current assets and current and non-current liabilities, in accordance with IAS 1.

Current assets and liabilities are those which were held for sale or for use in connection with the operating cycle, or which are expected to be sold or settled within 12 months of the end of the period.

Financial liabilities are divided between current and non-current liabilities based on their remaining maturity at year-end.

To simplify the presentation of the statement of financial position, AREVA presents all headings relating to its end-of-lifecycle operations, as defined in note 13, on separate lines under non-current assets and non-current liabilities, in their full amount. Thus, provisions for end-of-lifecycle operations are presented as non-current liabilities; the end-of-lifecycle assets corresponding to the share of third parties in the funding of those operations are presented under non-current assets. Financial assets earmarked to cover those operations are presented in a separate heading under non-current assets, which includes all equities and shares of earmarked equity mutual funds and bonds held in the portfolio, together with cash held on a short-term basis.

Similarly, provisions for employee benefits are presented under non-current liabilities in their full amount.

Deferred tax assets and liabilities are shown as non-current.

**1.3.1.3. Presentation of the statement of income**

In the absence of detailed guidance in IAS 1, the statement of income is presented in accordance with recommendation 2013-03 of the Autorité des normes comptables (French national accounting board).

- Operating income is presented based on an analysis of expenses by function. Operating expenses are split among the following categories:
  - cost of sales,
  - research and development expenses,
  - marketing and sales expenses,
  - general and administrative expenses,
  - other operating income, mainly comprising:

- gains/losses on disposals of property, plant and equipment and intangible assets,
- income from the deconsolidation of subsidiaries (except when they are qualified as discontinued operations in accordance with IFRS 5, in which case they are presented on a separate line of the statement of income),
- reversals of impairment of property, plant and equipment and intangible assets,
- other operating expenses, mainly comprising the following items:
  - costs of restructuring and early employee retirement plans,
  - goodwill impairment,
  - impairment of and losses on disposals of property, plant and equipment and intangible assets,
  - losses from the deconsolidation of subsidiaries (except when they are qualified as discontinued operations in accordance with IFRS 5).

AREVA presents the income resulting from the research tax credit program in France as a reduction in research and development expenses and presents the income from the competitiveness and employment tax credit program as a reduction in payroll expenses in each expense category by function.

- As indicated in note 1.3.2, AREVA presents the share in net income of joint ventures and associates whose operations are an extension of the group's operations under a statement of income heading immediately below operating income, and presents a new sub-total entitled "Operating income after share in net income of joint ventures and associates".
- Net financial income comprises:
  - gross borrowing costs,
  - income from cash and cash equivalents,
  - other financial expenses, including in particular:
    - lasting impairment and gains or losses on disposals of available-for-sale securities,
    - negative changes in value of securities held for trading,
    - unwinding of provisions for end-of-lifecycle operations and employee benefits,
  - other financial income, including in particular:
    - dividends received and other income from financial assets other than cash and cash equivalents,
    - gains on disposals of available-for-sale securities,
    - positive changes in value of securities held for trading,
    - unwinding of end-of-lifecycle assets (third-party share),
    - returns on retirement plan assets and other employee benefits.

**1.3.1.4. Presentation of the statement of comprehensive income**

The statement of comprehensive income explains the transition from net income to comprehensive income on a statement separate from the statement of income, in accordance with the election made by AREVA to apply amended IAS 1.

It presents "Other items of comprehensive income" as either recyclable or non-recyclable to the statement of income.

- Items recyclable to the income statement include:
  - currency translation adjustments of consolidated entities,
  - changes in the value of available-for-sale financial assets, and
  - changes in the value of cash flow hedging instruments.

- Items not recyclable to the income statement include actuarial gains and losses arising subsequent to January 1, 2011, the date of retroactive application of amended IAS 19 (see note 1.3.15).

These items are presented before tax. The total tax impact of these items is presented on a separate line under "recyclable items" and "non-recyclable items".

The share of other items of comprehensive income relating to operations sold or held for sale is presented on separate lines of that statement in their total amount after tax, separating items that are recyclable through profit and loss from items that are not recyclable.

The share of other items of comprehensive income relating to associates is presented on a separate line in the total amount after tax. However, items that are recyclable are not separated from items that are not recyclable, as the amounts are insignificant.

#### 1.3.1.5. Presentation of the statement of cash flows

The statement of cash flows is presented in accordance with IAS 7. AREVA has adopted the "indirect method" of presentation, which starts with consolidated net income for the period.

Cash flows from operating activities include income taxes paid, interest paid or received, and dividends received, except for dividends received from associates consolidated using the equity method, which are included in cash flows from investing activities.

Cash provided by operations is presented before income tax, dividends and interest.

#### 1.3.2 Consolidation and equity methods

The consolidated financial statements combine the financial statements for the year ended December 31, 2016 of AREVA and of the subsidiaries which it controls, per the criteria defined in IFRS 10, and which are fully consolidated.

Joint ventures (companies in which AREVA exercises joint control with one or more other investors and which do not meet the definition of a joint business operation) and associates (companies in which AREVA exercises a notable influence on financial policy and management) are consolidated using the equity method. Under the equity method:

- the share of the equity of these companies, corresponding to the percentage of interest held by AREVA plus any goodwill generated during the acquisition of the interest, is recognized as an asset on the consolidated statement of financial position;
- the share of the net income of these companies, corresponding to the percentage of interest held by AREVA less any impairment of goodwill, is recognized on the consolidated statement of income.

In accordance with IAS 28, AREVA ceases to recognize its share of equity and income in joint ventures and associates when their equity is negative, unless AREVA is explicitly or implicitly obliged to ensure the continuity of their operations.

Joint ventures and associates cease to be consolidated using the equity method when they are classified under "non-current assets held for sale" (see section 1.3.1.1 above). They are then valued at the lowest of their carrying amount or their fair value, less disposal costs, corresponding to their probable net realizable value.

Intercompany transactions are eliminated.

#### 1.3.3. Translation of financial statements of foreign companies

The AREVA group's financial statements are presented in euros.

The functional currency of an entity is the currency of the economic environment in which that entity primarily operates. The functional currency of foreign subsidiaries and associates is generally the local currency. However, another currency may be designated for that purpose when most of a company's transactions are in another currency.

The financial statements of foreign companies belonging to the AREVA group are prepared in the local functional currency and translated into euros for consolidation purposes in accordance with the following principles:

- balance sheet items (including goodwill) are translated at the rates applicable at the end of the period, with the exception of equity components, which are kept at their historic rates;
- transactions of the income statement and cash flow statement are translated at average annual exchange rates;
- currency translation differences on the net income and equity of these companies are recognized in "Other items of comprehensive income" and presented on the balance sheet under the equity heading "Currency translation reserves". When a foreign company is discontinued or sold, the associated currency translation reserves recognized after January 1, 2004 (date of first-time adoption of the IFRS standards) are recognized in profit and loss.

#### 1.3.4. Operating segments

For all reporting periods, income items from operations sold, discontinued or held for sale are presented in the statement of income on a separate line, "net income from operations sold, discontinued or held for sale". Balance sheet items from operations and assets held for sale are presented on a separate line of the statement of financial position under "Assets from operations held for sale" on the assets side and under "Liabilities of operations held for sale" on the liabilities side.

Inasmuch as the continuing operations do not constitute operating segments and are located principally in France, AREVA does not report operating segment information for the periods ended December 31, 2015 and December 31, 2016.

#### 1.3.5. Business combinations – Goodwill

Acquisitions of companies and operations are recognized at cost based on the "acquisition cost" method, as provided in IFRS 3 for business combinations subsequent to January 1, 2004 and prior to December 31, 2009, and in IFRS 3 revised for operations subsequent to January 1, 2010. In accordance with the option provided by IFRS 1 for the first-time adoption of IFRS, business combinations prior to December 31, 2003 were not restated.

Under the method required by this standard, the acquired company's assets, liabilities and contingent liabilities meeting the definition of identifiable assets and liabilities are recognized at fair value on the date of acquisition, except for discontinued operating segments of the acquired entity, as provided in IFRS 5, which are recognized at the lower of fair value less costs to sell and the net carrying amount of the corresponding assets. For consolidation purposes, the date of consolidation of the acquired company is the date at which AREVA acquires effective control.

Restructuring and other costs incurred by the acquired company as a result of the business combination are included in the liabilities acquired, as long as IAS 37 criteria for provisions are met at the date of acquisition. Costs incurred after the date of acquisition are recognized in operating income during the year in which such costs are incurred or when meeting IAS 37 criteria.



20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

The acquired company's contingent liabilities resulting from a current obligation on the date of acquisition are recognized as identifiable liabilities and recorded at their fair value on that date.

AREVA did not apply the "total goodwill" method authorized by amended IFRS 3 for acquisitions subsequent to January 1, 2010, and continues to apply the "partial goodwill" method. Under that method:

- the goodwill recorded in assets corresponds to the difference between the acquisition price of the operations or shares of the company acquired and the share of the fair value of the corresponding assets, liabilities and contingent liabilities on the date of the acquisition;
- minority interests are valued initially at the fair value of assets, liabilities and contingent liabilities recognized on the date of acquisition, prorated for the percentage of interest held by the minority shareholders.

The valuation of the acquired company's assets, liabilities and contingent liabilities on the acquisition date may be adjusted within twelve months of that date; this also applies to the valuation of the acquisition price when the contract contains conditional price adjustment clauses. The amount of goodwill may not be adjusted after the expiration of that period.

Goodwill is not amortized. It is subject to impairment tests that are systematically performed at least once a year or more often if there are signs of impairment. Impairment is recognized if the outcome of those tests indicates that it is necessary. Significant loss of market share, loss of administrative permits or licenses required to operate a business, or heavy financial losses are examples of signs of impairment.

To perform impairment tests, all goodwill is allocated to cash-generating units (CGUs) reflecting the group's structure (the definition of a CGU and the methodology used for impairment tests are described in note 1.3.9).

If the recoverable amount of the cash-generating unit is less than the net carrying amount of its assets, impairment is allocated first to goodwill and then to other non-current assets of the CGU (property, plant and equipment and intangible assets), prorated for their net carrying amount. The recoverable amount of a CGU is the higher of (1) its value in use, measured according to the discounted cash flow method, or (2) its fair value less disposal costs.

Impairment allocated to goodwill cannot be reversed.

Upon the sale of a business, the amount of goodwill allocated to it is included in its net carrying amount of the business sold and is thus taken into consideration to determine the gain or loss on disposal.

If an asset or group of assets is sold which constitutes part of a CGU to which goodwill is allocated, a share of this goodwill is assigned based on objective criteria to the asset or group of assets sold; the corresponding amount is used to determine the income from the sale.

**1.3.6. Recognition of revenue**

Revenue is valued at the fair value of the consideration received or to be received, net of rebates and sales taxes.

It includes:

- revenue from construction contracts and certain services recognized according to the percentage of completion method in accordance with IAS 11 (see note 1.3.7 hereunder); and

- revenue from other sales of goods and services recognized when most of the risk and rewards are transferred to the customer in accordance with IAS 18.

Revenue related to transactions in which the Group only acts as an intermediary, without bearing the risks and rewards attached to the goods involved, consists of the profit obtained by the unit. The same is true for commodity trading activities, which primarily concern the uranium trading business.

No income is recognized when materials or products are exchanged for materials or products of a similar nature and value.

**1.3.7. Revenue recognized according to the percentage of completion method**

Revenue and margins on construction contracts and certain services are recognized according to the percentage of completion method (PCM), as provided in IAS 11 for construction contracts and in IAS 18 for services.

In application of this method, revenue and income from contracts are recognized over the period of performance of the contract. Depending on the type and complexity of the contracts, the group applies the percentage of completion method based on costs incurred or on the percentage of physical completion.

- Under the cost-based PCM formula, the percentage of completion is the ratio of costs incurred (the costs of work or services performed and confirmed at the end of the accounting period) to the total anticipated cost of the contract. This ratio may not exceed the percentage of physical or technical completion at the end of the accounting period.
- Under the physical PCM formula, a predetermined percentage of completion is assigned to each stage of completion of the contract. The revenue and costs recognized at the end of the accounting period are equal to the percentage of anticipated revenue and anticipated costs for the stage of completion achieved at that date.

When financial contract terms translate into significant cash surpluses during all or part of the contract's performance, the resulting financial income is included in contract income and recognized in revenue based on the percentage of completion.

AREVA had elected not to include financial expenses in the cost of contracts generating a cash loss, as previously allowed under IAS 11. This option is no longer applicable to contracts for which costs were incurred for the first time after January 1, 2009: the financial expenses generated by these contracts are included in the determination of the estimated income on completion.

When estimated income at completion is negative, the loss at completion is recorded immediately in income, after deduction of any already recognized partial loss, and a provision is set up accordingly.

When the gain or loss at completion cannot be estimated reliably, the costs are recorded as expenses for the period in which they are incurred and the revenue recognized may not exceed the costs incurred and recoverable. In cases of losses at completion, this approach does not exclude the recognition of all expected losses in expenses. At December 31, 2014 and December 31, 2015, this provision applied in particular to the EPR reactor construction project in Finland (see note 24).

### 1.3.8. Valuation of property, plant and equipment and intangible assets

#### 1.3.8.1. Initial recognition

Property, plant and equipment and intangible assets are valued using the amortized cost method.

AREVA did not elect to recognize certain property, plant and equipment and intangible assets at fair value, as allowed under IFRS 1 for the first-time adoption of IFRS on January 1, 2004.

#### 1.3.8.2. Inclusion of borrowing costs

Borrowing costs are not included in the valuation of property, plant and equipment and intangible assets:

- placed in service before January 1, 2009; or
- placed in service after that date but for which expenses had been incurred and recognized as assets in progress at December 31, 2008.

In accordance with the amended IAS 23 accounting standard, effective as from January 1, 2009, the borrowing costs related to investments in property, plant and equipment and intangible assets for projects initiated after that date and for which the period of construction or development is more than one year are included in the costs of these assets.

#### 1.3.8.3. Intangible assets

##### RESEARCH AND DEVELOPMENT EXPENSES

Research and development expenses incurred by AREVA for its own account are expensed as they are incurred.

Research and development expenses funded by customers under contracts are included in the production cost of these contracts and recorded under cost of sales when the corresponding revenue is recognized in income.

As provided in IAS 38, expenses relating to development projects are recorded as intangible assets if the project meets the following six criteria:

- technical feasibility;
- intention of completing, using or selling the asset;
- ability to use or sell the asset;
- generation of future economic benefits (existence of a market or internal use);
- availability of adequate financial resources for completion; and
- reliability of measurement of costs attributable to the asset.

Capitalized development costs are then amortized over the probable useful life of the intangible asset, as from the commissioning date. They are depreciated on a straight-line basis over a minimum period of time.

Costs expensed in a year prior to the decision to capitalize may not be capitalized subsequently.

##### MINERAL EXPLORATION AND PRE-MINING DEVELOPMENT

Mineral exploration and pre-development work are valued according to the following rules:

- Exploration expenses whose purpose is to identify new mineral resources, and expenses related to assessments and pre-development of identified deposits are incurred before project profitability is determined and are recognized as research and development expenses for the period.

- Pre-mining development expenses concern a project which, as of the date of the financial statements, has a strong chance of technical success and commercial profitability, and are capitalized. Indirect costs, excluding overhead expenses, are included in the valuation of these costs. Capitalized pre-mining expenses are amortized in proportion to the number of tons mined from the reserves they helped identify.

##### GREENHOUSE GAS EMISSIONS ALLOWANCES

Following the withdrawal of IFRIC 3 by the IASB, and pending a decision by regulators on accounting for greenhouse gas emission allowances, AREVA does not record an asset or provision as long as the group's emissions are lower than the allowances it has received.

AREVA does not trade speculatively on emission allowance markets. The group's only transactions were sales of rights corresponding to allowances allocated to it in excess of its actual carbon dioxide emissions. Proceeds from these sales are recognized in profit or loss under other operating income.

##### OTHER INTANGIBLE ASSETS

An intangible asset is recognized when it is probable that future economic benefits therefrom will accrue to the company and if the cost of this asset can be reliably estimated based on reasonable and documented assumptions.

Intangible assets are recorded at their acquisition or production cost.

Goodwill and trademarks produced internally are not capitalized.

Depreciation of intangible assets is calculated using the most appropriate method for the asset category (straight-line depreciation or as a function of the production units), starting on the date they were placed in service and over the shorter of their probable period of use or, when applicable, the length of their legal protection.

An intangible asset whose useful life is not defined, such as a brand, is not amortized, but is subject to impairment tests (see note 1.3.9).

#### 1.3.8.4. Property, plant and equipment

Property, plant and equipment are recognized at acquisition or production cost, including startup expenses, less cumulative depreciation and impairment.

The cost of nuclear facilities includes the AREVA group's share of provisions for end-of-lifecycle operations, estimated at the date they are placed in service, termed "end-of-lifecycle assets – group share" (see note 1.3.17). In accordance with IFRIC 1, changes in provisions for end-of-lifecycle operations coming from changes in estimates or calculation assumptions and relating to nuclear facilities in operation are offset by a change in the same amount of the assets to which these provisions relate.

Property, plant and equipment are depreciated based on the approach deemed most representative of the economic depreciation of the assets (straight-line depreciation or as a function of the production units); each component is depreciated over its specific useful life.

Mining land is depreciated over the operating period of the deposit; site layout and preparation expenses are depreciated over 10 years; buildings over 10 to 45 years; production facilities, equipment and tooling other than nuclear facilities over 5 to 10 years; general facilities and miscellaneous fixtures over 10 to 20 years; and transportation equipment, office equipment, computer equipment and furniture over 3 to 10 years.

The nuclear facilities are depreciated on a straight line over their useful life, measured by taking into account the duration of the portfolios of existing or reasonably foreseeable contracts performed in those facilities.

Depreciation periods are revised if the group's backlog changes significantly.

Changes in the asset value of those facilities, recognized as an offset to changes in the value of provisions for the corresponding end-of-lifecycle operations, as explained above, are depreciated prospectively over their remaining useful life.

Assets financed under leasing arrangements, which transfer, in substance, nearly all the risks and rewards inherent in ownership of the asset to AREVA, are recognized in the statement of financial position as property, plant and equipment assets and depreciated as indicated above. Assets financed by customers are depreciated over the term of the corresponding contracts.

### 1.3.9. Impairment of property, plant and equipment, intangible assets and goodwill

#### **Goodwill and intangible assets with an indefinite useful life**

Impairment tests on goodwill and intangible assets with indefinite useful lives are systematically performed at least once a year. These tests are performed at the level of the cash-generating units (CGU) to which such goodwill and intangible assets belong.

A CGU is defined as the smallest group of assets whose use generates cash inflows independently of the group's other assets or groups of assets.

Impairment is recognized when the recoverable amount of a CGU is less than the net carrying amount of the assets belonging to it. The recoverable amount of a CGU is the higher of:

- its fair value less disposal costs, corresponding to the net realizable value based on observable data when available (recent transactions, offers received from potential acquirers, reported ratios for comparable publicly traded companies) or on analyses conducted by internal or external experts of the AREVA group;
- its value in use, which is equal to the present value of the estimated future cash flows it generates, plus its "residual value", corresponding to the present value of cash flows for the "base" year, discounted to infinity, estimated at the end of the future cash flow period. However, some CGU have a defined lifecycle (by ore resources in Mining or by the duration of operating permits in the nuclear businesses); the cash flows taken into account to assess their value in use are not discounted to infinity but within the limit of their expected operating life. To determine the value in use, future cash flows are discounted based on a discount rate which reflects current assessments of the time value of money and the specific risk of the asset or the CGU in question.

#### **Other property, plant and equipment and intangible assets**

Impairment tests are performed when there is an indication of impairment of property, plant and equipment or intangible assets with finite useful lives.

When no estimate of an individual asset's recoverable amount may be established, the group determines the recoverable amount of the cash-generating unit (CGU) to which the asset belongs.

### 1.3.10. Inventories and work-in-process

Inventories and work-in-process are valued at their production cost in the case of goods and at their acquisition cost in the case of goods acquired for consideration. For valuation, either the "first-in first-out" method (FIFO) or the "weighted average" method is used (weighted average cost per unit), depending on the category of inventory.

When the probable net market value of inventory or work-in-process is less than its net cost, it is written down.

Financial expenses and research and development costs funded by AREVA are not taken into account in the valuation of inventories and work-in-process. However, the cost of research and development programs funded by customers is recognized in inventories and work-in-process, as is amortization of capitalized development expenditures.

The costs incurred to get a contract from a customer ("proposal costs") are recognized in work-in-process when there is a high probability on the date of year-end closing that the contract will be signed; in the opposite case, the proposal costs are recognized in profit and loss under "Marketing and sales expenses" and "General and administrative expenses".

### 1.3.11. Trade accounts receivable

Trade accounts receivable, generally due in less than one year, are recognized using the "amortized cost" method.

An impairment charge is recognized to reflect the probable recovery value when collection is not assured.

### 1.3.12. Financial assets

Financial assets consist of:

- assets earmarked for end-of-lifecycle operations;
- other available-for-sale securities;
- loans, advances and deposits;
- securities held for trading;
- put and call options on securities;
- derivatives used for hedging (see note 1.3.21);
- cash and cash equivalents.

They are valued in accordance with IAS 39.

Regular purchases and sales of financial assets are recognized at the date of transaction.

#### **1.3.12.1. Assets earmarked for end-of-lifecycle operations**

This heading brings together all of the investments that AREVA has decided to devote to the funding of its future end-of-lifecycle operations in the nuclear business, including facility dismantling and waste retrieval and packaging. It includes directly-held publicly traded shares and bonds, dedicated share investment funds, dedicated bond and money-market investment funds, and cash. It also includes receivables resulting from agreements with third parties liable for payment of a share of the financing of end-of-lifecycle operations. These receivables are recognized using the amortized cost method.

- Publicly traded shares are classified as "available-for-sale securities" defined in IAS 39. They are recognized at their fair value, corresponding to the last traded price of the year. Changes in value are recorded under "Other items of comprehensive income" and are presented on the balance sheet in their after-tax amount under "Deferred unrealized gains and losses on financial instruments", except for lasting impairment, which is recorded in net financial income for the year.
- AREVA does not consolidate its earmarked investment fund assets on a line-by-line basis insofar as the company does not control them according to IFRS 10 criteria:

- AREVA is not involved in the management of the dedicated investment funds, which are managed by independent and reputable asset management firms. These investment funds are benchmarked to the MSCI index of large European capitalizations, with strict limits on risk. Furthermore, the funds are regulated by the French stock market authority AMF (Autorité des marchés financiers) and therefore subject to regulations governing investment and concentration of risk;
- AREVA does not control the investment fund management firms;
- AREVA does not hold voting rights in the investment funds;
- The investment funds do not trade directly or indirectly in financial instruments issued by AREVA;
- None of the financial investments made by the funds are strategic to AREVA;
- AREVA receives no benefit and bears no risk other than that normally associated with investments in investment funds and in proportion to its holding;
- AREVA may terminate the management agreements only in specific cases (gross negligence, fraud, etc.). Consequently, AREVA cannot replace a fund management company at will.

Accordingly, the dedicated investment funds are recorded on a single line in the balance sheet in an amount corresponding to AREVA's share of their net asset value as of the end of the year.

In view of the long-term investment objective, investment funds earmarked to fund end-of-lifecycle operations are classified as "available-for-sale securities". Consequently, the accounting treatment of changes in value and the methods of assessing and recognizing impairment are identical to those applicable to traded shares held directly.

- As an exception to the rules described above, bonds held directly as well as certain dedicated investment funds consisting exclusively of bonds held to maturity are classified in the "securities held to maturity" category and valued using the amortized cost method.

### **1.3.12.2. Other available-for-sale securities**

This heading combines the other shares held by AREVA in publicly traded companies, except for shares in joint ventures and associates consolidated under the equity method, and shares held for trading.

These shares are valued in the same manner as shares allocated to the dedicated portfolio:

- fair value equal to the last traded price of the year;
- changes in fair value recorded under "Other items of comprehensive income", except for lasting impairment, which is recognized in net financial income.

This item also includes the group's interests in the capital of unconsolidated companies, either because AREVA does not have control and has no significant influence over them, or because of they are insignificant. These shares are valued at their acquisition cost when their fair value cannot be estimated reliably. This is particularly the case for privately held companies.

### **1.3.12.3. Lasting impairment of assets earmarked for end-of-lifecycle operations and other available-for-sale securities**

Lasting impairment is recognized in the event of a significant or prolonged drop in the price or net asset value of a line of securities below their initial value. This impairment is calculated as the difference between the prices traded on the stock market or the net asset value of the securities on the last day of the period and their initial value, corresponding to their historical acquisition cost.

AREVA determines the significant or lasting nature of a drop in the price or net asset value of a line of securities using several criteria, depending on:

- the type of investments used, where the level of volatility and risk may vary substantially: money-market, bond or equity investment funds; bonds or equities held directly;
- whether or not they are earmarked to fund end-of-lifecycle operations: assets earmarked for end-of-lifecycle operations must legally be held for very long periods of time, with expenses covered occurring after 2050.

AREVA has therefore established thresholds beyond which it considers that a drop in the price or net asset value of a line of securities is significant or prolonged and requires the recognition of lasting impairment. The impairment is measured for significance by comparing the price or net asset value of the line of securities with its historical acquisition cost. The prolonged nature of a drop is measured by observing the length of time during which the price or net asset value of the line of securities continued to be below its historical acquisition cost.

The drop is always considered significant or lasting if it exceeds the following thresholds, which are objective indicators of impairment:

	Significant	Lasting
<b>Assets earmarked for end-of-lifecycle operations</b>		
• Money-market investment funds	5%	1 year
• Bond investment funds and bonds held directly	25%	2 years
• Equity investment funds	50%	3 years
• Directly held shares	50%	3 years
<b>Other available-for-sale securities</b>		
• Directly held shares	50%	2 years

Securities that have dropped below these thresholds are not subject to lasting impairment unless other available information on the issuer indicates that the drop is probably irreversible. In that case, AREVA uses its own judgment to determine whether lasting impairment should be recognized.

These thresholds are likely to be re-estimated over time as a function of changes in the economic and financial environment.

Impairment of available-for-sale securities is irreversible in nature and may only be released to profit and loss on sale of the securities. An increase in prices or in net asset value subsequent to the recognition of impairment is recorded as a change in fair value under "Other items of comprehensive income". Any additional loss of value affecting a line of previously impaired securities is recorded as additional impairment in net financial income for the year.

### **1.3.12.4. Loans, advances and deposits**

This heading mainly includes loans related to unconsolidated interests, advances for acquisitions of interests, and security deposits.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

These assets are valued at amortized cost. Impairment is recognized when the recoverable amount is less than the net carrying amount.

**1.3.12.5. Securities held for trading**

This heading includes investments in equities, bonds and shares of funds held to generate a profit based on market opportunities.

These assets are recognized at fair value based on their stock market price or their net asset value at the end of the period. Changes in fair value are recognized under financial income for the period.

**1.3.12.6. Put/call options on securities**

Put and call options on traded securities are recognized at fair value on the date of closing using the Black-Scholes pricing model; changes in value are recorded under net financial income for the year.

The price of an option consists of intrinsic value and time value. Intrinsic value is the difference between the strike price of an option and the market price of the underlying security. Time value is based on the security's volatility and the date on which the option may be exercised.

**1.3.12.7. Cash and cash equivalents**

Cash includes bank balances and non-trade current accounts with unconsolidated entities.

Cash equivalents include risk-free marketable securities with an initial maturity of three months or less, or which may be converted into cash almost immediately. In particular, these assets include marketable debt instruments and shares of money market funds in euros, valued at amortized cost.

**1.3.13. Treasury shares**

Treasury shares are not recognized in the balance sheet but deducted from equity, at their acquisition cost.

**1.3.14. Assets of operations held for sale**

Non-current assets held for sale and assets related to discontinued operations (see note 1.3.1.1) are recognized at the lower of their net carrying amount before reclassification and their fair value, minus costs to sell. They are presented under a specific heading of the balance sheet; depreciation is discontinued upon transfer to this category.

**1.3.15. Employee benefits**

The group recognizes the total amount of its pension, early retirement, severance pay, medical insurance, long-service medals, accident and disability insurance, and other related commitments, whether for active personnel and for retired personnel, in application of the provisions of amended IAS 19.

For defined contribution plans, the group's payments are recognized as expenses for the period to which they relate.

In the case of defined benefit plans, benefit costs are estimated using the projected unit credit method. Under this method, accrued pension benefits are allocated to service periods based on the plan vesting formula. If services in subsequent years result in accrued benefit levels that are substantially higher than those of previous years, the company must allocate the accrued benefits on a straight-line basis.

The amount of future benefit payments to employees is determined based on salary trend assumptions, retirement age and probability of payment. The net present

value of these future payments is calculated using a discount rate specific to each geographic and currency area, determined as a function of the interest rate of government bonds issued by prime companies for the same duration as AREVA's benefit liabilities.

Actuarial gains and losses relating to post-employment benefits (change in the valuation of the commitment and financial assets due to changes in assumptions and experience differences) are recognized under "other items of comprehensive income" and are presented on the balance sheet in their after-tax amount under the equity account "consolidated premiums and reserves"; they are not recyclable to the income statement.

On the other hand, actuarial gains and losses relating to benefits for currently employed employees (e.g. long-service medals) are recognized in the income statement.

The effects of plan changes (gains and losses) are recognized in the income statement under the heading "other operating income and expenses".

The costs relating to employee benefits (pensions and other similar benefits) are split into two categories:

- the discounting reversal expense for the provision, net of the expected yield on assets earmarked for retirement plans, are charged to net financial income; the expected yield of the assets is calculated using the same interest rate used to discount the provision;
- the current service cost is split between the different operating expense items by destination: cost of sales, research and development expenses, marketing and sales expenses, and general and administrative expenses.

**1.3.16. Provisions**

As provided in IAS 37, a provision is recognized when the group has an obligation towards a third party at the end of the period, whether legally, contractually or implicitly, and it is probable that a net outflow of resources will be required after the end of the period to settle this obligation, without receiving consideration at least equal to the outflow. A reasonably reliable estimate of net outflow must be determined in order to recognize a provision.

Provisions for restructuring are recognized when the restructuring has been announced and a detailed plan has been presented or the restructuring has begun.

When the outflow of resources is expected to occur in more than two years, provisions are discounted to net present value if the impact of discounting is material.

**1.3.17. Provisions for end-of-lifecycle operations**

Provisions for end-of-lifecycle operations are discounted by applying an inflation rate and a discount rate, determined based on the economic situation of the country in which the particular facility is located, to estimated future cash flows by maturity.

The share of provisions for end-of-lifecycle operations corresponding to funding expected from third parties is recognized in a non-current asset account, "end-of-lifecycle asset – third party share", which is discounted in exactly the same way as the related provisions.

The AREVA NP group's share of provisions for end-of-lifecycle operations, estimated at the date the corresponding nuclear facilities are placed in service, is an integral part of the cost of those facilities, which are recognized in property, plant and equipment (see note 1.3.8.4) as "end-of-lifecycle assets – group share".

The provisions for the retrieval and packaging of waste are recognized as operating expenses through profit and loss.

**Treatment of income and expenses from discounting reversals**

The discounting of the provision is partially reversed at the end of each period: the discounting reversal corresponds to the increase in the provision due to the passage of time. This increase is recorded as a financial expense.

Similarly, the discounting of the provision corresponding to the third-party share is partially reversed rather than amortized.

The resulting increase in the third-party share is recognized as financial income.

The share financed by third parties is reduced for the value of work done on their behalf, with recognition of a receivable from these third parties in the same amount.

**Treatment of amortization**

The group's share of end-of-lifecycle assets is amortized over the same period as the facilities concerned.

The corresponding amortization expense is not considered as part of the cost of inventories or the cost of contracts, and is not taken into account in the calculation of their percentage of completion. However, it is included in the income statement under cost of sales and thus deducted from gross margin.

**Inflation and discount rates used to discount end-of-lifecycle operations**

The inflation and discount rates used to discount end-of-lifecycle operations are determined according to the following principles.

The inflation rate is set in accordance with the long-term inflation projections for the Eurozone and taking into account the European Central Bank's target rate.

The discount rate is set:

- pursuant to IAS 37, i.e. based on market conditions at year-end closing and the specific characteristics of the liability; and
- to comply with the regulatory cap defined by the decree of February 23, 2007 and the order of March 23, 2015 amending the order of March 21, 2007.

The rate thus results from implementation of the following approach:

- an estimate is made by reference to the moving average yield of 30-year French OATs over a 10-year period, plus a spread applicable to prime corporate borrowers, to ensure the compliance of the rate selected with the regulatory cap;
- a rate curve is constructed based on the rate curve of the French State (OAT rates) at the closing date, extended for non-liquid maturities using a long-term break-even rate, plus a spread applicable to prime corporate borrowers and a liquidity risk premium.

Based on expected disbursements, a single equivalent rate is deducted from the rate curve constructed in this manner.

For example, the discount rate is revised based on changes in national economic conditions with a lasting medium- and long-term impact, in addition to the potential effects of regulatory caps.

For facilities located in France, AREVA chose a long-term inflation assumption of 1.65% and a discount rate of 4.1% at December 31, 2016, a reduction compared with the rate of 4.5% in 2015.

**Treatment of changes in assumptions**

Changes in assumptions relate to changes in cost estimates, discount rates and disbursement schedules.

As provided in IFRS, the group uses the prospective method:

- if the facility is in operation, the shares of end-of-lifecycle assets of the group and third parties are corrected in the same amount as the provision; the group's share of end-of-lifecycle assets is amortized over the remaining life of the facilities;
- if the facility is no longer in operation, the impact is recognized during the year of the change. The impact of changes in cost estimates is recognized under operating income, while the impact of changes in discount rates and disbursement schedules is recognized under net financial income.

Provisions for waste retrieval and packaging funded by the group have no corresponding end-of-lifecycle asset. Consequently, changes in assumptions concerning the group's share of these provisions are recognized immediately in the income statement. Impacts from changes in cost estimates are recognized under operating income. Impacts from changes in discount rates and disbursement schedules are recognized under financial income.

**1.3.18. Borrowings**

Borrowings include:

- put options held by minority shareholders of AREVA group subsidiaries;
- obligations under finance leases; and
- other interest-bearing debt.

**1.3.18.1. Obligations under finance leases**

As provided in IAS 17, leasing arrangements are considered finance leases when all of the risks and rewards inherent in ownership are, in substance, transferred to the lessee. At inception, finance leases are recognized as a debt offsetting an asset in the identical amount, corresponding to the lower of the fair value of the property and the discounted net present value (NPV) of future minimum payments due under the contract.

Lease payments made subsequently are treated as debt service and allocated to repayment of the principal and interest, based on the rate stipulated in the contract or the discount rate used to value the debt.

**1.3.18.2. Other interest-bearing debt**

This heading includes:

- interest-bearing advances from customers: interest-bearing advances from customers are accounted for as borrowings, while non-interest-bearing advances are considered operating liabilities (see note 1.3.19);
- loans from financial institutions;
- bonds issued by AREVA;
- short-term bank facilities.

Interest-bearing debt is recognized at amortized cost based on the effective interest rate method.

Bond issues hedged with a rate swap (fixed rate/variable rate swap) qualified as fair value hedges are revalued in the same amount as the hedging derivative.

**1.3.19. Advances and prepayments received**

There are three types of advances and prepayments from customers:

- interest-bearing advances, which are presented as borrowings (see note 1.3.18.2);

- customer advances and prepayments invested in non-current assets: this heading records the amounts received from customers and used to finance capital expenditures for the performance of long-term contracts to which they have subscribed;
- advances and prepayments on orders: this heading records advances and prepayments from customers that do not fall under the preceding two categories; they are reimbursed by charges to revenue earned from the contracts in question.

Only advances and prepayments effectively collected are recognized.

### 1.3.20. Translation of foreign currency denominated transactions

Foreign currency-denominated transactions are translated by group companies into their functional currency at the exchange rate prevailing at the transaction date.

Monetary assets and liabilities denominated in foreign currencies are revalued at the exchange rate prevailing on the last day of the period. Foreign exchange gains and losses are then recognized:

- in operating income when related to operating activities: trade accounts receivable, trade accounts payable, etc.;
- in financial income when related to loans or borrowings.

### 1.3.21. Derivatives and hedge accounting

#### 1.3.21.1. Risks hedged and financial instruments

The AREVA group uses derivative instruments to hedge foreign exchange risks, interest rate risks and the price of commodities. The derivatives used are mainly forward exchange contracts, currency and interest rate swaps, inflation swaps, currency options and commodity options.

The risks hedged relate to receivables, borrowings and firm commitments in foreign currencies, planned transactions in foreign currencies, and planned sales and purchases of commodities.

#### 1.3.21.2. Recognition of derivatives

As provided in IAS 39, derivatives are initially recognized at fair value and subsequently revalued at the end of each accounting period until settled.

Accounting methods for derivatives vary, depending on whether the derivatives are designated as fair value hedging items, cash flow hedging items, hedges of net investments in foreign operations, or do not qualify as hedging items.

#### FAIR VALUE HEDGES

This designation concerns hedges of firm commitments in foreign currencies: purchases, sales, receivables and debt. The hedged item and the derivative are revalued simultaneously and any changes in value are recorded in the income statement.

#### CASH FLOW HEDGES

This designation covers hedges of probable future cash flows: planned purchases and sales in foreign currencies, planned purchases of commodities, etc.

The highly probable hedged items are not valued in the balance sheet. Only the derivative hedges are revalued at the end of each accounting period. The portion of the gain or loss that is considered effective is recognized under "other items of comprehensive income" and presented directly in equity under the balance sheet

heading "deferred unrealized gains and losses on financial instruments", on an after-tax basis. Only the ineffective portion of the hedge impacts income for the period.

The amounts recognized under "deferred unrealized gains and losses on financial instruments" are released to income when the hedged item impacts the income statement, i.e. when the hedged transaction is recognized in the financial statements.

#### HEDGES OF NET INVESTMENTS IN FOREIGN OPERATIONS

This heading relates to borrowings in a foreign currency and to borrowings in euros when the euro has been swapped into a foreign currency to finance the acquisition of a subsidiary using the same functional currency. Currency translation adjustments on these borrowings are recognized under "other items of comprehensive income" and presented on the balance sheet under "currency translation reserves" in their net amount after tax; only the ineffective portion is recognized through profit and loss.

The amount accumulated in currency translation reserves is released to profit and loss when the subsidiary in question is sold.

#### DERIVATIVES NOT QUALIFYING AS HEDGES

When derivatives do not qualify as hedging instruments, fair value gains and losses are recognized immediately in the income statement.

#### 1.3.21.3. Presentation of derivatives in the statement of financial position and statement of income

##### PRESENTATION IN THE STATEMENT OF FINANCIAL POSITION

Derivatives used to hedge risks related to market transactions are reported under operating receivables and liabilities in the statement of financial position. Derivatives used to hedge risks related to loans, borrowings and current accounts are reported under financial assets or borrowings.

##### PRESENTATION IN THE STATEMENT OF INCOME

The revaluation of derivatives and hedged items relating to market transactions affecting the statement of income is recognized under "other operating income and expenses", except for the component corresponding to the discount/premium, which is recognized in financial income.

For loans and borrowings denominated in foreign currencies, fair value gains and losses on financial instruments and hedged items are recognized in financial income.

#### 1.3.22. Income tax

As provided in IAS 12, deferred taxes are determined according for all temporary differences between net carrying amounts and the tax basis of assets and liabilities, to which is applied the anticipated tax rate at the time of reversal of these temporary differences. They are not discounted.

Temporary taxable differences generate a deferred tax liability.

Temporary deductible differences, tax loss carry-forwards, and unused tax credits generate a deferred tax asset equal to the probable amounts recoverable in the future. Deferred tax assets are analyzed case by case for recoverability, taking into account the income projections of the group's strategic action plan.

Deferred tax assets and liabilities are netted for each taxable entity if the entity is allowed to offset its current tax receivables against its current tax liabilities.

Deferred tax liabilities are recorded for all taxable temporary differences of subsidiaries, associates and partnerships, unless AREVA is in a position to control the timing of reversal of the temporary differences and it is probable that such reversal will not take place in the foreseeable future. Tax accounts are reviewed at the end of each financial year, in particular to take into account changes in tax laws and the likelihood that amounts recognized will be recovered.

Deferred taxes are recognized through profit and loss, unless they concern "other items of comprehensive income", i.e. changes in the value of available-for-sale securities and derivatives considered as cash flow hedges, currency translation adjustments on borrowings considered as hedges of net investments in foreign operations, or actuarial gains and losses resulting from changes in assumptions used to calculate post-employment employee benefits. Deferred taxes related to these items are also recognized under "other items of comprehensive income".

AREVA elected to recognize the value added business tax (*contribution sur la valeur ajoutée des entreprises*, CVAE); as of 2010, all of its French subsidiaries are subject to this tax on net income (including the tax for Chamber of Commerce and Industry expenses) at the rate of 1.6%. AREVA considers that the base for calculation of the CVAE is a net amount rather than a gross amount, since the value added of its largest French subsidiaries represents a relatively small percentage of their revenue, bringing the value added business tax into the scope of accounting standard IAS 12, Income Taxes.

As provided in IAS 12, this election requires recognition of deferred taxes at the rate of 1.6% on temporary differences for:

- assets that produce economic benefits subject to the CVAE tax that cannot be deducted from the value added. At January 1, 2010, the basis selected for

temporary differences consisted of the net carrying amount of property, plant and equipment and intangible assets eligible for depreciation. Beginning in 2010, no deferred tax liability is recognized on asset acquisitions other than business combinations, in application of the exemption provided by IAS 12 for initial recognition of an asset or a liability;

- asset impairments and provisions that may not be deducted from the CVAE but that relate to expenses that will be deducted from the value added at a later date.

Since the CVAE tax is deductible for income tax purposes, deferred taxes are recognized at the standard rate on deferred tax assets and liabilities recognized for the CVAE, as described in the previous paragraph.

#### **Deferred tax assets**

The recoverable share of the AREVA group's deferred tax assets is that for which the probability of recovery is higher than 50%. To determine that probability, the group performs a three-stage analysis: (a) demonstration of the non-recurrent nature of the losses; (b) analysis of the outlook for future income; and (c) analysis of tax management opportunities.

Regarding the outlook for future income, the probability of future taxable profits to offset losses carried forward is assessed based on forecasts generated as part of the budget process validated by management. The income outlook is determined for a 10-year period for each entity and/or consolidated area, based on the initial budget and income forecasts for the first 3 years; beyond that time, a standard year derived from third-year data is used. The 10-year forecasting horizon selected is consistent with the volume in group's backlog, the operating period of the assets, and the existence of certain framework agreements.

## **NOTE 2. SCOPE OF CONSOLIDATION**

### **2.1. CONSOLIDATED COMPANIES AND ASSOCIATES**

<i>(number of companies)</i>	2016		2015	
	Foreign	French	Foreign	French
Consolidation method				
Full consolidation	74	40	84	43
Equity method	18	8	17	8
<b>Sub-total</b>	<b>92</b>	<b>48</b>	<b>101</b>	<b>51</b>
<b>TOTAL</b>	<b>140</b>		<b>152</b>	

Note 36 provides a list of the main consolidated companies and associates.

### **2.2. 2016 TRANSACTIONS**

#### **Sale of Canberra Inc., Canberra France and their subsidiaries**

On July 1, 2016, AREVA sold Canberra, an AREVA subsidiary specialized in radioactivity detection and measurement instrumentation, to the industrial group Mirion Technologies, Inc.

#### **Sale of Elta**

On November 30, 2016, AREVA TA and AREVA SA sold their interests in Elta to ECA Group, a subsidiary of the Gorgé group. Elta is specialized in the development, marketing and operational readiness of electronic equipment and systems for the aerospace industry. This sale was done in connection with the implementation of AREVA TA's strategic plan aimed at refocusing its operations on the nuclear field.



**Buy-back of interests in Société d'Enrichissement du Tricastin Holding**

At the end of 2016, AREVA bought back part of the minority interests of SET Holding, amounting to 7% of the capital, from certain minority shareholders.

**Buy-back of interests in Eurodif**

At the end of 2016, AREVA bought back part of the interests in Eurodif's capital from certain minority shareholders.

**Buy-back of interests in AREVA Solar Inc.**

In December 2016, AREVA bought back all of the minority interests in AREVA Solar from Agave.

**AREVA TA capital increase**

On December 7, 2016, during the Extraordinary General Meeting of AREVA TA Shareholders, a capital increase accompanied by the cancellation of the preemptive subscription right of minority interests for the benefit of AREVA SA was decided. The percentage of the group's interest thus went from 83.6% to 85.1%.

Note 3 describes transactions that were ongoing at year-end 2016 and are expected to be finalized in 2017.

**2.3. 2015 TRANSACTIONS**

**Creation of the Adwen joint venture**

On March 9, 2015, AREVA and Gamesa signed final agreements to create Adwen, a joint venture in the field of offshore wind. Held in equal shares by the two companies, Adwen is taking over AREVA's wind energy operations. The joint venture will design, manufacture, install, commission and maintain offshore wind turbines.

**NOTE 3. ITEMS RELATED TO OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE**

The following operations meet the criteria of IFRS 5 for classification as "operations sold, discontinued or held for sale" at December 31, 2016.

■ Wind Energy

The Adwen joint venture was created on March 9, 2015 in partnership with Gamesa, the Spanish onshore wind energy specialist. It is held in equal shares by AREVA and Gamesa.

Consistent with its objective of refocusing on the nuclear fuel cycle operations, AREVA announced that at the conclusion of a three-month competitive process designed to solicit and assess proposals from potential third-party investors, the company's Board of Directors had given authority to management to exercise the option to sell its 50% interest in Adwen's capital signed on June 17, 2016 with Gamesa.

This sale's option was exercised on September 14, 2016, and the sale was completed on January 5, 2017. Adwen was classified as an asset held for sale at December 31, 2016.

■ Nuclear Measurements

On July 1, 2016, AREVA announced the completion of the sales of its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in radioactivity detection and measurement instrumentation, to the industrial group Mirion Technologies Inc.

The capital gain from this sale came to 132 million euros.

■ Solar Energy

At December 31, 2015, the solar energy operating segment of AREVA was substantially shut down due to the fact that the last project under execution – the Reliance Project involving a 125-MWe solar field in Dhursar, India – was then in the process of being suspended and that discussions with a potential buyer begun in 2015 had been unsuccessful. The operations were thus classified as discontinued operations. On January 16, 2016, AREVA and its customer Reliance effectively ended their reciprocal obligations concerning this project (construction of the power plant and maintenance). At December 31, 2016, there were no projects in progress or under contractual guarantee in the scope of the Solar operations. The only

remaining entities in this scope are non-operating legal entities held for sale or to be liquidated as soon as regulatory requirements, particularly tax-related requirements, permit. The Solar operations are thus kept in "discontinued operations".

■ New NP

Following the memorandum of understanding signed on July 28, 2016, AREVA, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 which sets the terms and conditions for the sale of an interest giving EDF exclusive control of an entity tentatively called "New NP", a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base of the group.

The sales price for 100% of the capital of New NP was set at 2.5 billion euros, excluding any price adjustments and/or supplements.

The contracts related to the OL3 project and the means needed to complete the project, along with the responsibility attached to outstanding contracts related to parts forged at the Creusot plant and possibly to contracts not outstanding but for which serious anomalies might be identified and not yet resolved by the closing of the New NP sale, will be kept within AREVA NP and will thus remain within the group's consolidation scope.

The contractual obligations which would be chargeable to New NP in the event of the discovery of anomalies resulting from a failure in the quality control of equipment manufacturing at the Creusot plant and, possibly, at the Saint-Marcel and Jeumont plants will continue to be guaranteed by AREVA.

The transaction is expected to close by the end of 2017, subject in particular to the receipt of favorable findings from the French nuclear safety authority ASN on the subject of the results of tests concerning the primary cooling system of the Flamanville 3 reactor; the completion and satisfactory conclusion of quality audits at the Creusot, Saint-Marcel and Jeumont plants; and the approval of the competent authorities which regulate business mergers and nuclear safety. In addition, the completion of the transaction is conditioned on the transfer of AREVA NP's operations, excluding the OL3 contract and certain component contracts (see note 1.1), to the New NP entity.

With AREVA's support, EDF has engaged in discussions with strategic investors expressing an interest in acquiring a stake in New NP's capital. The interest acquired by EDF, which could be as much as 75% of the capital under the terms of the share purchase agreement signed on November 15, 2016, would thus be reduced to a target interest of at least 51% of the capital, giving it exclusive control. At the end of the restructuring, AREVA and NewCo will no longer hold any interest in New NP.

■ NewCo

As explained in note 1, the proposed capital increase of NewCo was approved by NewCo's shareholders on February 3, 2017. The completion of this capital increase is subject to fulfillment of the conditions accompanying the European Commission's authorization, in conformance with European regulations on State aid.

The French State's acquisition of NewCo capital will lead to the dilution and loss of control of AREVA SA.

Since the General Meeting of AREVA SA Shareholders convened on December 15, 2016, AREVA believed that the conditions for application of IFRS 5 "Non-current assets held for sale and discontinued operations" had been fulfilled: the loss of AREVA SA's control of NewCo is considered to be highly probable at December 31, 2016.

■ AREVA TA

As part of its refocusing on the nuclear fuel cycle operations, the company announced on December 17, 2015 and confirmed on January 27, 2016 the plan to sell AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

On December 15, 2016, the company signed a share purchase agreement for all of its shares in AREVA TA with a consortium of buyers composed of the Agence des participations de l'État (APE, 50.32% of the capital), the Commissariat à l'énergie atomique et aux énergies renouvelables (CEA, 20.32%), and DCNS (20.32%). EDF will keep its 9.03% interest in the capital.

The sale, for which the plan has already been the subject of consultation with employee representative bodies and which has been approved by AREVA's governance, is scheduled to close in March or April 2017, subject in particular to the publication of the ministerial orders related to the sale and the absence of any unfavorable significant event with an impact of more than 55 million euros on the value of the company's equity. On the date of completion of the sale, the French State will control AREVA TA.

In addition, AREVA TA sold its subsidiary Elta (see note 2). The capital loss on the sale amounts to 10 million euros and is included in the "Net income from operations held for sale" line hereunder.

### NET INCOME AND NET CASH FROM OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE

<i>(in millions of euros)</i>	2016	2015
Net income from operations sold	(65)	(240)
Net income after tax from disposals	131	59
Net income from discontinued operations	(16)	(115)
Net income from operations held for sale	(415)	(474)
<b>Net income from operations sold, discontinued or held for sale</b>	<b>(365)</b>	<b>(770)</b>
Net cash from operations sold	240	(127)
Net cash from discontinued operations	(189)	0
Net cash from operations held for sale	(647)	546
<b>Net cash from operations sold, discontinued or held for sale</b>	<b>(597)</b>	<b>419</b>

### Financial Year 2016

<i>(in millions of euros)</i>	Operations sold	Discontinued operation	Operations held for sale			Total
		Solar Energy	New NP	NewCo	AREVA TA	
<b>Revenue</b>	<b>72</b>	-	<b>3,101</b>	<b>4,012</b>	<b>353</b>	<b>7,538</b>
<b>Operating income after share in net income of joint ventures and associates</b>	<b>88</b>	<b>(18)</b>	<b>73</b>	<b>450</b>	<b>46</b>	<b>640</b>
Net financial income	1	2	(54)	(537)	13	(575)
Income tax	(23)	0	(41)	(337)	(28)	(429)
<b>Net income for the period</b>	<b>66</b>	<b>(16)</b>	<b>(21)</b>	<b>(425)</b>	<b>31</b>	<b>(365)</b>

Operations sold include guarantees granted by AREVA to Adwen and the Nuclear Measurements operations.

Operating income from the solar operations includes (18) million euros of currency translation reserves recycled through profit and loss.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

Transactions of continuing operations with operations sold, discontinued or held for sale were as follows at December 31, 2016:

- operating income from continuing operations includes transactions with operations sold, discontinued or held for sale in the amount of 161 million euros;

- net financial income from continuing operations includes transactions with operations sold, discontinued or held for sale in the amount of 22 million euros.

<i>(in millions of euros)</i>	Operations sold	Discontinued operation	Operations held for sale			Total
		Solar Energy	New NP	NewCo	AREVA TA	
Net cash flow from operating activities	(55)	(95)	35	720	30	635
Net cash flow from investing activities	306	1	(142)	(543)	(10)	(390)
Net cash flow from financing activities	(10)	(84)	(115)	(729)	61	(878)
Other changes	(1)	(11)	70	(22)	0	36
<b>Increase (decrease) in net cash</b>	<b>240</b>	<b>(189)</b>	<b>(152)</b>	<b>(575)</b>	<b>80</b>	<b>(597)</b>

The transactions of the continuing operations with operations sold, discontinued or held for sale were as follows at December 31, 2016:

- cash flow from operating activities of the continuing operations with operations sold, discontinued or held for sale amounted to +249 million euros;

- cash flow from investing activities of the continuing operations with operations sold, discontinued or held for sale was insignificant;
- cash flow from financing activities of the continuing operations with operations sold, discontinued or held for sale amounted to +523 million euros.

Financial Year 2015

<i>(in millions of euros)</i>	Operation sold	Discontinued operation	Operations held for sale			Total
	Wind Energy	Solar Energy	New NP	NewCo	Other	
<b>Revenue</b>	<b>3</b>	<b>(80)</b>	<b>3,566</b>	<b>4,166</b>	<b>449</b>	<b>8,103</b>
<b>Operating income after share in net income of joint ventures and associates</b>	<b>(79)</b>	<b>(109)</b>	<b>21</b>	<b>(94)</b>	<b>83</b>	<b>(177)</b>
Net financial income	(86)	(6)	(121)	(267)	39	(442)
Income tax	(17)	0	80	(217)	3	(151)
<b>Net income for the period</b>	<b>(181)</b>	<b>(115)</b>	<b>(20)</b>	<b>(579)</b>	<b>126</b>	<b>(770)</b>

The other operations held for sale include AREVA TA and Nuclear Measurements.

The transactions of the continuing operations with operations sold, discontinued or held for sale were as follows at December 31, 2015:

- operating income from the continuing operations includes transactions with operations sold, discontinued or held for sale in the amount of 122 million euros;

- net financial income from the continuing operations includes transactions with the operations sold, discontinued or held for sale in the amount of 18 million euros.

<i>(in millions of euros)</i>	Operation sold	Discontinued operation	Operations held for sale			Total
	Wind Energy	Solar Energy	New NP	NewCo	Other	
Net cash flow from operating activities	(77)	(38)	32	805	177	899
Net cash flow from investing activities	(163)	6	(112)	(645)	(2)	(916)
Net cash flow from financing activities	114	42	396	(67)	(22)	463
Other changes	0	(10)	(13)	(5)	2	(26)
<b>Increase (decrease) in net cash</b>	<b>(127)</b>	<b>0</b>	<b>303</b>	<b>88</b>	<b>155</b>	<b>419</b>

The transactions of the continuing operations with operations sold, discontinued or held for sale were as follows at December 31, 2015:

- cash flow from operating activities of the continuing operations with operations sold, discontinued or held for sale amounted to (52) million euros;
- cash flow from investing activities of the continuing operations with operations sold, discontinued or held for sale was insignificant;
- cash flow from financing activities of the continuing operations with operations sold, discontinued or held for sale amounted to (493) million euros.

#### ASSETS AND LIABILITIES OF OPERATIONS HELD FOR SALE

The balance sheet amounts related to operations held for sale at the end of 2015 and 2016 are given in each note to the consolidated financial statements.

In addition, the following operations had already been classified in "operations held for sale" at December 31, 2015:

- New NP;
- AREVA TA;
- Nuclear Measurements.

The amounts at December 31, 2016 include assets and liabilities of New NP, AREVA TA, NewCo and Adwen.

The assets and liabilities of the Solar Energy operations are reclassified in each item of the balance sheet as provided in IFRS 5 for operations that have ceased to be classified as "operations held for sale".

<i>(in millions of euros)</i>	Note	2016	2015
<b>Non-current assets</b>		<b>21,631</b>	<b>4,645</b>
Goodwill on consolidated companies	10	3,669	2,468
Intangible assets	11	2,084	475
Property, plant and equipment	12	8,706	1,006
End-of-lifecycle assets (third party share)	13	127	
Assets earmarked for end-of-lifecycle operations	13	6,192	105
Investments in joint ventures and associates	14	172	103
Other non-current assets	15	201	59
Deferred tax assets	9	480	430
<b>Current assets</b>		<b>5,401</b>	<b>2,431</b>
Inventories and work-in-process	16	1,968	696
Accounts receivable	17	1,563	861
Other operating receivables	18	1,533	824
Current tax assets		91	9
Other non-operating receivables		77	6
Cash and cash equivalents	19	162	32
Other current financial assets	20	6	3
<b>TOTAL ASSETS OF OPERATIONS HELD FOR SALE</b>		<b>27,032</b>	<b>7,076</b>

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

<i>(in millions of euros)</i>	Note	2016	2015
<b>Non-current liabilities</b>		<b>14,896</b>	<b>864</b>
Employee benefits	23	1,904	456
Provisions for end-of-lifecycle operations	13	7,682	318
Other non-current provisions	24	256	2
Share in negative net equity of joint ventures and associates	14	63	30
Long-term borrowings	25	4,852	1
Deferred tax liabilities	9	140	57
<b>Current liabilities</b>		<b>12,495</b>	<b>4,457</b>
Current provisions	24	2,538	751
Short-term borrowings	25	1,027	156
Advances and prepayments received	26	4,545	1,692
Trade accounts payable		1,432	818
Other operating liabilities	27	2,798	1,002
Current tax liabilities		82	11
Other non-operating liabilities	27	74	26
<b>TOTAL LIABILITIES OF OPERATIONS HELD FOR SALE</b>		<b>27,391</b>	<b>5,320</b>

In 2015, the entities held for sale sold trade receivables maturing after year-end closing in the amount of 178 million euros to credit institutions. At the end of 2016, no trade receivable maturing after year-end closing was sold.

#### NOTE 4. REVENUE BY REGION

Revenue (restated for operations held for sale) amounted to 33 million euros in 2015 and 10 million euros in 2016. It corresponds mainly to sales of services.

The group elected to present its statement of income based on the destination of income and expense items. Additional information is provided in notes 5 and 6 below.

#### NOTE 5. ADDITIONAL INFORMATION BY TYPE OF EXPENSE

<i>(in millions of euros, except workforce)</i>	2016	2015 *
Payroll expenses	(40)	(32)
Operating leases	(51)	(56)
Employees under contract at year end	46	229

\* In application of IFRS 5, the 2015 data were restated in relation to the data reported the previous year.

Payroll expenses include salaries and related social security contributions, excluding retirement benefits.

The data above do not include employees and payroll expenses allocated to the OL3 contract, which are nevertheless part of the scope of continuing operations.

Payroll expenses are not directly comparable to the employees under contract at year-end closing.

**NOTE 6. RECONCILIATION BETWEEN OPERATING INCOME AND EBITDA**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
<b>Operating income</b>	<b>(442)</b>	<b>(1,287)</b>
Goodwill impairment	0	26
Net increase in depreciation and impairment of intangible assets, net of reversals	18	27
Net increase in depreciation and impairment of property, plant and equipment, net of reversals	12	13
Impairment of current assets, net of reversals	5	(57)
Provisions, net of reversals (*)	(278)	648
Investment subsidies recognized through profit and loss	0	0
Costs of end-of-lifecycle operations performed	0	0
<b>EBITDA</b>	<b>(684)</b>	<b>(630)</b>

(\*) including increases and reversals of provisions for employee benefits.

**NOTE 7. GENERAL AND ADMINISTRATIVE EXPENSES AND OTHER OPERATING INCOME AND EXPENSES****GENERAL AND ADMINISTRATIVE EXPENSES**

In 2016, general and administrative expenses included 121 million euros in costs kept within AREVA SA and not rebilled to the subsidiaries under agreements in effect. Those costs are not representative of the costs AREVA SA will have to bear

once the restructuring operations have been completed. They are destined to be borne by NewCo and New NP once the restructuring has been completed (NewCo capital increase and sale of New NP) and the corresponding agreements have been set up.

**OTHER OPERATING EXPENSES**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Restructuring and early retirement plan costs*	(13)	(23)
Goodwill impairment	-	(26)
Impairment of property, plant and equipment and intangible assets, net of reversals	-	(9)
Income on disposals of assets other than financial assets	(5)	(2)
Other operating expenses	(62)	(213)
<b>TOTAL OTHER OPERATING EXPENSES</b>	<b>(80)</b>	<b>(274)</b>

\* Net of reversals of provisions for employee benefits.

**OTHER OPERATING INCOME**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Income on disposals of assets other than financial assets	-	-
Other operating income	195	8
<b>TOTAL OTHER OPERATING INCOME</b>	<b>195</b>	<b>8</b>

Restructuring costs are recognized for the 2015 and 2016 financial years and are described in notes 1 and 24.

Impairment of goodwill, intangible assets and property, plant and equipment in 2015 and 2016 is described in notes 10, 11 and 12 respectively.

The other operating expenses and other operating income mainly include a provision of 180 million euros set up in 2015 for the anticipated costs of legal and financial restructuring and reversed in 2016 due to the fact that the initial plan had not been implemented but was rather replaced by a plan to contribute AREVA NP operations to a new entity, New NP.

## NOTE 8. NET FINANCIAL INCOME

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
<b>Net borrowing costs</b>	<b>(73)</b>	<b>19</b>
Income from cash and cash equivalents	38	87
Gross borrowing costs	(111)	(68)
<b>Other financial income and expenses</b>	<b>5</b>	<b>(65)</b>
<i>of which share related to end-of-lifecycle operations</i>	-	-
<i>of which share not related to end-of-lifecycle operations</i>	<b>5</b>	<b>(65)</b>
Foreign exchange gain (loss)	13	2
Income from disposals of securities and change in value of securities held for trading	(2)	10
Income from disposals of investments in joint ventures and associates	(2)	
Dividends received		
Net depreciation of financial assets	25	(1)
Interest on contract prepayments	-	-
Financial income from pensions and other employee benefits	0	0
Other financial expenses	(29)	(78)
Other financial income	-	1
<b>NET FINANCIAL INCOME</b>	<b>(68)</b>	<b>(46)</b>

At December 31, 2016, other financial expenses included in particular debt forgiveness granted to an operation held for sale in the amount of 14 million euros (compared with 66 million euros at December 31, 2015).

## NOTE 9. INCOME TAX

### ANALYSIS OF INCOME TAX EXPENSE

#### Continuing operations

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Current taxes (France)	128	77
Current taxes (other countries)	0	0
<b>Total current taxes</b>	<b>128</b>	<b>77</b>
Deferred taxes	(10)	16
<b>TOTAL TAX INCOME</b>	<b>118</b>	<b>93</b>

**RECONCILIATION OF INCOME TAX EXPENSE AND INCOME BEFORE TAXES****Continuing operations**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Net income attributable to equity owners of the parent	(665)	(2,038)
Less income from operations sold, discontinued or held for sale	365	770
Minority interests	(105)	2
Share in net income of joint ventures and associates	14	26
Tax expense (income)	(118)	(93)
Income before tax	(510)	(1,333)
<b>Theoretical tax income (expense)</b>	<b>175</b>	<b>459</b>
<i>Reconciliation</i>		
Operations taxed at a rate other than the full statutory rate	(2)	0
Unrecognized deferred taxes	(29)	(407)
Impairment of deferred tax assets recognized in previous years*		
Other permanent differences	(25)	41
<b>EFFECTIVE TAX INCOME (EXPENSE)</b>	<b>118</b>	<b>93</b>

\* in the tax consolidation area including AREVA SA (France) and AREVA GmbH (Germany).

The revised outlook for the group's operations and profitability, consistent with the assumptions used for the impairment tests, led the group to not recognize deferred tax assets for 2015 and 2016.

**TAX RATES USED IN FRANCE**

<i>(percentage)</i>	<b>2016</b>	<b>2015</b>
Tax rate	34.43	34.43

**OTHER PERMANENT DIFFERENCES****Continuing operations**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Parent / subsidiary tax treatment and inter-company dividends	0	0
Impact of permanent differences for tax purposes	(3)	(24)
Differences between the French tax rate and tax rates applicable abroad	(10)	(27)
CVAE business tax	0	7
Other permanent differences	(13)	84
<b>TOTAL PERMANENT DIFFERENCES</b>	<b>(25)</b>	<b>41</b>

**EFFECTIVE TAX RATE**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Operating income	(442)	(1,287)
Net financial income	(68)	(46)
<b>TOTAL INCOME SUBJECT TO TAX</b>	<b>(510)</b>	<b>(1,333)</b>
Tax expense	118	93
<b>Effective tax rate</b>	<b>NA</b>	<b>NA</b>



**DEFERRED TAX ASSETS AND LIABILITIES**

**Continuing operations**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Deferred tax assets	1	212
Deferred tax liabilities		100
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>1</b>	<b>113</b>

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016			Total
	New NP	NewCo	Other	
Deferred tax assets	231	168	58	456
Deferred tax liabilities	3	113	-	116
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>228</b>	<b>55</b>	<b>58</b>	<b>340</b>

In the United States, deferred tax assets were valued for two separate tax consolidation groups, AREVA Inc. and AREVA Nuclear Materials LLC, pursuant to IAS 12. The deferred tax assets were valued based on future income prospects. These future taxable profits, less deferred losses resulting from causes identified as non-recurring, were assessed as regards budget forecasts validated by management. The valuation

of AREVA Inc.'s deferred tax assets is conditioned on the effective implementation of a legal structuring plan drawn up in connection with the sale of New NP to EDF.

For 2016, the value of deferred tax assets amounted to 213 million euros for the consolidated AREVA Inc. group, including 9 million euros for AREVA Solar, and to 124 million euros for the consolidated AREVA Nuclear Materials LLC group.

**MAIN CATEGORIES OF DEFERRED TAX ASSETS AND LIABILITIES**

**Continuing operations**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
<b>Tax impact of temporary differences related to:</b>		
Property, plant and equipment, intangible assets and non-current financial assets	0	(106)
Working capital assets	0	(173)
Employee benefits	1	170
Provisions for restructuring		0
Tax-driven provisions		(124)
Provisions for end-of-lifecycle operations		30
Impact of loss carry-forwards and deferred taxes	0	93
Other temporary differences	0	222
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>1</b>	<b>113</b>

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016			Total
	New NP	NewCo	Other	
<b>Tax impact of temporary differences related to:</b>				
Property, plant and equipment, intangible assets and non-current financial assets	4	(111)	6	(101)
Working capital assets	7	23	0	31
Employee benefits	50	107	12	169
Provisions for restructuring	1	2	0	3
Tax-driven provisions	(6)	(129)	0	(135)
Provisions for end-of-lifecycle operations	26	32	0	57
Impact of loss carry-forwards and deferred taxes	59	91	6	155
Other temporary differences	88	41	34	163
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>228</b>	<b>55</b>	<b>58</b>	<b>340</b>

**DEFERRED TAX ASSET AND LIABILITY REVERSAL SCHEDULE****Continuing operations**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Reversal in more than 12 months	1	80
Reversal in 12 months or less		33

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016			Total
	New NP	NewCo	Other	
Reversal in more than 12 months	162	(99)	45	108
Reversal in 12 months or less	66	154	12	232

**CHANGE IN CONSOLIDATED DEFERRED TAX ASSETS AND LIABILITIES**

<i>(in millions of euros)</i>	2016	2015
<b>AT JANUARY 1</b>	<b>113</b>	<b>370</b>
Tax on continuing operations, recognized in profit or loss	(10)	24
Tax recognized in operations held for sale	(101)	(274)
Tax recognized directly in "other items of comprehensive income"	0	(45)
Change in scope of consolidation	0	16
Currency translation adjustments	0	21
<b>AT DECEMBER 31</b>	<b>1</b>	<b>113</b>

**DEFERRED TAX INCOME AND EXPENSES BY CATEGORY OF TEMPORARY DIFFERENCE**

<i>(in millions of euros)</i>	2016	2015
<b>Tax impact of temporary differences related to:</b>		
Property, plant and equipment, intangible assets and non-current financial assets	(9)	18
Working capital assets	(1)	(14)
Employee benefits	(1)	0
Provisions for restructuring	(11)	0
Tax-driven provisions		
Provisions for end-of-lifecycle operations	0	0
Net loss carry-forwards and deferred taxes	(112)	267
Impairment of deferred taxes	112	(245)
Other temporary differences	13	(9)
<b>NET DEFERRED TAX INCOME (EXPENSES)</b>	<b>(10)</b>	<b>16</b>

**DEFERRED TAX RECOGNIZED IN "OTHER ITEMS OF COMPREHENSIVE INCOME"**

<i>(in millions of euros)</i>	2016	2015
IAS 32-39 impacts (change in value of assets available for sale, cash flow hedges and net investment)	0	(26)
Other	0	(19)
<b>DEFERRED TAX RECOGNIZED DIRECTLY IN "OTHER ITEMS OF COMPREHENSIVE INCOME"</b>		<b>(45)</b>

**UNRECOGNIZED DEFERRED TAX ASSETS**
**Continuing operations**

<i>(in millions of euros)</i>	2016	2015
Tax credits		
Tax losses	1,800	1,170
Other temporary differences	339	1,268
<b>TOTAL UNRECOGNIZED DEFERRED TAX ASSETS</b>	<b>2,139</b>	<b>2,439</b>

The majority of unrecognized deferred tax assets corresponds to tax losses which had no limit in time.

**Operations held for sale**

<i>(in millions of euros)</i>	2016			Total
	New NP	NewCo	Other	
Tax credits			1	1
Tax losses	38	406	69	514
Other temporary differences	102	1,190	3	1,294
<b>TOTAL UNRECOGNIZED DEFERRED TAX ASSETS</b>	<b>140</b>	<b>1,596</b>	<b>73</b>	<b>1,809</b>

**NOTE 10. GOODWILL****Continuing operations**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>Increase</b>	<b>Disposals</b>	<b>Impairment</b>	<b>Currency translation adjustments and other</b>	<b>Operations held for sale</b>	<b>December 31, 2016</b>
Mining	883				30	(913)	
Front End (Chemistry, Enrichment)	161					(161)	
Back End	228					(228)	
<b>TOTAL</b>	<b>1,272</b>				<b>30</b>	<b>(1,303)</b>	

**Operations held for sale**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
New NP	2,337	2,337
AREVA TA	29	31
Nuclear Measurements	-	100
<b>Sub-total</b>	<b>2,366</b>	<b>2,468</b>
Operations held for sale in 2016		
NewCo	1,303	
<b>TOTAL (*)</b>	<b>3,669</b>	<b>2,468</b>

\* see note 3.

**GOODWILL IMPAIRMENT TESTS**

As indicated in notes 1.2. *Estimates and judgments* and 1.3.9. *Impairment of property, plant and equipment, intangible assets and goodwill*, the group performs asset impairment tests based on its best estimate of their recoverable value, which corresponds to the higher of their net realizable value or their estimated value in use, based on projected cash flows resulting from the budget, mining plans and the assumptions they contain.

These tests consist of comparing the net carrying amount of the assets of cash generating units (after inclusion of write-downs of property, plant and equipment and intangible assets listed in notes 11 and 12) to their recoverable amount.

The discount rates used for these tests are based on the calculation of the average cost of capital for each operating segment. They are calculated using observed market data and evaluations prepared by specialized firms (10-year risk-free rates, risk premiums on equity markets, volatility indices, credit spreads and debt ratios of comparable businesses in each segment).

The following assumptions were used to determine the net present value of the cash flows to be generated by the CGUs:

<b>December 31, 2016</b>	<b>After tax discount rate</b>	<b>Growth rate of pro forma year</b>	<b>Final year</b>
Mining	7.50%-12.00%	n/a	2070
Front End (Chemistry, Enrichment)	6.70%	n/a	2070
Back End	6.40%-6.70%	1.75%	2026

<b>December 31, 2015</b>	<b>After tax discount rate</b>	<b>Growth rate of pro forma year</b>	<b>Final year</b>
Mining	9.50%	Na	2070
Front End (Chemistry, Enrichment)	6.50%	1.75%	2025
Back End	4.50%	1.75%	2025

These impairment tests were calculated using exchange rates in effect on the balance sheet date.

## Mining

The recoverable amount of the Mining CGU is determined based on the value in use. The value in use of mining operations is calculated based on forecast data for the entire period, up to the planned end of mining operations at existing mines and marketing of the corresponding products (i.e. until 2077), rather than on a base year. The value in use is determined by discounting estimated future cash flows per mine at rates between 7.50% and 12% (9.50% at December 31, 2015) and using a euro/US dollar exchange rate of 1.05 at December 31, 2016 (1.09 at December 31, 2015).

Future cash flows were determined using the AREVA price forecasts to 2030, projected to 2077. The price forecast is based among other things on AREVA's vision of changes in uranium supply (uranium mines and secondary resources) and demand (linked to the quantity of material used by world nuclear power plants over the period and the procurement strategies of the utilities involved). The price forecast was updated in December 2016 to reflect in particular the drop in volumes purchased by Chinese utilities and the anticipated closure of certain US reactors.

The result of this test was higher than the net carrying amount and therefore does not result in goodwill impairment.

The test remains sensitive to discount rates, to foreign exchange parity and to the anticipated future prices of uranium. The value in use of the assets of the Uranium Mining CGU would fall by the amounts below if any of the following assumptions were used:

- a discount rate of 50 basis points higher: 174 million euros;
- a euro/US dollar exchange rate of 5 eurocents higher (i.e. 1.10 instead of 1.05): 371 million euros;
- uranium sales price assumptions of 5 dollars less per pound than the price forecast drawn up by AREVA for the entire period of the business plans: 501 million euros.

However, such deterioration would not lead to a write-down of the goodwill of the Mining CGU.

On this point, the sensitivity analysis was carried out without taking into account a revision of economically mineable uranium quantities or production schedules resulting from this price change.

## Front End and Back End

The impairment tests carried out at December 31, 2016 on the CGUs carried by the Front End (Chemistry-Enrichment) and Back End did not give rise to recognition of goodwill impairment.

For the Back End, sensitivity analyses show that the use of a discount rate of 50 basis points higher or a growth rate for the base year of 1% lower than the above-mentioned rates would not have led to the recognition of impairment for the goodwill, since its recoverable value remains greater than the net carrying amount of assets.

For the Enrichment CGU, the test is very sensitive to the discount rate, to exchange rate parity, and to the long-term price expectations for separative work units (SWU). The value in use of the assets of the Enrichment CGU would fall by the amounts below if any of the following assumptions were used:

- a discount rate of 50 basis points higher: 240 million euros;
- a euro/US dollar exchange rate of 5 eurocents higher (i.e. 1.10 instead of 1.05): 190 million euros;
- sales price assumptions of 1 US dollar less per SWU compared with the price forecast drawn up by AREVA: 35 million euros.

However, taken separately, such deterioration would not lead to a write-down of the goodwill of the Enrichment CGU.

## Bioenergy

At December 31, 2015, the goodwill of the Bioenergy CGU was written down in full in the amount of 26 million euros, as were intangible assets in the amount of 8 million euros.

**NOTE 11. INTANGIBLE ASSETS****Continuing operations**

<i>(in millions of euros)</i>	Pre-mining expenses	R&D expenses	Mineral rights	Concessions and patents (excluding mines)	Software	Intangible assets in progress	Other	Total
<b>Gross amount at December 31, 2015</b>	<b>1,825</b>	<b>50</b>	<b>1,271</b>	<b>459</b>	<b>479</b>	<b>313</b>	<b>239</b>	<b>4,636</b>
Internally generated assets	1	9	-	-	-	3	-	14
Acquired assets	23	0	0	0	0	24	0	47
Disposals	(0)	(1)	-	(1)	(8)	(8)	(5)	(23)
Assets and operations held for sale	(1,960)	(58)	(1,310)	(409)	(364)	(324)	(192)	(4,617)
Currency translation adjustments	92	1	40	1	0	12	4	150
Change in consolidated group	-	-	-	-	0	(0)	(4)	(3)
Other changes	18	-	-	4	6	(17)	(0)	12
<b>Gross amount at December 31, 2016</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>54</b>	<b>114</b>	<b>4</b>	<b>42</b>	<b>216</b>
<b>Depreciation and provisions at December 31, 2015</b>	<b>(842)</b>	<b>(3)</b>	<b>(1,271)</b>	<b>(92)</b>	<b>(417)</b>	<b>(259)</b>	<b>(104)</b>	<b>(2,989)</b>
Net increase in depreciation / impairment <sup>(1)</sup>	(65)	(1)	(0)	(19)	3	(0)	(17)	(100)
Disposals	-	-	-	1	8	7	5	21
Assets and operations held for sale	954	3	1,310	78	330	260	75	3,010
Currency translation adjustments	(45)	(0)	(40)	(1)	(0)	(8)	(3)	(96)
Change in consolidated group	-	-	-	(0)	(0)	-	-	(0)
Other changes	(2)	-	-	-	(20)	-	2	(20)
<b>Depreciation and provisions at December 31, 2016</b>	<b>0</b>	<b>(2)</b>	<b>0</b>	<b>(33)</b>	<b>(97)</b>	<b>(0)</b>	<b>(42)</b>	<b>(174)</b>
<b>Net carrying amount at December 31, 2015</b>	<b>983</b>	<b>47</b>	<b>-</b>	<b>367</b>	<b>62</b>	<b>54</b>	<b>134</b>	<b>1,648</b>
<b>NET CARRYING AMOUNT AT DECEMBER 31, 2016</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>17</b>	<b>4</b>	<b>0</b>	<b>42</b>

(1) No impairment of intangible assets recognized at December 31, 2016.

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	467	441
AREVA TA	9	12
Nuclear Measurements	-	21
<b>Sub-total</b>	<b>477</b>	<b>475</b>
Operations held for sale in 2016		
NewCo	1,607	
<b>TOTAL (*)</b>	<b>2,084</b>	<b>475</b>

\* see note 3.

Pre-mining expenses recorded in intangible assets (see note 1.3.8.3) are subject to impairment tests of the CGUs to which they are attached.

In 2016, investments in intangible assets primarily concern pre-mining expenses in Canada and Niger.

The net value of intangible assets corresponding to capitalized development expenses for the entire range of generation III nuclear reactors (generic EPR, development specific to the EPR for the British and Finnish markets, and EPR NM) amounted to 228 million euros at December 31, 2016 and 2015.

## NOTE 12. PROPERTY, PLANT AND EQUIPMENT

### Continuing operations

<i>(in millions of euros)</i>	Land	Buildings	Plant, equipment and tooling	End-of-life cycle assets – AREVA share	Other	In progress	Total
<b>Gross amount at December 31, 2015</b>	<b>162</b>	<b>1,803</b>	<b>19,374</b>	<b>1,297</b>	<b>1,567</b>	<b>1,916</b>	<b>26,119</b>
CAPEX	-	6	28	-	3	465	502
Disposals	(0)	(6)	(59)	-	(75)	(26)	(165)
Assets and operations held for sale	(156)	(1,898)	(19,710)	(1,528)	(1,481)	(1,966)	(26,739)
Currency translation adjustments	2	19	50	0	29	14	114
Change in consolidated group	(0)	(15)	222	-	(9)	(0)	196
Other changes	2	100	101	230	41	(399)	76
<b>Gross amount at December 31, 2016</b>	<b>10</b>	<b>9</b>	<b>5</b>	<b>0</b>	<b>74</b>	<b>4</b>	<b>102</b>
<b>Depreciation and provisions at December 31, 2015</b>	<b>(83)</b>	<b>(846)</b>	<b>(14,554)</b>	<b>(976)</b>	<b>(1,261)</b>	<b>(757)</b>	<b>(18,477)</b>
Net increase in depreciation/ impairment <sup>(1)</sup>	(1)	(67)	(298)	(33)	(49)	(322)	(771)
Disposals	0	5	53	-	61	0	120
Assets and operations held for sale	80	947	15,077	1,020	1,201	826	19,150
Currency translation adjustments	(0)	(7)	(14)	(0)	(23)	(1)	(45)
Change in consolidated group	0	10	1	-	8	-	19
Other changes	(4)	(47)	(269)	(11)	3	254	(74)
<b>Depreciation and provisions at December 31, 2016</b>	<b>(9)</b>	<b>(4)</b>	<b>(4)</b>	<b>0</b>	<b>(60)</b>	<b>(1)</b>	<b>(78)</b>
<b>Net carrying amount at December 31, 2015</b>	<b>79</b>	<b>957</b>	<b>4,819</b>	<b>322</b>	<b>306</b>	<b>1,158</b>	<b>7,642</b>
<b>NET CARRYING AMOUNT FOR THE YEAR ENDED DECEMBER 31, 2016</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>14</b>	<b>3</b>	<b>25</b>

(1) Impairment of PPE in the amount of 344 million euros was recognized at December 31, 2016.

At December 31, 2016, the net carrying amount of capitalized finance lease contracts was 1 million euros (4 million euros at December 31, 2015).

### Operations held for sale

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	1,093	964
AREVA TA	24	24
Nuclear Measurements	-	18
<b>Sub-total</b>	<b>1,117</b>	<b>1,006</b>
Operations held for sale in 2016		
NewCo	7,589	
<b>TOTAL (*)</b>	<b>8,706</b>	<b>1,006</b>

\* see note 3.

Interest expenses capitalized in the cost of property, plant and equipment were not significant at December 31, 2015 and December 31, 2016.

### MINING ASSETS IN NIGER - IMOURAREN

The group holds 57.7% of the Imouraren mining asset, with the remaining 42.3% held by minority interests (the State of Niger, Sopamin, and Korea Imouraren Uranium Investment [KIU]).

The site has been in "care and maintenance" status since 2015. The project will restart when uranium market conditions permit. In accordance with the Strategic

Partnership Agreement signed in 2014, the State of Niger and AREVA will discuss the project schedule during the first quarter of 2017.

Impairment of 194 million euros was recognized for certain assets devoted to the project (equipment and studies) at December 31, 2015.

In view of uranium market conditions, an impairment test was carried out prior to the classification of NewCo in operations held for sale. The total impairment recorded for the period ended December 31, 2016 amounted to 316 million euros based on

the value in use obtained by discounting estimated future cash flows at the rate of 12% (11.50% at December 31, 2015) and based on a euro/US dollar exchange rate of 1.05 at December 31, 2016 (1.09 at December 31, 2015).

After recognition of that impairment, the net carrying amount of the Imouraren project's property, plant and equipment and intangible assets was 348 million euros at December 31, 2016 (compared with 692 million euros at December 31, 2015).

The test remains sensitive to discount rates, to exchange rate parity, and to the anticipated future prices of uranium. The value in use of the assets of Imouraren, and thus their carrying amount, would fall by the amounts below if any of the following assumptions were used:

- a discount rate of 50 basis points higher: 54 million euros;
- a euro/US dollar exchange rate of 5 eurocents higher (i.e. 1.10 instead of 1.05): 78 million euros;
- uranium sales price assumptions of 5 dollars less per pound for the entire period of the business plans: 87 million euros.

The impairment translates into a debit balance of 285 million euros for minority interests.

### MINING ASSETS IN NAMIBIA - TREKKOPJE

The carrying amount of intangible assets and property, plant and equipment in Namibia includes the developed mining infrastructure and the desalination plant infrastructure. However, the value in use of the desalination plant was tested separately from that of the mining infrastructure.

The desalination plant's value in use was justified based on an updated business plan using a discount rate of 8.50% (7.50% at December 31, 2015).

Impairment in the amount of 22 million euros was recorded on the carrying amount of intangible assets and property, plant and equipment of the mine at December 31, 2015, and additional impairment of 10 million euros was recorded at December 31, 2016 based on their fair value, determined from a multiple of uranium resources in the ground.

After recognition of impairment of the mining assets, the total carrying amount of Trekkopje's property, plant and equipment and intangible assets was 250 million euros (compared with 256 million euros at December 31, 2015).

### COMURHEX II PLANT

Impairment tests carried out in previous years on property, plant and equipment under construction for the Comurhex II uranium conversion plant had led to the write-down in full of capitalized amounts at December 31, 2014, i.e. 811 million euros (including a charge of 599 million euros in 2014).

A review of market conditions and of the balance of supply and demand led to the decision to no longer consider the extension of the plant's production capacity from 15,000 metric tons to 21,000 metric tons. Sales prices and volumes produced were

also revised to reflect the latest market price trends, contracts under negotiation and conversion market forecasts. In addition, the cost of construction at completion of the first phase of the plant was raised by 66 million euros in 2015. This amount did not change over the 2016 financial year.

The impairment test performed prior to NewCo's classification in operations held for sale shows that the value in use of property, plant and equipment under construction – valued at December 31, 2016 using a discount rate of 6.70% (compared with 6.50% at December 31, 2015), a euro/US dollar exchange rate of 1.05 corresponding to the rate at December 31, 2016, and sales price assumptions for conversion units resulting from AREVA's mid- and long-term forecasts for the balance of supply and demand – was used to justify their net carrying amount, which is equal to the amount capitalized at December 31, 2016, i.e. 183 million euros.

The result of the impairment test remains sensitive to the assumptions used, in particular the discount rate, the euro / US dollar exchange rate, long-term sales prices and volumes sold.

The value in use of the property, plant and equipment under construction would fall by the amounts below if any of the following assumptions were used:

- a discount rate of 50 basis points higher: 50 million euros;
- a euro/US dollar exchange rate of 5 eurocents higher (i.e. 1.10 instead of 1.05): 99 million euros;
- sales price assumptions of 1 US dollar less per conversion unit compared with the price forecast drawn up by AREVA: 62 million euros.

### GEORGES BESSE II PLANT

In view of the downturn in market indicators, an impairment test was performed on property, plant and equipment related to the Georges Besse II plant prior to NewCo's classification in operations held for sale. This test was carried out using a discount rate of 6.70% (compared with 6.50% at December 31, 2015), a euro / US dollar exchange rate of 1.05 corresponding to the rate at December 31, 2016, and SWU sales price assumptions resulting from AREVA's mid- and long-term forecasts for supply and demand. On that basis, no impairment was recognized at December 31, 2016.

A sensitivity analysis using the same parameters as the Enrichment CGU (see note 10) would not lead to recognition of impairment.



## NOTE 13. END-OF-LIFECYCLE OPERATIONS

The table below summarizes the AREVA group accounts affected by the treatment of end-of-lifecycle operations and their funding.

Assets (in millions of euros)	December 31,		Shareholders' equity and liabilities (in millions of euros)	December 31,	
	2016	2015		2016	2015
End-of-lifecycle assets – AREVA share <sup>(1)</sup>	-	322		-	
Assets earmarked for end-of-lifecycle operations	-	6,300	Provisions for end-of-lifecycle operations	-	6,921
• End-of-lifecycle assets – third party share <sup>(2)</sup>	-	178	• funded by third parties <sup>(2)</sup>	-	178
• Assets earmarked for end-of-life cycle operations <sup>(3)</sup>	-	6,122	• funded by AREVA	-	6,743

(1) Amount of total provision to be funded by AREVA still subject to amortization.

(2) Amount of the provision to be funded by third parties.

(3) Portfolio of financial assets and receivables earmarked to fund AREVA's share of the total provision.

### END-OF-LIFECYCLE ASSETS

#### Continuing operations

(in millions of euros)	Net carrying amount at December 31, 2015		Net increase in depreciation, amortization and provisions		Unwinding	Other changes	Operations held for sale	Net carrying amount at December 31, 2016
	Increase	Decrease						
AREVA share	322	196	(11)	(23)	-	24	(509)	-
Third party share	178	-	(57)	-	4	2	(127)	-
<b>TOTAL</b>	<b>500</b>	<b>196</b>	<b>(68)</b>	<b>(23)</b>	<b>4</b>	<b>26</b>	<b>(635)</b>	<b>-</b>

#### Operations held for sale

The group's share of assets is classified under property, plant and equipment on the statement of financial position (see note 12).

In addition to the value of its property, plant and equipment, the group recognizes the future share of the costs of end-of-lifecycle operations (nuclear facility dismantling, legacy waste retrieval and packaging, waste shipping and waste disposal) for which it has financial responsibility; the group's share is amortized according to the same schedule as the underlying property, plant and equipment. It also recognizes a third party share of assets for dismantling and waste retrieval and packaging operations to be funded by certain customers. Conversely, a provision is recorded to cover

the total estimated cost of end-of-lifecycle operations as soon as a facility starts up, including any share funded by third parties.

The third-party share remaining in the end-of-lifecycle assets mainly corresponds to the funding expected from CEA for its share of funding for the Pierrelatte site. In 2016, this item decreased due to work performance and the transfer of certain contracts to dismantling receivables.

The increase in the group's share of assets, which concerns the operating facilities, is mainly due to the change in the discount rate applied by the group (from 4.50% to 4.10%).

### PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS

#### Continuing operations

(in millions of euros)	Net carrying amount at December 31, 2015	Reversals (when risk has materialized): expenses for the year	Unwinding	Change in assumptions, revised budgets, etc.	Operations held for sale	Net carrying amount at December 31, 2016
Provision for nuclear facility dismantling	4,939	(140)	156	326	(5,281)	-
Provision for waste retrieval and packaging	1,982	(87)	65	102	(2,061)	-
<b>PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>6,921</b>	<b>(227)</b>	<b>221</b>	<b>428</b>	<b>(7,342)</b>	<b>-</b>

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	339	318
AREVA TA	-	-
Nuclear Measurements	-	-
<b>Sub-total</b>	<b>339</b>	<b>318</b>
Operations held for sale in 2016		
NewCo	7,342	
<b>TOTAL (*)</b>	<b>7,682</b>	<b>318</b>

\* see note 3.

In 2016, excluding expenses for the year and unwinding expense, the main change in liabilities comes from the change in the discount rate applied by the group (from 4.50% to 4.10%).

An audit is in progress by the administrative authority (DGEC, the General Directorate of Energy and Climate) of the dismantling estimate for the Georges Besse I enrichment plant. Once the conclusions of that audit have been finalized, they will be analyzed and included in the valuation of the dismantling estimate for that facility in 2017.

**Provisions for end-of-lifecycle operations for facilities entering in the scope of article 20 of the law of June 28, 2006, codified in articles L. 594-1 et seq. of the French Environmental Code**

Provisions for end-of-lifecycle operations of facilities covered by the law of June 28, 2006 pertaining to the sustainable management of nuclear materials and nuclear waste were broken down as follows at December 31, 2016 and December 31, 2015:

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
	NewCo	NewCo
Dismantling of regulated nuclear facilities, excluding long-term radioactive waste management	4,645	4,310
Dismantling of used fuel, excluding long-term radioactive waste management	-	-
Retrieval and packaging of legacy waste, excluding long-term radioactive waste management	1,217	1,204
Long-term radioactive waste management	1,186	1,148
Post-closure disposal center monitoring costs	52	44
<b>Total provisions for end-of-lifecycle operations of facilities covered by the French law of June 28, 2006</b>	<b>7,100</b>	<b>6,706</b>
Provisions for end-of-lifecycle operations of facilities not covered by the French law of June 28, 2006	242	215
<b>TOTAL PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>7,342</b>	<b>6,921</b>

**Nature of the commitments**

As operators of regulated nuclear facilities (INB), the legal entities that make up the group have the legal obligation to secure and dismantle these facilities when they are shut down permanently in whole or in part. They must also retrieve and package, in accordance with applicable standards, the waste generated by operating activities which could not be processed during treatment. These facilities concern the front end of the cycle, in particular the Tricastin site, and the back end of the cycle as regards the la Hague recycling plant and the MOX fuel fabrication plant of MELOX.

In December 2004, the CEA, EDF and AREVA NC signed an agreement concerning the Marcoule security-regulated nuclear facility (INBS) which transfers the responsibilities of site owner-operator to the CEA, which will be responsible for funding the site cleanup effort. This agreement does not cover final disposal costs

for long-lived high- and medium-level waste. Accordingly, provisions for the Marcoule site include only AREVA's share of waste shipping and final waste disposal costs.

**Determination of provisions for end-of-lifecycle operations**

In accordance with the article 20 of the French program law no. 2006-739 of June 28, 2006 on the sustainable management of radioactive materials and waste, codified in articles L. 594-1 et seq. of the French Environmental Code, AREVA submits a report to the administrative authority every three years on cost estimates and calculation methods for provisions, in addition to an annual update of this report. The methods used by AREVA to value the cost of end-of-lifecycle operations, summarized hereunder, are described in these documents.

**Principles for valuing costs for dismantling and for waste retrieval and packaging**

The valuation of facility dismantling costs is based on methods that provide the best estimate of costs and schedules for design studies and operations:

- for facilities in operation, this involves an upstream valuation based on a technical and economic model produced mainly with the ETE EVAL application used for the different types of facilities to be dismantled. It is based on an inventory of equipment and the latter's estimated radiological condition, and on models with unit cost scenarios and ratios. These valuations are updated at least once every three years and when there is a change in applicable regulations or substantial technological developments may be expected. The valuation of the future dismantling of the UP2-800 / UP3 plant at la Hague was thus updated in 2016;
- for facilities that are shut down and starting from the kick-off of the dismantling project, a series of studies and the condition of the facility are used to establish a cost, supplemented by a risk analysis. The estimated are updated every year;
- the costs are revised to take inflation into account and to reflect economic conditions for the year. They are then allocated by year, adjusted for inflation and discounted to present value, as explained in note 1.3.17. A provision is then recognized based on the present value. The discounting reversal is recognized in "Net financial expense".

**ASSUMPTIONS**

In general, provisions related to nuclear facility dismantling and waste retrieval and packaging are based on the following assumptions:

- some waste from fuel treatment operations performed under older contracts could not be processed on site, as packaging facilities were not yet in service at that time. This waste will be retrieved and packaged following a scenario and using technical methods approved by the regulatory authority;
- an inventory of costs to bring the site to the target decommissioning level will be established, with buildings generally decontaminated where they stand except for special circumstances, and with all nuclear waste areas decommissioned to conventional waste status. The final condition (buildings and soils) of the facilities to be dismantled serves as a base assumption for the dismantling scenario and cost estimates. For each facility, a dismantling plan is systematically prepared, either during the initial license application or during the safety review. Soil cleanup expenses, if applicable, are determined with the objective of returning the facility to a final state of decontamination consistent with current regulations. Naturally, this assumption reflects the future use intended by AREVA for the industrial site in question, beyond the timeframe planned for dismantling operations;
- operations would start without any waiting period for radioactive decay after final shutdown of production;
- expenses are valued based on anticipated costs, including subcontracting, personnel costs, radiation protection, consumables, equipment and the treatment of the resulting waste. The valuation also includes a share of technical support costs of the entities in charge of the dismantling operations and of the related sites, as well as taxes and insurance;
- costs to ship radioactive waste and dispose of it at Andra facilities are estimated and include the valuation of waste processing and disposal methods that do not currently exist, such as:

- estimates of future expenses for deep disposal of long-lived medium- and high-level waste,
- the scope and terms for Andra's future acceptance of waste at its long-lived low-level disposal site and deep geological repository (CIGEO).

**UNCERTAINTIES AND OPPORTUNITIES**

In addition to the caution of the above assumptions and in view of the duration of the end-of-lifecycle commitments, the uncertainties and opportunities cited as examples below are taken into account when they occur:

- Uncertainties:
  - revision of scenarios of certain waste retrieval and packaging projects at la Hague during the qualification of waste retrieval processes;
  - differences between the expected initial conditions of the legacy facilities and the actual initial conditions (presence of asbestos, for example);
  - uncertainties related to changes in the nuclear safety authority's requirements (e.g. for final conditions and soil treatment) and to changes in generally applicable regulations;
- Opportunities:
  - gains generated by the learning curve and industrial standardization of operating procedures;
  - in-depth investigations on the condition of the facilities using new technologies in order to reduce the uncertainty related to initial facility conditions.

**CONSIDERATION OF IDENTIFIED RISKS AND UNFORESEEN EVENTS**

The technical cost of end-of-lifecycle operations is backed up by consideration of:

- a prudent reference scenario that takes operating experience into account;
- a margin for risks identified through risk analyses conducted in accordance with the AREVA standard and updated regularly as the projects advance;
- a margin for unforeseen events designed to cover unidentified risks.

**DISCOUNT RATE**

The inflation rate is set in accordance with the long-term inflation projections for the Eurozone and taking into account the European Central Bank's target rate.

The discount rate is set:

- pursuant to IAS 37, i.e. based on market conditions at year-end closing and the specific characteristics of the liability; and
- to comply with the regulatory cap defined by the decree of February 23, 2007 and the order of March 23, 2015 amending the order of March 21, 2007.

The rate thus results from implementation of the following approach:

- an initial estimate is made based on the moving average yield of 30-year French OATs over a 10-year period, plus a spread applicable to prime corporate borrowers;
- a rate curve is then constructed based on the rate curve of the French State (OAT rates) at the closing date, extended for non-liquid maturities using a long-term break-even rate, plus a spread applicable to prime corporate borrowers and a liquidity risk premium.

Based on expected disbursements, a single equivalent rate is deducted from the rate curve constructed in this manner.

For example, the discount rate is revised based on changes in national economic conditions, with a lasting medium- and long-term impact, in addition to the potential effects of regulatory caps.

For facilities in France, AREVA adopted an inflation rate of 1.65% and a discount rate of 4.10% at December 31, 2016 (down 0.40% compared with December 31, 2015).

At December 31, 2016, the use of a discount rate of 25 bp higher or 25 bp lower than the rate used (4.10%) would have had the effect of changing the value of end-of-lifecycle provisions falling within the scope of the French law of June 26, 2006 by (360) million euros with a discount rate by +25 bp and +394 million euros with a discount rate by -25 bp.

By letter dated February 28, 2017, the Minister of Economy and Finance and the Minister of Environment, Energy and Oceans informed the Chairman of the Board of Directors of AREVA NC of their decision to modify the formula for calculating the regulatory cap on the discount rate, as from 2017. This decision will translate into a change in the order of March 21, 2007, amended by the order of March 24, 2015. The new formula would gradually lead, over a period of 10 years starting with the regulatory cap recognized at December 3, 2016 (4.3%), to, in 2026, a cap equal to the average for the last four years of the 30-year Treasury Constant Maturity Rate (TEC 30) plus 100 basis points.

### ***Final waste removal and disposal***

AREVA sets up a provision for expenses related to radioactive waste.

These expenses include:

- the removal and near-surface disposal of short-lived, very low-level and low-level waste and its share of monitoring of Andra's Centre de la Manche and Centre de l'Aube disposal facilities, which received or still receive these waste;
- the removal and underground disposal of long-lived low-level waste (graphite);
- the removal and disposal of long-lived medium- and high-level waste covered by the French law of December 30, 1991 (now codified in articles L. 542-1 *et seq.* of the French Environmental Code). The provision is based on the assumption that a deep geologic repository will be deployed (hereinafter called Cigéo).

Concerning the ministerial order of January 15, 2016, which set the cost pertaining to implementation of Cigéo at 25 billion euros, that impact had already been taken into account in 2015 and there was no change in that assumption in 2016.

For purposes of sensitivity analysis, any increase of one billion euros in the amount of the estimate for the Cigéo project would lead to an additional charge of 29 million euros by AREVA, based on the method used to establish the existing provision.

### **TENTATIVE SCHEDULE OF PROVISION DISBURSEMENTS**

The following table shows the forward payment schedule of provisions both within and outside the scope of the law of June 28, 2006, excluding Andra's monitoring costs:

<i>(in millions of euros)</i>	December 31, 2016	
		NewCo
2017		292
2018 – 2020		1,402
2021 – 2025		1,592
2026 – 2035		1,667
2036 and beyond		8,525
<b>TOTAL PROVISIONS BEFORE DISCOUNTING</b>		<b>13,478</b>

### **ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS**

#### **Continuing operations**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Receivables related to end-of-lifecycle operations	-	739
Earmarked assets	-	5,383
<b>TOTAL</b>	<b>-</b>	<b>6,122</b>

## 20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**Operations held for sale**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	106	105
AREVA TA	-	-
Nuclear Measurements	-	-
<b>Sub-total</b>	<b>106</b>	<b>105</b>
Operations held for sale in 2016		
NewCo	6,086	
<b>TOTAL (*)</b>	<b>6,192</b>	<b>105</b>

\* see note 3.

**Purpose of earmarked portfolio**

To meet its end-of-lifecycle obligations, the group voluntarily built up a special portfolio earmarked for the payment of its future facility dismantling and waste management expenses. This obligation has applied to all nuclear operators in France since the Law no. 2006-739 of June 28, 2006 and the implementing decree no. 2007-243 of February 23, 2007 came into force. This portfolio was composed based on a schedule of disbursements over more than a century and is therefore managed with long-term objectives. The portfolio is comprised of financial assets covering all of the group's commitments, whether related to obligations imposed by the Law of June 28, 2006 for regulated nuclear facilities located in France, or related to other end-of-lifecycle commitments for facilities located in France or abroad.

The group relies on independent consultants to study strategic target asset allocations to optimize the risk/return of the portfolio over the long term and to advise AREVA on the choice of asset classes and portfolio managers. These recommendations are submitted to the Cleanup and Dismantling Fund Monitoring Committee. Long-term asset allocations indicate the target percentage of assets to cover liabilities (bonds and money market assets, including receivables from third parties) and the diversification of assets (shares of stock, etc.), subject to limitations imposed by the French decree no. 2007-243 of February 23, 2007 and its amendment by the decree no. 2013-678 of July 24, 2013, both in terms of the control and spread of risks and in terms of type of investments.

The portfolio of assets earmarked to fund end-of-lifecycle expenses includes the following:

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
	NewCo	NewCo
<b>In market value or liquidation value</b>		
Publicly traded shares	1,098	1,325
Equity investment funds	1,191	1,095
Bond and money market mutual funds	2,344	2,258
Unlisted mutual funds	112	96
<b>At amortized cost</b>		
Bonds and bond mutual funds held to maturity	561	610
<b>Portfolio of securities earmarked for end-of-lifecycle operations</b>	<b>5,307</b>	<b>5,383</b>
Receivables related to end-of-lifecycle operations	779	739
<b>TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>6,086</b>	<b>6,122</b>

At December 31, 2016, for the scope of end-of-lifecycle obligations, the legal entities which make up AREVA show under-coverage of end-of-lifecycle liabilities by earmarked assets. By letter of January 5, 2017, the authority required AREVA NC to restore 100% coverage within a regulatory limit of three years.

AREVA ensured that all AREVA NC and AREVA NP funds are held, registered and valued by a single custodian capable of performing the necessary control and valuation procedures independently, as required by the implementing decree.

The Equity segment is primarily managed by external service providers via:

- an equity management agreement; and
- earmarked investment funds.

The Rate segment (bonds and money market) is invested via:

- open-ended mutual funds;
- earmarked investment funds; and
- directly held bonds.

	December 31, 2016	December 31, 2015
(in millions of euros)	NewCo	NewCo
<b>By region</b>		
Eurozone	5,532	5,510
Non-euro Europe	471	537
Other	82	75
<b>TOTAL</b>	<b>6,086</b>	<b>6,122</b>

Financial assets held as securities or mutual funds represent 87% of all earmarked assets at December 31, 2016. Earmarked assets were allocated as follows: 40% equities, 47% bonds and 13% receivables.

The contractual framework for the main receivable related to end-of-lifecycle operations (receivable from the CEA in the amount of 681 million euros at December 31, 2016) was amended in 2015 in order to define a payment schedule by the CEA for the principal and interest, with the last payment scheduled for 2024.

The receivables from the CEA and EDF related to overfunding by AREVA in connection with tax payments related to financing provided to Andra between 1983 and 1999 were discussed with these two operators in 2015. The CEA confirmed to AREVA that a debt in an amount equal to AREVA's receivable, i.e. 16 million euros, was recognized in the CEA's accounts for the year ended December 31, 2016. In addition, 35 million euros for advance payments to be received from a third party were recorded in 2016.

#### Performance of financial assets earmarked for end-of-lifecycle operations by asset class<sup>(\*)</sup>

	2016	2015
Asset class	NewCo	NewCo
Shares	+1.4%	+12.8%
Rate products (including receivables related to end-of-lifecycle operations)	3.2%	+1%
<b>TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>2.4%</b>	<b>+5.8%</b>

(\*) Performance reported for these asset classes includes that of mutual funds earmarked for end-of-lifecycle operations of regulated French and foreign nuclear facilities not subject to the French law of June 28, 2006.

Including interest on receivables used to determine the performance of rate instruments, the overall performance of earmarked assets would be +2.4% for the 2016 calendar year.

#### Risk description and assessment

Equity investments in the portfolio of earmarked securities include mainly:

- a mandate of publicly-traded shares, which includes about thirty companies based in the European Union. The securities are held in order to generate gains over the long term. Although it is not a management guideline, the mandate will be assessed over the long term by reference to the MSCI EMU index, net dividends reinvested. The nature of the long-term mandate is not compatible with an evaluation against a benchmark;
- dedicated equity funds with diversified management strategies centered on European securities. The managers must follow strict rules of exposure, depending on the objectives of the fund involved: including limits on the amounts invested per issuer or in percentage of the net value of the portfolio, limits on exposures in currencies other than the euro, tracking error (relative risk compared with the benchmark), and limits on exposures to certain types of instruments. Together, these limits are designed to comply with investment rules established in the implementing decree of the Law of June 28, 2006.

As regards securities held by AREVA NC, interest rate products in the portfolio of earmarked securities mainly include:

- directly held securities consisting of government bonds from the Eurozone, which will be held to maturity. They are recognized at amortized cost under "securities held to maturity";
- dedicated bond funds and open-ended money market funds. The sensitivity to interest rates of bond funds is limited in both directions, including the portfolio's overall consistency with preset long-term sensitivity objectives and the sensitivity of the liabilities to the discount rate used. The issuers' ratings (Moody's or Standard & Poor's) are used to manage the credit risk exposure of money market and bond funds.

For Eurodif, mandates and bond funds were established specifically to match disbursement flows.

#### Valuation

The mutual funds' net asset value is determined by valuing the securities held by each fund at market value on the last day of the period.

**Derivatives**

Derivatives may be used for hedging or to acquire a limited exposure. They are subject to specific investment guidelines prohibiting leverage. Total nominal commitments may not exceed the fund's net assets. Sales of puts and calls must be fully covered by underlying assets (and are prohibited on assets not included in the portfolio).

**Risk assessment and management of the earmarked portfolio**

The risks underlying the portfolios and funds holding assets under the management mandate for end-of-lifecycle operations are assessed every month. For each fund or earmarked asset, this assessment allows the maximum total loss to be estimated with a 95% level of confidence for different portfolio maturities using the VaR (Value at Risk) method and volatility estimates. A second estimate is done using deterministic scenarios: impact of rates and/or declining equity markets.

The impacts of changes in equity markets and interest rates on the valuation of earmarked assets are summarized in the following table:

**NewCo base case (December 31, 2016)**

(in millions of euros)

**Assumption: declining equity markets and rising interest rates**

-10% on equities	-240
+100 basis points on rates	-64
<b>TOTAL</b>	<b>-304</b>

**Assumption: rising equity markets and declining interest rates**

+10% on equities	+240
-100 basis points on rates	+64
<b>TOTAL</b>	<b>+304</b>

**NOTE 14. INFORMATION ON JOINT VENTURES AND ASSOCIATES**

A joint venture is considered to be significant if its revenue or balance sheet total is more than 200 million euros. An associate is considered to be significant when its balance sheet total is more than 200 million euros.

**CONTINUING OPERATIONS**

**Investments in joint ventures and associates**

(in millions of euros)

	December 31, 2016	December 31, 2015
Adwen	-	74
Other joint ventures	6	23
<b>Total joint ventures</b>	<b>6</b>	<b>97</b>
Other associates	4	3
<b>Total associates</b>	<b>4</b>	<b>3</b>
<b>TOTAL</b>	<b>10</b>	<b>100</b>

**Share in negative net equity of joint ventures and associates**

(in millions of euros)

	December 31, 2016	December 31, 2015
ETC	-	59
<b>TOTAL JOINT VENTURES</b>	<b>-</b>	<b>59</b>

Amounts related to ETC and Adwen were reclassified under "assets and operations held for sale" at December 31, 2016.

**Share in net income of joint ventures and associates**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Adwen	(14)	(26)
Other joint ventures	(1)	(1)
<b>Total joint ventures</b>	<b>(15)</b>	<b>(27)</b>
<b>Total associates</b>	<b>1</b>	<b>1</b>
<b>TOTAL</b>	<b>(14)</b>	<b>(26)</b>

**OPERATIONS HELD FOR SALE****Investments in joint ventures and associates**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
AREVA NP	94	103
AREVA TA	-	-
Nuclear Measurements	-	-
<b>Sub-total</b>	<b>94</b>	<b>103</b>
Operations held for sale in 2016		
NewCo	17	
Adwen	61	
<b>Sub-total</b>	<b>78</b>	
<b>TOTAL (*)</b>	<b>172</b>	<b>103</b>

\* see note 3.

**Share in negative net equity of joint ventures and associates**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
New NP	-	30
AREVA TA	-	-
Nuclear Measurements	-	-
<b>Sub-total</b>	<b>-</b>	<b>30</b>
Operations held for sale in 2016		
NewCo	63	
<b>TOTAL (*)</b>	<b>63</b>	<b>30</b>

\* see note 3.

Enrichment Technology Company (ETC) is a joint venture held in equal shares by AREVA and Urenco. Its main activity is to build, assemble and install centrifuges and associated piping systems enabling its customers to enrich uranium. ETC is also involved in the design of ultracentrifugation enrichment plants to meet its customers' needs and in project management for the construction of these facilities.

AREVA considers that it has an implicit obligation to ensure the continuity of ETC operations; consequently, and in accordance with the provisions of IAS 28, AREVA recognizes its share of negative equity under liabilities on its consolidated balance sheet and its share of negative net income on its statement of income and statement of consolidated comprehensive income.



## NOTE 15. OTHER NON-CURRENT ASSETS

### CONTINUING OPERATIONS

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Available-for-sale securities	-	41
Loans to associates	229	370
Derivatives on financing activities	-	123
Other non-current financial assets	4	24
Other non-current non-financial assets	-	15
<b>TOTAL</b>	<b>234</b>	<b>573</b>

Loans to affiliates correspond to a shareholder loan to Adwen in the amount of 229 million euros.

### OPERATIONS HELD FOR SALE

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	63	58
AREVA TA	-	0
Nuclear Measurements	-	0
<b>Sub-total</b>	<b>63</b>	<b>59</b>
Operations held for sale in 2016		
NewCo	138	
Adwen	(0)	
<b>Sub-total</b>	<b>137</b>	
<b>TOTAL (*)</b>	<b>201</b>	<b>59</b>

\* see note 3.

At December 31, 2016, operations held for sale included:

- investments in privately held companies, mainly the 13% interest in the capital of Euronimba (iron mine in Guinea). At December 31, 2016, the carrying amount

of the securities is justified by the potential resale value of the deposit's reserves and resources, based on a valuation per pound of iron in the ground;

- uranium inventories capitalized to fund future mining site rehabilitation expenses abroad.

**NOTE 16. INVENTORIES AND WORK-IN-PROCESS****CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	December 31, 2016			December 31, 2015		
	Gross amount	Impairment	Net amount	Gross amount	Impairment	Net amount
Raw materials and other supplies	-	-	-	327	(104)	223
Goods in process	2	-	2	13	(0)	13
Services in process	-	-	-	854	(239)	615
Intermediate and finished products	-	-	-	416	(51)	365
<b>TOTAL</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>1,611</b>	<b>(395)</b>	<b>1,216</b>
Inventories and work-in-process						
• at cost			2			744
• at fair value net of disposal expenses			-			472

**CHANGE IN WRITE-DOWNS OF INVENTORIES AND WORK-IN-PROCESS**

JANUARY 1, 2016	(395)
Charges	(77)
Reversal (when risk has materialized)	30
Reversal (when risk has not materialized)	5
Change in consolidated group	-
Other	(1)
Operations held for sale	438
<b>DECEMBER 31, 2016</b>	<b>-</b>

At December 31, 2016, write-downs of inventories and work-in-process were recognized in the amount of 46 million euros (compared with 113 million euros in 2015), including 26 million euros for inventories of the separative work units (SWU) of the Enrichment operations and 20 million euros for the conversion inventories (UF<sub>6</sub>) of the Chemistry operations.

These write-downs relate to the downward trend of market price indicators for SWUs and conversion over the period.

**OPERATIONS HELD FOR SALE****Net carrying amount of inventories and work-in-process**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	699	644
AREVA TA	10	15
Nuclear Measurements	-	37
<b>Sub-total</b>	<b>709</b>	<b>696</b>
Operations held for sale in 2016		
NewCo	1,259	
<b>TOTAL (*)</b>	<b>1,968</b>	<b>696</b>

\* see note 3.

## NOTE 17. TRADE ACCOUNTS RECEIVABLE AND RELATED ACCOUNTS

### CONTINUING OPERATIONS

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Gross amount	159	978
Impairment	(5)	(37)
<b>NET CARRYING AMOUNT</b>	<b>154</b>	<b>941</b>

The gross amount of trade accounts receivable and related accounts does not include receivables maturing in more than one year.

At December 31, 2016, trade accounts receivable and related accounts include receivables in the amount of 137 million euros on contracts recognized according

to the percentage of completion method (compared with 274 million euros at December 31, 2015).

In 2015 and 2016, AREVA did not sell trade receivables maturing after year-end closing.

### Trade accounts receivable and related accounts (gross) \*

<i>(in millions of euros)</i>	Gross	Maturing in the future	Impaired and past due	Including not impaired and past due					More than one year
				Less than 1 month	1 to 2 months	2 to 3 months	3 to 6 months	6 months to 1 year	
Trade accounts receivable and related accounts									
At December 31, 2016	21	5	2	0	0	0	0	1	13
At December 31, 2015	704	575	29	35	2	1	5	11	46

\* : Excluding accounts receivable recognized according to the percentage of completion method.

### OPERATIONS HELD FOR SALE

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	745	729
AREVA TA	74	82
Nuclear Measurements	-	49
<b>Sub-total</b>	<b>819</b>	<b>861</b>
Operations held for sale in 2016		
NewCo	745	
<b>TOTAL (*)</b>	<b>1,563</b>	<b>861</b>

\* see note 3.

**NOTE 18. OTHER OPERATING RECEIVABLES****CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
French State	106	326
Advances and down payments to suppliers	106	142
Miscellaneous accounts receivable	29	347
Financial instruments	10	41
Other	0	9
<b>TOTAL</b>	<b>252</b>	<b>865</b>

During the 2015 and 2016 financial years, AREVA disposed of tax receivables without recourse to financial institutions in the amounts of 122 million euros and 70 million euros respectively. AREVA retained no significant ongoing involvement in respect of these receivables.

"Miscellaneous accounts receivable" includes prepaid expenses, receivables from suppliers and receivables from employees and benefit management bodies.

"Financial instruments" include the fair value of derivatives hedging market transactions and the fair value of the firm commitments hedged.

At December 31, 2016, other operating receivables had a maturity of less than one year.

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
New NP	942	792
AREVA TA	23	29
Nuclear Measurements	-	4
<b>Sub-total</b>	<b>965</b>	<b>824</b>
Operations held for sale in 2016		
NewCo	568	
<b>TOTAL (*)</b>	<b>1,533</b>	<b>824</b>

\* see note 3.

**NOTE 19. CASH AND CASH EQUIVALENTS****CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Cash and current accounts	483	336
Cash equivalents	202	468
<b>TOTAL</b>	<b>686</b>	<b>804</b>

Cash equivalents consist chiefly of short-term marketable securities and mutual funds.

At December 31, 2016, continuing operations did not have unavailable cash and cash equivalents (compared with 78 million euros at December 31, 2015).

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	26	28
AREVA TA	0	0
Nuclear Measurements	-	3
<b>Sub-total</b>	<b>26</b>	<b>32</b>
Operations held for sale in 2016		
NewCo	136	
<b>TOTAL (*)</b>	<b>162</b>	<b>32</b>

\* see note 3.

At December 31, 2016, the amount of cash and cash equivalents not available to the group amounted to 67 million euros (compared with 78 million euros at December 31, 2015, classified in continuing operations):

- 37 million euros held by a subsidiary operating in Kazakhstan, where there are legal restrictions;
- 30 million euros held by a captive insurance firm pursuant to the Solvency2 prudential regulation.

**NOTE 20. OTHER CURRENT FINANCIAL ASSETS**

**CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Securities held for trading	-	-
Other current financial assets and derivatives on financing activities	143	207
<b>TOTAL</b>	<b>143</b>	<b>207</b>

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	4	3
AREVA TA	0	0
Nuclear Measurements	-	0
<b>Sub-total</b>	<b>5</b>	<b>3</b>
Operations held for sale in 2016		
NewCo	2	
<b>TOTAL (*)</b>	<b>6</b>	<b>3</b>

\* see note 3.

**NOTE 21. EQUITY**

The AREVA share is traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN FR0011027143.

At December 31, 2016, AREVA's capital was held as follows:

**CAPITAL**

At December 31	2016	2015
CEA	54.4%	54.4%
French State	28.8%	28.8%
Kuwait Investment Authority	4.8%	4.8%
CDC/BPI France Participations	3.3%	3.3%
Total	0.9%	0.9%
Employees	1.2%	1.2%
EDF	2.2%	2.2%
Treasury shares	0.2%	0.2%
Public	4.0%	4.0%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>

The par value of the AREVA SA share was reduced from 3.80 euros to 0.25 euros during the Combined General Meeting of Shareholders February 3, 2017 (see note 35).

**DILUTIVE INSTRUMENTS**

The group does not have a stock option plan and has not issued any instrument convertible into equity.

**CURRENCY TRANSLATION RESERVES**

The group's currency translation reserves were 64 million euros in 2016, compared with (48) million euros in 2015.

**EARNINGS PER SHARE**

An average of 382,248,430 shares was used to calculate earnings per share for 2016.

**TAX IMPACT OF OTHER ITEMS OF COMPREHENSIVE INCOME**

<i>(in millions of euros)</i>	2016			2015		
	Before tax	Income tax	After tax	Before tax	Income tax	After tax
Actuarial gains and losses on employee benefits	3	(0)	2	-	-	1
Currency translation adjustments on consolidated companies and other	-	-	-	-	-	-
Change in value of available-for-sale financial assets	-	-	-	-	-	-
Change in value of cash flow hedges	-	-	-	4	-	4
Share in comprehensive income of joint ventures, net of tax	-	-	-	-	-	-
Items of comprehensive income related to operations sold, discontinued or held for sale, net of tax	(51)	10	(42)	173	(45)	127
<b>TOTAL OTHER ITEMS OF COMPREHENSIVE INCOME (NET OF INCOME TAX)</b>	<b>(49)</b>	<b>9</b>	<b>(39)</b>	<b>177</b>	<b>(45)</b>	<b>132</b>

## NOTE 22. MINORITY INTERESTS

The largest minority interests were as follows:

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Katco	109	126
SET and SET Holding	82	184
Somaïr	68	65
Imouraren (*)	(285)	(129)
AREVA TA	18	11
Sofidif	18	18
Other	(20)	(41)
<b>TOTAL</b>	<b>(10)</b>	<b>235</b>

(\*) Imouraren is held by ANC Expansion, itself held by CFMM (see note 36).

The percentages of the principal minority interests are mentioned in note 36.

AREVA believes it has an implicit obligation to ensure continuity of operation of Eurodif and its subsidiaries; consequently, AREVA recognizes all of these companies' losses and negative net equity in "net income attributable to owners of the part" and in "equity attributable to owners of the parent".

## NOTE 23. EMPLOYEE BENEFITS

Depending on the prevailing laws and practices of each country, the group's companies make severance payments to their retiring employees based on their compensation and seniority. Long-service medals and early retirement pensions are paid in France and in Germany, while supplemental pensions contractually guarantee a given level of income to certain employees. Some of the group's companies also grant other post-retirement benefits, such as the reimbursement of medical expenses.

These defined benefit plans are recognized in accordance with the accounting method defined in note 1.3.15.

The group calls on independent actuaries for a valuation of its commitments each year.

In some companies, these commitments are covered in whole or in part by contracts with insurance companies or pension funds. In such cases, the obligations and the covering assets are valued independently. The difference between the commitment and the fair value of the covering assets is either a funding surplus or a deficit. A provision is recognized in the event of a deficit, and an asset is recognized in the event of a surplus, subject to specific conditions.

### Change in the discount rate and other financial assumptions at December 31, 2016

The group's discount rate for the Eurozone was set at 1.50%, compared with 2.15% at year-end 2015. The long-term inflation assumption for the Eurozone was set at 1.5%.

### The group's key benefits

The "CAFC plan" set up in 2012 is an early retirement plan consisting of a working time account with matching contributions from the employer for personnel who work at night or in certain jobs identified in the agreement. The system is partially covered by an insurance policy. The population of eligible beneficiaries is open.

The group's second most material early retirement system (called "TB6") is also located in France. The beneficiaries are employees who work at night or in certain types of jobs identified in the agreement.

Medical coverage partially funded by the employer during the retirement period is currently in effect in some companies in France. The population of eligible beneficiaries is open.

## PROVISIONS RECOGNIZED ON THE BALANCE SHEET

## Continuing operations

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
<b>TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS</b>	<b>1,908</b>	<b>1,909</b>
Plus total for plans valued locally	0	2
Less total for operations held for sale	1,904	456
Less pension plan assets	-	-
<b>TOTAL PLANS REVIEWED BY THE GROUP'S ACTUARIES</b>	<b>4</b>	<b>1,455</b>
Medical expenses and accident/disability insurance	0	315
Retirement benefits	1	351
Job-related awards	0	7
Early retirement benefits	3	774
Supplemental retirement benefits	0	8

## Operations held for sale

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	405	416
AREVA TA	40	38
Nuclear Measurements	-	2
<b>Sub-total</b>	<b>445</b>	<b>456</b>
Operations held for sale in 2016		
NewCo	1,459	
<b>TOTAL (*)</b>	<b>1,904</b>	<b>456</b>

\* see note 3.

## ■ By region

	Eurozone	Other	Total
Medical expenses and accident/disability insurance	357	6	363
Retirement benefits	466	-	466
Job-related awards	22	-	22
Early retirement benefits	775	-	775
Supplemental retirement benefits	179	100	279
<b>TOTAL</b>	<b>1,797</b>	<b>106</b>	<b>1,904</b>



20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**ACTUARIAL ASSUMPTIONS**

The following information concerns the plans valued by the group's actuaries for the continuing operations and operations held for sale.

	2016	2015
Long-term inflation		
• Eurozone	1.5%	1.6%
Discount rate		
• Eurozone	1.5%	2.15%
• Dollar zone	4.0%	4.0%
Pension benefit increases		
• Eurozone	1.5%	1.6%
• Dollar zone	NA	NA
Social security ceiling increase (net of inflation)	+0.5%	+0.5%

■ Mortality tables

	2016	2015
France		
• Annuity	Mortality tables	Mortality tables
• Lump sum payment	INSEE 2000-2002 Men/Women	INSEE 2000-2002 Men/Women
Germany	RT2005G	RT2005G
United States	adjRP2014RN & MP2016	adjRP2014RN & MP2015

■ Retirement age in France

	2016	2015
Management personnel	65	65
Non-management personnel	62	62

■ Average attrition is assumed to occur among employees in each company at a declining rate reflecting age brackets. The rates between brackets indicate [average turnover at career start - average turnover at career end].

	Management personnel		Non-management personnel	
	2016	2015	2016	2015
France	[1.6% -0%]	[1.6% -0%]	[0.7% -0%]	[0.7% -0%]
Germany	[7% -0%]	[7% -0%]	[7% -0%]	[7% -0%]
United States	6%	6%	6%	6%

■ Assumed rates of average salary increases, including inflation. The rates between brackets indicate [average increases at career start - average increases at career end].

	Management personnel		Non-management personnel	
	2016	2015	2016	2015
France	[2.6%; -1.1%]	[2.6%; -1.1%]	[2.6%; -1.1%]	[2.6%; -1.1%]
Germany	3%	3%	3%	3%
United States	3.75%	3.75%	3.75%	3.75%

**FINANCIAL ASSETS**

The group's pension assets do not include financial instruments of the AREVA group. The pension plans' real estate assets do not include real property owned by AREVA.

**Continuing operations**

There are no financial assets for continuing operations.

**Operations held for sale**

<b>Europe</b>	<b>NewCo</b>		<b>New NP</b>	
	<b>2016</b>	<b>2015</b>	<b>2016</b>	<b>2015</b>
<b>Type of asset</b>				
Cash	12%	10%	1%	0%
Bonds	88%	90%	67%	78%
Shares	0%	0%	31%	20%
Real estate	0%	0%	1%	1%

<b>United States</b>	<b>NewCo</b>		<b>New NP</b>	
	<b>2016</b>	<b>2015</b>	<b>2016</b>	<b>2015</b>
<b>Type of asset</b>				
Cash	na	na	3%	2%
Bonds	na	na	46%	36%
Shares	na	na	51%	62%
Real estate	na	na	0%	0%

<b>Effective yield of retirement assets</b>	<b>NewCo</b>		<b>New NP</b>	
	<b>2016</b>	<b>2015</b>	<b>2016</b>	<b>2015</b>
Europe	2%	0.6%	5.4%	0.0%
United States	na	na	4.7%	0.1%

**NET CARRYING AMOUNT OF DEFINED BENEFIT OBLIGATIONS****Continuing operations**

<b>December 31, 2016</b>	<b>Medical expenses and accident/ disability insurance</b>	<b>Retirement benefits</b>	<b>Job-related awards</b>	<b>Early retirement benefits</b>	<b>Supplemental retirement benefits</b>	<b>Group total</b>
Defined benefit obligation	0	0	0	0	4	4
Fair value of plan assets	0	0	0	0	0	0
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>

**SENSITIVITY OF THE ACTUARIAL VALUE TO CHANGES IN DISCOUNT RATE**

An across-the-board decrease in the discount rate of 0.5% would increase the defined benefit obligation by 4.9%.

**Operations held for sale**

- For NewCo

December 31, 2016	Medical expenses and accident/disability insurance	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
Defined benefit obligation	349	340	8	858	50	1,605
Fair value of plan assets	0	2		97	47	146
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>349</b>	<b>338</b>	<b>8</b>	<b>761</b>	<b>3</b>	<b>1,459</b>

- For New NP

December 31, 2016	Medical expenses and accident/disability insurance	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
Defined benefit obligation	12	105	17	7	905	1,046
Fair value of plan assets	0	7	4	0	630	641
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>12</b>	<b>97</b>	<b>13</b>	<b>7</b>	<b>275</b>	<b>404</b>

**CHANGE IN THE DEFINED BENEFIT OBLIGATION**
**Continuing operations**

December 31, 2016 (in millions of euros)	Medical expenses and accident/disability insurance	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
<b>Defined benefit obligation at December 31, 2015</b>	<b>315</b>	<b>351</b>	<b>8</b>	<b>896</b>	<b>54</b>	<b>1,626</b>
Current service cost	7	14	0	16	0	37
Past service costs (including plan changes and reductions)	(8)	(12)	(0)	(6)	(0)	(26)
Plan transfer	0	0	0	0	0	0
Disposals / Liquidation / Plan reductions	0	0	0	0	0	0
Cost escalation	7	7	0	19	1	33
Mergers, acquisitions, transfers	0	(5)	(0)	0	0	(5)
Change in consolidation scope	0	0	0	0	0	0
Employee contributions	0	0	0	0	0	0
Benefits paid during the year	(7)	(26)	(0)	(100)	(3)	(136)
Actuarial gains and losses	36	11	0	33	1	81
Currency translation adjustments	0	0	0	0	0	0
Defined benefit obligation of operations held for sale	(349)	(340)	(8)	(858)	(50)	(1,605)
<b>DEFINED BENEFIT OBLIGATION AT DECEMBER 31, 2016</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>

**Operations held for sale**

- For NewCo

December 31, 2016 (in millions of euros)	Medical expenses and accident/disability insurance	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
<b>Defined benefit obligation at December 31, 2015</b>						
Current service cost						
Past service costs (including plan changes and reductions)						
Plan transfer						
Disposals / Liquidation / Plan reductions						
Cost escalation						
Mergers, acquisitions, transfers						
Change in consolidation scope						
Employee contributions						
Benefits paid during the year						
Actuarial gains and losses						
Currency translation adjustments						
Defined benefit obligation of operations held for sale	349	340	8	858	50	1,605
<b>DEFINED BENEFIT OBLIGATION AT DECEMBER 31, 2016</b>	<b>349</b>	<b>340</b>	<b>8</b>	<b>858</b>	<b>50</b>	<b>1,605</b>

- For New NP

December 31, 2016 (in millions of euros)	Medical expenses and accident/disability insurance	Retirement benefits	Job-related awards	Early retirement benefits	Supplemental retirement benefits	Total
<b>Defined benefit obligation at December 31, 2015</b>	<b>14</b>	<b>110</b>	<b>18</b>	<b>23</b>	<b>921</b>	<b>1,086</b>
Current service cost	0	6	1	2	19	27
Past service costs (including plan changes and reductions)	0	0	6	(2)	0	4
Plan transfer	0	0	0	0	0	0
Disposals / Liquidation / Plan reductions	0	0	0	0	0	0
Cost escalation	0	2	0	0	25	28
Mergers, acquisitions, transfers	0	(10)	(1)	(16)	(14)	(41)
Change in consolidation scope	0	0	0	0	0	0
Employee contributions	0	0	0	0	3	3
Benefits paid during the year	(1)	(16)	(2)	(1)	(52)	(72)
Actuarial gains and losses	0	7	0	(1)	8	14
Currency translation adjustments	0	0	0	0	(4)	(4)
Defined benefit obligation of operations held for sale						
<b>DEFINED BENEFIT OBLIGATION AT DECEMBER 31, 2016</b>	<b>14</b>	<b>99</b>	<b>23</b>	<b>6</b>	<b>905</b>	<b>1,046</b>

**CHANGES IN PLAN ASSETS**

**Continuing operations**

*(in millions of euros)*

<b>Value of assets at December 31, 2015</b>	<b>171</b>
Interest income on assets	3
Actuarial differences	0
Contributions / Benefits paid by the employer	0
Employee contributions	0
Benefits paid and not reimbursed	0
Benefits paid by earmarked assets	(28)
Administrative expenses funded by assets	0
Effect of mergers / acquisitions / transfers between entities	0
Effect of mergers / acquisitions / transfers between entities	0
Change in consolidation scope	0
Currency translation adjustments	0
Assets of operations held for sale	(146)
<b>VALUE RECOGNIZED AT DECEMBER 31, 2016</b>	<b>0</b>

**Operations held for sale**

*(in millions of euros)*

	<b>NewCo</b>	<b>New NP</b>
<b>Value of assets at December 31, 2015</b>	<b>-</b>	<b>651</b>
Interest income on assets		18
Actuarial differences		12
Contributions / Benefits paid by the employer		7
Employee contributions		3
Benefits paid and not reimbursed		0
Benefits paid by earmarked assets		(28)
Administrative expenses funded by assets		(2)
Effect of mergers / acquisitions / transfers between entities		(13)
Effect of mergers / acquisitions / transfers between entities		0
Change in consolidation scope		0
Currency translation adjustments		(6)
Assets of operations held for sale	146	
<b>VALUE RECOGNIZED AT DECEMBER 31, 2016</b>	<b>146</b>	<b>641</b>

## CHANGE IN PROVISION ESTIMATED BY THE GROUP'S ACTUARIES

## Continuing operations

<i>(in millions of euros)</i>	2016
<b>Balance at December 31, 2015</b>	<b>1,455</b>
Change in consolidated group	(5)
Currency translation adjustment	0
Total charge (continuing operations)	(2)
Total charge (operations held for sale)	124
Contributions collected/benefits paid	(108)
Assets of operations held for sale	(1,459)
<b>NET CARRYING AMOUNT AT DECEMBER 31, 2016</b>	<b>4</b>

## Operations held for sale

<i>(in millions of euros)</i>	2016			Total
	NewCo	New NP	Other	
<b>Balance at December 31, 2015</b>		<b>435</b>	<b>38</b>	<b>473</b>
Change in consolidated group		(28)	(1)	(29)
Currency translation adjustment		2		2
Reclassification of provisions/assets				
Total expense		46	5	51
Contributions collected/benefits paid		(51)	(1)	(52)
Assets of operations held for sale	1,459	-		1,459
<b>NET CARRYING AMOUNT AT DECEMBER 31, 2016</b>	<b>1,459</b>	<b>404</b>	<b>40</b>	<b>1,904</b>

## 20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**TOTAL EXPENSE FOR THE YEAR**
**Continuing operations**

<i>Financial Year 2016 (in millions of euros)</i>	<b>Medical expenses and accident/ disability insurance</b>	<b>Retirement benefits</b>	<b>Job-related awards</b>	<b>Early retirement benefits</b>	<b>Supplemental retirement benefits</b>	<b>Total</b>
Current service cost	0	0	0	0	0	0
Interest cost	0	0	0	0	0	0
Past service costs (including plan changes and reductions)	0	0	0	0	0	0
Interest income on assets	0	0	0	0	0	0
Recognition of actuarial gains and losses generated during the year on other long-term plans (long service medals, CATS, etc.)	0	0	0	0	0	0
Liquidation	0	0	0	0	0	0
<b>TOTAL EXPENSE WITH INCOME STATEMENT IMPACT</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Actuarial gains and losses on earmarked assets	0	0	0	0	0	0
Experience differences	(0)	(3)	0	0	(0)	(3)
Demographic assumption differences	0	0	0	0	0	0
Financial assumption differences	0	0	0	0	0	0
<b>TOTAL EXPENSE WITH IMPACT ON OTHER ITEMS OF COMPREHENSIVE INCOME</b>	<b>(0)</b>	<b>(3)</b>	<b>0</b>	<b>0</b>	<b>(0)</b>	<b>(3)</b>
<b>TOTAL EXPENSE FOR THE YEAR</b>	<b>(0)</b>	<b>(2)</b>	<b>(0)</b>	<b>0</b>	<b>0</b>	<b>(2)</b>

**NOTE 24. OTHER PROVISIONS**
**CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	<b>January 1, 2016</b>	<b>Charges</b>	<b>Reversal (when risk has materialized)</b>	<b>Reversal (when risk has not materialized)</b>	<b>Operations held for sale</b>	<b>Other changes (* )</b>	<b>December 31, 2016</b>
Restoration of mining sites and mill decommissioning	238	11	(9)	(0)	(254)	15	0
<b>Other non-current provisions</b>	<b>238</b>	<b>11</b>	<b>(9)</b>	<b>(0)</b>	<b>(254)</b>	<b>15</b>	<b>0</b>
Restructuring and layoff plans	243	44	(106)	(8)	(185)	14	2
Provisions for ongoing cleanup	29	0	(0)	0	(17)	(12)	0
Provisions for losses at completion	1,810	171	(437)	(6)	(106)	1	1,432
Accrued costs	1,030	141	(60)	(11)	(1,168)	68	0
Other	878	387	(41)	(303)	(275)	(20)	625
<b>Current provisions</b>	<b>3,990</b>	<b>742</b>	<b>(644)</b>	<b>(327)</b>	<b>(1,751)</b>	<b>51</b>	<b>2,060</b>
<b>TOTAL PROVISIONS</b>	<b>4,228</b>	<b>753</b>	<b>(653)</b>	<b>(328)</b>	<b>(2,006)</b>	<b>65</b>	<b>2,060</b>

(\*) Including unwinding of 77 million euros at December 31, 2016.

**PROVISIONS FOR LOSSES AT COMPLETION****Contract for the construction of the Olkiluoto 3 EPR power plant**

Construction of the Olkiluoto 3 EPR power plant ("the project") progressed over the course of 2016, meeting critical path milestones, although delays were recorded on subcritical tasks. The key milestones met were:

- submittal of the Operating License Application (OLA) file on April 13, 2016;
- completion of functional tests of the cabinets of the production part (TXP);
- tests on the full-scale simulator, which ended with the acceptance of TVO and STUK on October 14, 2016;
- nuclear circuit cleaning, which took place from October 17 to November 3, 2016;
- open-vessel functional tests, which started on November 19 and ended on January 13, 2017, according to plan.

The key short-term milestones until fuel loading are as follows:

- preparation for cold functional tests to begin in January 2017;
- start of cold functional tests, to begin in June 2017;
- start of hot functional test sequences in the second half of 2017;
- Operating License Granting (OLG) at the end of 2017;
- fuel loading in April 2018.

The project is entering the integrated testing phase leading to fuel loading in the reactor and requires strong operational commitment by TVO. Its involvement in maintaining the schedule until connection to the grid has never been more necessary.

Uncertainties remain as to the end of the project. On the one hand, from a contractual standpoint, TVO continues to limit itself to a strict interpretation of the contract. TVO thus rejects any gradual handover of responsibility which future operational constraints could require, particularly those related to nuclear commissioning, which starts with fuel loading.

In addition, the principal stumbling block concerns methods of finalizing the project in connection with the restructuring deployed by AREVA, concerning in particular the operational and financial resources allocated to the project. In the absence of agreement and as expressly requested by TVO, the project must remain unchanged in its contractual form.

On the other hand, on the legal level, the pre-trial investigation phase of the legal proceeding begun in 2008 between the AREVA-Siemens consortium and TVO continues. The AREVA-Siemens consortium continues to exercise its rights in connection with the arbitration proceedings.

The consortium's claim for compensation for damages concerns a total amount of 3.5 billion euros. TVO's claim against the consortium amounts to approximately 2.3 billion euros. The consortium and its counsel still believe that the allegations of intentional gross negligence set out by TVO in its claim against the consortium remain unfounded.

In accordance with the schedule of the arbitration proceeding, a partial decision was rendered by the court on November 7, 2016. While that decision allows some of TVO's claims, it does not constitute a decision on the financial outcome of the dispute between the parties. Other intermediate decisions are expected before the final decision, not expected before the end of 2017 or early 2018.

On the accounting level and in this context, AREVA considers that it does not have the ability to assess the cost of the program at completion with sufficient reliability, and in particular the start-up test phases of the reactor, especially those that begin with fuel loading in the reactor, since TVO is officially the nuclear operator of the Olkiluoto 3 nuclear reactor as from that date. The valuation of the cost of these test phases, which will last until the completion of the project, remain highly dependent on the degree of the customer's cooperation and compliance with its operational obligations. This cost category is termed "undiscernible".

However, except for the costs identified above, AREVA is still able to assess the amount of the costs to be incurred to complete the reactor's construction. These types of costs are called "reliable".

In this context, and in accordance with the provisions of paragraph 32 of IAS 11, AREVA stopped recognizing contract revenue and costs based on the percentage of completion method. It now uses the following recognition methods:

- revenue recognized for the contract is frozen at the level of the amount reached at June 30, 2013;
- contract costs are recorded in expenses as they are incurred; only costs in the "reliable" categories that effectively contribute to the physical progress of the reactor's construction are charged against the provision for losses at completion pertaining to the contract. They totaled 384 million euros for 2016. "Undiscernible" costs recorded directly in expenses or which did not contribute to the project's progress amounted to 41 million euros;
- for the full year of 2016, operating costs at completion rose 122 million euros in connection with the net excess costs incurred over the period;
- in view of the difficulty of accurately estimating the reactor commissioning test phases (and in particular the phase involving fuel loading in the reactor, which is highly dependent on TVO's actions), a return to recognizing revenue from the project based on the percentage of completion method will not be considered before the second half of 2017;
- if the existing uncertainties as to the end of the project are dispelled, AREVA will then resume recognition of the OL3 contract in accordance with the percentage of completion method, which will lead to an adjustment of revenue as a function of the project's percentage of completion.

**Other provisions**

At December 31, 2016 and December 31, 2015, the other provisions include in particular:

- provisions for disputes;
- provisions for tax risks;
- provisions for fines and penalties;
- provisions for expenses related to work preparatory to the shutdown of certain nuclear facilities;
- provisions for guarantees given to third parties.

In particular, this item includes the risks associated with the following items:

**Bioenergy operations**

In February 2016, the group made the decision to withdraw from bioenergy operations in view of AREVA's non-optimum position in that field and the difficulties of that operating segment in several projects in which AREVA was present.



20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

The graduation cessation of these operations is in progress but will be fully effective only after AREVA has fulfilled its remaining contractual commitments. These concern the Green Innovation Project (GIFT) in the Philippines and the Commentry Bio Energy Project (BEC) in France. Following the announcement of this cessation of operations, various claims were lodged against the Brazilian entity. The provisions set aside for commercial disputes and litigation in progress were reassessed, and adjustments were made at December 31, 2016.

**Adwen**

Since Adwen could find itself exposed to the consequences of projects that have been or are being executed, AREVA agreed to provide it with certain guarantees in this regard in the agreement creating the Adwen joint venture signed in March 2015.

AREVA and Gamesa, the two shareholders of Adwen, wished to further develop their relationship by signing an amendment to the shareholders' agreement of the Adwen joint venture on June 17, 2016. At the end of a three-month competitive bidding process designed to solicit and assess offers from potential third-party investors, on September 14, 2016 AREVA exercised its option to sell its 50% interest in the Adwen joint venture to Gamesa. This sale was completed on January 5, 2017, and Gamesa holds 100% of the shares of Adwen since that date.

However, at December 31, 2016, AREVA's obligations had not yet changed and continued to be governed by the joint venture agreements:

- these are first and foremost guarantees related to the past: deterioration of profit margins as from the creation of the joint venture on projects in progress to supply turbines to Global Tech I and Borkum West II. This guarantee is not capped;

- other guarantees concern disputes, legal actions and claims related to operations prior to closing but with no connection to projects in progress. That guarantee is capped;
- for future transactions or transactions in progress at the closing date, AREVA will compensate the joint venture for potential losses linked to the maintenance contracts for the Alpha Ventus, Global Tech I and Borkum West II wind farms as well as for the Wiking project. Those guarantees are capped.

A dispute with Global Tech I began on June 1, 2016 at the latter's initiative. It is asking for 157 million euros in late charges and repayments of excess costs concerning the commissioning of the turbines in 2014-2015. The dispute was lodged with a Dispute Adjudication Board (DAB). The DAB's decision was published on October 22, 2016; it orders Adwen to pay 80 million euros (excluding interest) to its customer. Neither party wished to contest this decision by initiating an arbitration proceeding.

In addition, the final acceptance of 43 of the 80 turbines of Global Tech I was pronounced in 2016. While the discussions with the customer continue for the remaining 37 turbines, the latter drew on the 37 performance bonds related to those turbines in the amount of 38 million euros, wanting to temporarily mobilize that amount until a solution is found between the parties for the acceptance of the corresponding turbines and in anticipation of the payment of the DAB's decision.

All of the GTI and BWII turbines are covered by machine guarantees and are the subject of maintenance contracts.

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	December 31, 2015	Charges	Reversal (when risk has materialized)	Reversal (when risk has not materialized)	Operations held for sale	Other changes (*)	December 31, 2016
Operations held for sale in 2015							
New NP	594	192	(152)	(3)	-	28	658
AREVA TA	154	0	(20)	(1)	-	(2)	130
Nuclear Measurements	6	4	(2)	(0)	-	(8)	-
<b>Sub-total</b>	<b>753</b>	<b>196</b>	<b>(174)</b>	<b>(4)</b>	<b>-</b>	<b>18</b>	<b>788</b>
Operations held for sale in 2016							
NewCo	-	-	-	-	2,006	-	2,006
<b>TOTAL (**)</b>	<b>753</b>	<b>196</b>	<b>(174)</b>	<b>(4)</b>	<b>2,006</b>	<b>18</b>	<b>2,794</b>

(\*) Including unwinding of 3 million euros at December 31, 2016.

(\*\*) see note 3.

**Provisions for cleanup**

At December 31, 2016, since the "Prisme" operations prior to the final shutdown of Eurodif's Georges Besse I plant have been completed, all of the remaining provisions at December 31, 2015 (11 million euros) were reversed.

**Provisions for restructuring and redundancy plans**

Provisions for restructuring and redundancy plans represent the best estimate of the costs to be effectively borne in connection with workforce adjustment plans constituting the social component of the group's competitiveness plan. They correspond to the different components of these plans, including in particular age-related measures (early retirement), attrition, and the tax for revitalization of labor pools in France. In accordance with the accounting rules, no provision was set up for the costs of internal mobility.

For the plans undertaken in France, 2,046 departures were recorded with regard to support measures under the Voluntary Departure Plans (VDP) in addition to 996 departures by natural attrition or in connection with contractual plans for which provisions had already been set aside. The employee departures will be spread out until the end of 2019.

**Provisions for losses at completion**

***Purchase contract for separative work units (SWU) (NewCo)***

In light of persistently stagnant enrichment market prices, a provision in the amount of 50 million euros was constituted at December 31, 2015 for a SWU purchase contract, since firm commitments on sales prices made under this contract do not appear to be matched by the market price outlook for the period in question.

New firm sales contracts have been signed since December 31, 2015 and will be served by these purchases. Consequently, the provision calculated for these purchases was completely reversed at December 31, 2016. The counterpart is the establishment of additional provisions for losses at completion, inasmuch as the sales prices expected from these new contracts are lower than the purchase prices for these supply contracts. These provisions were charged in the amount of 77 million euros.

#### **Koeberg contract (New NP)**

A loss at completion in the total amount of 41 million euros was recognized at December 31, 2015 for an export contract in the Reactors and Services field.

At December 31, 2016, this loss at completion was recognized in the total amount of 67 million euros, including 46 million euros as a provision for loss at completion. The change in the loss at completion reflects the delay in the project's completion date due in particular to quality problems; to the decision to subcontract the manufacturing of parts; and to the expectation of the completion of negotiations with the customer for redefinition of the contractual calendar.

#### **EDF contracts (New NP)**

The discovery of high carbon concentrations on the channel heads manufactured at le Creusot for RP3 steam generators and the obligation for compliance resulting from the treatment of anomalies detected during review of the RP2 manufacturing file ("unmarked files" of le Creusot) showing non-compliant mechanical strength characteristics on the upper shell of the GV385, have led to plans to replace those channels and parts with new compliant components.

All of the corresponding work was assessed and included in the costs at completion of the projects involved, and led to the recognition of a provision for losses at completion of 19 million euros at December 31, 2016.

#### **Contracts for the design and construction of an experimental reactor (AREVA TA)**

The year of 2016 was impacted by the reindustrialization and recontractualization of two important projects following the amicable withdrawal of one of the CEA's contractors. A new delay in the program steering schedule, which was sudden and left no room to maneuver, had to be granted, delaying reactor startup to September 2021 at the earliest. Application of the provisions of the tripartite memorandum of understanding signed in July 2015 and the signature of an amendment to the project management contract with the customer ensured that the funding of the excess costs associated with this schedule day were shared, with no additional negative impact for AREVA.

#### **Provisions for contract completion (NewCo)**

The provisions for remaining work cover a set of future services to be carried out at the la Hague and MELOX sites (Recycling Business Unit) and the Tricastin and Malvési sites (Chemistry-Enrichment Business Unit) in connection with contracts for which obligations to the customers have been met, revenue was recognized and the corresponding costs were expensed in offset to that provision. For the Recycling Business Unit, the services mainly concern work to retrieve, process, package, ship and dispose of technological waste related to MOX fabrication or to the pool storage of used fuel; for the Chemistry-Enrichment Business Unit, they concern work involving nitrate effluent and dust treatment. At December 31, 2016, these future services amounted to 693 million euros for the Recycling Business Unit and 473 million euros for the Chemistry-Enrichment Business Unit (compared with 593 million euros and 434 million euros respectively at December 31, 2015).

#### **Other provisions**

##### **Industrial equipment supply contract (NewCo)**

At December 31, 2015, a provision of 40 million euros was set up for a supply contract concerning industrial equipment whose use in the current market situation is still under review. No tangible item calls into question this provision at December 31, 2016.

##### **Creusot quality initiative (New NP)**

###### **QUALITY ACTION PLAN CONCERNING AREVA NP**

The quality audit of the Creusot plant launched at the end of 2015 continued in 2016. In connection with the audit, all of the quality processes were reviewed and improvement measures are being implemented.

Concerning the Creusot plant, the quality audit was supplemented by exhaustive analysis of one category of manufacturing files of forged parts (marked files), with the objective of identifying potential anomalies. Files presenting practices which are not in compliance with Creusot's quality assurance rules were identified. The anomalies found were the subject of a technical characterization submitted to a technical committee. This work was carried out with the operators and customers concerned. The objective of this work is to validate the characterization performed and to deal with the anomalies by providing customers and the safety authorities appropriate technical justification in terms of the contractual and regulatory requirements ensuring the operability of the parts. An information and discussion process has been implemented in which the nuclear safety authorities in particular are involved. All of the customers concerned by the anomalies identified have been informed by AREVA.

To date, the analyses have found that no reported anomaly compromises the mechanical integrity of the parts concerned. Additional tests and analyses are in progress, in particular on an equipment item delivered to the Fessenheim 2 power plant, in order to respond to requests from the nuclear safety authority ASN following the suspension of the test certificate of one of the steam generators.

A more extensive analysis of the manufacturing files (unmarked files) is in progress and concerns more than 6,000 files. Additional identified anomalies are being dealt with in the same way. In this regard, an anomaly on a steam generator delivered to the Flamanville 3 site was the subject of characterization for purposes of responding to requests from the safety authority.

The financial statements for the period ended December 31, 2016 were closed:

- taking into account the obligation to deal with all of the marked and unmarked manufacturing files. In this regard, a provision was set up for the estimated external costs of all actions needed to deal with the identified anomalies, including the review of unmarked files;
- it is believed that the results of these actions will lead to a positive conclusion of the discussions with customers and their safety authorities.

In addition, since May 2016, the analysis has been extended to the St-Marcel and Jeumont sites. No similar anomalies have been identified at those two sites as of the date of these financial statements.

###### **TENSILE TESTS PERFORMED AT THE CREUSOT LABORATORY**

Following the deficiencies found in April 2015 concerning tensile test protocols at the Creusot laboratory, systematic verification was undertaken to justify the parts concerned through analyses or by retesting on test specimens. The identified anomalies are being dealt with in coordination with the customers.

The costs of retesting were assessed and a provision was set up for them (6,000 tests). More specifically, an anomaly was identified on an equipment item in the

manufacturing process which AREVA NP is required to bring into compliance. The corresponding estimated costs were factored into the project's costs at completion.

The financial statements at December 31, 2016 assume that the analyses and/or retesting will lead to a positive result with the customers and their safety authorities.

## NOTE 25. BORROWINGS

### CONTINUING OPERATIONS

<i>(in millions of euros)</i>	Long-term borrowings	Short-term borrowings	December 31, 2016	December 31, 2015
Interest-bearing advances from customers	-	-	-	96
Borrowings from lending institutions and commercial paper	1,250	815	2,065	894
Bond issues	-	-	-	5,974
Short-term bank facilities and non-trade current accounts (credit balances)	-	6	6	91
Financial derivatives	99	9	108	235
Miscellaneous debt*	2	1	2	55
<b>TOTAL BORROWINGS</b>	<b>1,351</b>	<b>831</b>	<b>2,182</b>	<b>7,344</b>
* Including finance lease obligations	-	1	1	4

At December 31, 2016, borrowings from lending institutions included:

- bilateral lines of credit, all of them drawn, in the total outstanding amount of 795 million euros, repayable in 2017;
- the draw on the syndicated line of credit in the amount of 1.250 billion euros maturing in January 2018.

#### Borrowings by maturity, currency and type of interest rate:

<i>(in millions of euros)</i>	December 31, 2016
Maturing in one year or less	831
Maturing in 1-2 years	1,252
Maturing in 2-3 years	-
Maturing in 3-4 years	-
Maturing in 4-5 years	99
Maturing in more than 5 years	-
<b>TOTAL</b>	<b>2,182</b>

<i>(in millions of euros)</i>	December 31, 2016
Euro	2,178
US dollar	4
Yen	-
Other	-
<b>TOTAL</b>	<b>2,182</b>

<i>(in millions of euros)</i>	December 31, 2016
Fixed rate borrowings	2
Floating rate borrowings	2,052
<b>TOTAL</b>	<b>2,054</b>
Other non-interest-bearing debt	20
Financial derivatives	108
<b>TOTAL</b>	<b>2,182</b>

The maturities of the group's financial assets and borrowings at December 31, 2016 are presented in note 31.

## Payment schedule at December 31, 2016

<i>(in millions of euros)</i>	Balance sheet value	Total payment flows	Less than one year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years
Borrowings from lending institutions and commercial paper	2,065	2,065	815	1,250				
Short-term bank facilities and non-trade current accounts (credit balances)	6	6	6					
Miscellaneous debt	2	2	1	1				
Future interest on financial liabilities		59	45	14				
<b>Total borrowings (excluding derivatives)</b>	<b>2,074</b>	<b>2,133</b>	<b>868</b>	<b>1,266</b>				
Derivatives – assets	(1)	(1)						
Derivatives – liabilities	108	108						
<b>Total net derivatives</b>	<b>107</b>	<b>107</b>	<b>8</b>				<b>99</b>	
<b>TOTAL</b>	<b>2,181</b>	<b>2,240</b>	<b>876</b>	<b>1,266</b>			<b>99</b>	

## Payment schedule at December 31, 2015

<i>(in millions of euros)</i>	Balance sheet value	Total payment flows	Less than one year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years
Interest-bearing advances	96	96						96
Borrowings from lending institutions and commercial paper	894	894	301	87	61	45	81	319
Bond issues	5,974	5,974	1,032	795	61	773	532	2,780
Short-term bank facilities and non-trade current accounts (credit balances)	91	91	91					
Miscellaneous debt	55	55	2					53
Future interest on financial liabilities	-	1,309	297	211	154	149	116	384
<b>Total borrowings (excluding derivatives)</b>	<b>7,109</b>	<b>8,419</b>	<b>1,722</b>	<b>1,092</b>	<b>277</b>	<b>967</b>	<b>728</b>	<b>3,632</b>
Derivatives – assets	(161)							
Derivatives – liabilities	235							
<b>Total net derivatives</b>	<b>73</b>	<b>73</b>	<b>(29)</b>	<b>(3)</b>	<b>2</b>	<b>(40)</b>	<b>(32)</b>	<b>175</b>
<b>TOTAL</b>	<b>7,183</b>	<b>8,492</b>	<b>1,694</b>	<b>1,089</b>	<b>278</b>	<b>927</b>	<b>696</b>	<b>3,808</b>

## Guarantees and covenants

As security, AREVA SA has committed to guaranteeing the redemption of all bond issues contributed to New AREVA Holding and to guaranteeing the derivatives of New AREVA Holding with banking counterparties, for New AREVA Holding's benefit. At December 31, 2016, the carrying amount of New AREVA Holding's bond debt was 4.945 billion euros.

Those guarantees will end once the capital increase of New AREVA Holding has been carried out in the amount of at least 3 billion euros or, for the guarantee concerning the bond issues, once they have been redeemed.

In June 2014, AREVA SA gave a parent company guarantee to a banking pool to secure the redemption of the amortized loan of Société d'Enrichissement du Tricastin. The parent company guarantee covers 115% of the remaining amount outstanding of the loan, for which the carrying amount was 555 million euros at the end of 2016. In connection with the partial contribution of assets from AREVA SA to New AREVA Holding, SET's bank borrowings and related security (security

interests in future receivables and bank accounts) were transferred to New AREVA Holding, except for the parent company guarantee, which remains in force until loss of control of New AREVA Holding (except in the event of prior release according to the contract conditions).

## Banking covenants

In early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and maturing on January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases. In addition to the standard default and early repayment clauses in the event of the occurrence of predefined events, a default clause is provided in the event that certain contractual risks associated with AREVA SA's operations were to materialize above a certain threshold.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1.250 billion euros, maturing on January 16, 2018, to proceed with the NewCo capital increase and authorize de facto the loss of control. In return for this consent, the lenders of that facility receive better terms, including an

additional security and early repayment clauses, in particular as regards the income from the sale of AREVA NP.

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
New NP	5	157
AREVA TA	1	0
Nuclear Measurements	-	0
<b>Sub-total</b>	<b>6</b>	<b>157</b>
Operations held for sale in 2016		
NewCo	5,873	
<b>TOTAL (*)</b>	<b>5,879</b>	<b>157</b>

\* see note 3.

At December 31, 2016, NewCo's borrowings included in particular:

- bond debt outstanding in the carrying amount of 4.945 billion euros;
- a redeemable syndicated loan from 10 banks maturing in 2024 in the amount of 555 million euros (initial amount of 650 million euros at December 31, 2016).

**Bond issues after hedging**

<b>Issue date</b>	<b>Net carrying amount (in millions of euros)</b>	<b>Currency</b>	<b>Nominal amount (in millions of currency units)</b>	<b>Nominal rate</b>	<b>Maturity</b>
September 23, 2009	1,030	EUR	1,000	4.875%	September 2024
November 6, 2009	768	EUR	750	4.375%	November 2019
September 22, 2010	768	EUR	750	3.5%	March 2021
October 5, 2011	397	EUR	398	4.625%	October 2017
March 14, 2012	399	EUR	400	4.625%	October 2017
				TEC10	
April 4, 2012	199	EUR	200	+2.125%	March 2022
September 4, 2013	531	EUR	500	3.25%	September 2020
September 20, 2013	65	JPY	8,000	1.156%	September 2018
March 20, 2014	788	EUR	750	3.125%	March 2023
<b>TOTAL</b>	<b>4,945</b>				

The fair value of these bond issues was 4.867 billion euros at December 31, 2016.

**Banking covenants**

The redeemable syndicated loan in the amount of 555 million euros at December 31, 2016 and maturing in June 2024 is backed by certain future revenue from the

Georges Besse II enrichment plant. It includes security interests in future receivables and bank accounts, and it contains a covenant allocating cash flows to debt service which subordinates payments to New AREVA Holding (dividends and internal loan repayments) from Société d'Enrichissement du Tricastin.

**NOTE 26. ADVANCES AND PREPAYMENTS RECEIVED****CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Advances and prepayments on orders	30	1,868
Customer advances and prepayments invested in non-current assets	-	1,026
<b>TOTAL</b>	<b>30</b>	<b>2,895</b>

At December 31, 2016, advances and prepayments by maturity were as follows:

- less than 1 year: 18 million euros
- 1-5 years: 12 million euros
- more than 5 years: - million euros

**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Operations held for sale in 2015		
New NP	1,391	1,417
AREVA TA	280	265
Nuclear Measurements	-	10
<b>Sub-total</b>	<b>1,672</b>	<b>1,692</b>
Operations held for sale in 2016		
NewCo	2,874	
<b>TOTAL (*)</b>	<b>4,545</b>	<b>1,692</b>

\* see note 3.

This account comprises non-interest-bearing operating and Capex advances and prepayments received from customers pursuant to contractual commitments. The advances and prepayments are reimbursed by deduction from the revenue generated under these contracts, which primarily concern sales of fuel and uranium, and used fuel treatment and recycling. Interest-bearing advances are recognized in borrowings.

Only advances and prepayments effectively collected are recognized as a liability.

Trade advances and prepayments on orders correspond to amounts received from customers under contracts that do not finance significant non-current assets. In the case of long-term contracts, the amount recorded on the balance sheet represents the net balance of advances and prepayments received and revenue invoiced or recognized on a percentage of completion basis; it also includes interest income calculated on cash surpluses generated by these advances and prepayments, the amount of which is determined contract by contract.

Customer advances and prepayments invested in non-current assets correspond to amounts received from customers and used to finance capital expenditures for the performance of long-term contracts to which they have subscribed.

## NOTE 27. OTHER LIABILITIES

### CONTINUING OPERATIONS

#### Other operating liabilities

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Tax and social security liabilities, excluding corporate income tax	30	876
Financial instruments	22	299
Other operating liabilities	170	728
<b>TOTAL</b>	<b>222</b>	<b>1,904</b>

Financial instruments include the fair value of derivatives hedging market transactions and the fair value of the firm commitments hedged.

At December 31, 2016, other operating liabilities had a maturity of less than one year.

#### Other non-operating liabilities

Non-operating liabilities amounted to 3 million euros at December 31, 2016 (compared with 64 million euros at December 31, 2015).

### OPERATIONS HELD FOR SALE

#### Other operating liabilities

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	891	805
AREVA TA	100	146
Nuclear Measurements	-	51
<b>Sub-total</b>	<b>991</b>	<b>1,002</b>
Operations held for sale in 2016		
NewCo	1,806	
<b>TOTAL (*)</b>	<b>2,798</b>	<b>1,002</b>

\* see note 3.

#### Other non-operating liabilities

<i>(in millions of euros)</i>	December 31, 2016	December 31, 2015
Operations held for sale in 2015		
New NP	1	25
AREVA TA	1	1
Nuclear Measurements	-	0
<b>Sub-total</b>	<b>2</b>	<b>26</b>
Operations held for sale in 2016		
NewCo	72	
<b>TOTAL (*)</b>	<b>74</b>	<b>26</b>

\* see note 3.

Other non-operating liabilities include mainly dividends payable to minority shareholders of certain subsidiaries.

**NOTE 28. CASH FROM OPERATING ACTIVITIES****CHANGE IN WORKING CAPITAL REQUIREMENT**

<i>(in millions of euros)</i>	<b>2016</b>	<b>2015</b>
Change in inventories and work-in-process	0	0
Change in accounts receivable and other receivables	49	54
Change in accounts payable and other liabilities	4	73
Change in trade advances and prepayments received	22	(7)
Change in advances and prepayments made	19	(7)
Change in Forex hedge of WCR	6	(1)
Change in other non-current non-financial assets	0	0
<b>TOTAL</b>	<b>100</b>	<b>112</b>

**NOTE 29. RELATED PARTY TRANSACTIONS**

Transactions between the parent company and its subsidiaries, which are related parties, were eliminated on consolidation and are not presented in this note.

**TRANSACTIONS BETWEEN THE GROUP AND THE CEA**

<i>(in millions of euros)</i>	<b>CEA</b>	
	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Sales	555	582
Purchases	68	92
Loans to/receivables from related parties	985	962
Borrowings from related parties	233	185

**TRANSACTIONS BETWEEN THE CONTINUING OPERATIONS AND THE CEA**

<i>(in millions of euros)</i>	<b>CEA</b>	
	<b>December 31, 2016</b>	<b>December 31, 2015</b>
Sales	-	-
Purchases	0	2
Loans to/receivables from related parties	-	877
Borrowings from related parties	18	153



### TRANSACTIONS BETWEEN THE GROUP AND ADWEN

These transactions are described in note 3.

<i>(in millions of euros)</i>	Adwen	
	December 31, 2016	December 31, 2015
Sales	4	5
Purchases	-	9
Loans to/receivables from related parties	241	373
Borrowings from related parties	-	-

### TRANSACTIONS BETWEEN THE GROUP AND ETC

These transactions are described in note 14.

AREVA buys centrifuges from ETC for its new Georges Besse II enrichment plant and supplies related maintenance services. AREVA's purchases of assets from ETC totaled 18 million euros in 2016 (compared with 81 million euros at December 31, 2015).

### RELATIONS WITH GOVERNMENT-OWNED COMPANIES

The group has business relationships with government-owned companies, in particular EDF and the CEA (Commissariat à l'énergie atomique et aux énergies alternatives).

Transactions with EDF concern the front end of the nuclear fuel cycle (uranium sales and conversion, enrichment and fuel fabrication services), the back end of the cycle

(used fuel transportation, storage, treatment and recycling services), power plant maintenance and equipment sales.

Transactions with the CEA concern dismantling of the CEA's nuclear facilities; engineering services for the design and construction and of the CEA's research reactors and related operating support; and the provision of studies and research work. In addition, AREVA pays fees to the CEA for the use of its used nuclear fuel reprocessing processes.

The group also provides services to the CEA concerning engineering services and research, cleanup and dismantling services, and has two contracts for the design and construction of certain components of an experimental reactor. Execution of these two contracts has met with difficulties which have resulted in the recognition of provisions (see note 24).

### COMPENSATION PAID TO KEY EXECUTIVES

<i>(in millions of euros)</i>	2016	2015
Short-term benefits	6.1	4.5
Termination benefits	3.5	1.7
Post-employment benefits	1.2	0.1
Other long-term benefits	0	-
<b>TOTAL</b>	<b>10.8</b>	<b>6.3</b>

Key executives are:

- for 2015 data: from January 1 to 8, 2015, the members of the Executive Board and of the Supervisory Board and, as from January 9, 2015, the members of the Board of Directors and of the Executive Committee;
- for 2016 data: from January 1 to June 30, 2016, the members of the Board of Directors and of the Executive Committee of AREVA SA and, from July 1 to December 31, 2016, the members of the Board of Directors of AREVA SA, the members of the Executive Committees of NewCo and of AREVA NP, and the members of the Management Committee of AREVA SA.

Short-term benefits and termination benefits include compensation paid during the year by the group and by the CEA.

**NOTE 30. GREENHOUSE GAS EMISSIONS ALLOWANCES**

<i>(in thousands of metric tons of CO<sub>2</sub>)</i>	2016	2015
Allowances received by AREVA	69	73
Actual emissions	64	73
Excess of allowances over emissions	6	0
Allowances sold on the Powernext market	0	0

**NOTE 31. MANAGEMENT OF MARKET RISKS****GENERAL OBJECTIVES**

The group has a dedicated organization which draws on financial risk management policies approved by the Executive Committee, enabling centralized management of the group's exposure to foreign exchange, commodity, rate and liquidity risks for the continuing operations, to which AREVA NP, which is covered by AREVA SA, is exposed. Similarly, New AREVA Holding centralizes the management of these risks for NewCo.

In the Finance Department, the Department of Financial Operations and Treasury Management (DOFT) makes transactions on financial markets and acts as a central desk that provides services and manages the group's financial exposure. The organization of this department ensures the separation of functions and the necessary human, technical, and information system resources. Transactions handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management.

To report on the financial risks and related position limits and on the counterparty risk, DOFT produces a monthly report on all positions and their market values for the group's Chief Financial Officer.

**FOREIGN EXCHANGE RISK**

The change in the exchange rate of the US dollar against the euro may affect the group's income in the medium term.

In view of the geographic diversity of its locations and operations, the group is exposed to fluctuations in exchange rates, particularly the dollar-euro exchange rate. The volatility of exchange rates may impact the group's currency translation adjustments, equity and income.

**Currency translation risk:** The group is exposed to the risk of translation into euros of financial statements of subsidiaries using a local currency. Only dividends expected from subsidiaries for the following year are hedged as soon as the amount is known.

**Balance sheet risk:** The group finances its subsidiaries in their functional currencies to minimize the balance sheet foreign exchange risk from financial assets and liabilities. Loans and advances granted to subsidiaries by the Department of Treasury Management, which centralizes financing, are then systematically converted into euros through foreign exchange swaps or cross currency swaps.

To limit the currency risk for long-term investments generating future cash flows in foreign currencies, the group uses a liability in the same currency to offset the asset.

**Trade exposure:** The principal foreign exchange exposure concerns fluctuations in the euro/US dollar exchange rate. The group's policy, which was approved by the Executive Committee, is thus to systematically hedge foreign exchange risk generated by sales transactions; it recommends hedging potential risks during the proposal phase, to the extent possible, to minimize the impact of exchange rate fluctuations on consolidated net income.

The AREVA group acquires derivatives (principally currency futures) or special insurance contracts issued by Coface to hedge foreign exchange exposure from trade, including accounts receivable and payable, confirmed off-balance sheet commitments (orders received from customers or placed with suppliers), highly probable future cash flows (budgeted sales or purchases, anticipated profits on contracts) and proposals made in foreign currencies. These hedges are backed by underlying transactions for identical amounts and maturities and, generally, are documented and eligible for hedge accounting (except for hedges of proposals submitted in foreign currencies).

As provided by group policies, each operating entity responsible for identifying foreign exchange risk must hedge exposure to currencies other than its own accounting currency by initiating a transaction exclusively with the group's trading desk, except as otherwise required by specific circumstances or regulations. The Financial Operations and Treasury Management Department centralizes the exposure of all entities and hedges the net position directly with banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken by the trading desk, is monitored by specialized teams that are also charged with valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**Continuing operations**

At December 31, 2016, the derivatives set up by the group to hedge its exposure to foreign exchange risk and to hedge AREVA NP's foreign exchange risk were as follows:

<i>(Notional amounts by maturity date at December 31, 2016)</i>	2017	2018	2019	2020	2021	> 5 years	Total	Market value
Forward exchange transactions and currency swaps	659	70	28	18			774	(21)
Currency options							0	
Cross-currency swaps					389		389	(88)
<b>TOTAL</b>	<b>659</b>	<b>70</b>	<b>28</b>	<b>18</b>	<b>389</b>	<b>0</b>	<b>1,163</b>	<b>(109)</b>

Derivative financial instruments used to hedge foreign currency exposure were as follows at December 31, 2016 and December 31, 2015:

<i>(in millions of euros)</i>	2016		2015	
	Nominal amounts in absolute value	Market value	Nominal amounts in absolute value	Market value
<b>Derivatives related to fair value hedging strategies (FVH)</b>	<b>177</b>	<b>1</b>	<b>386</b>	<b>(12)</b>
Forward exchange transactions and currency swaps	177	1	386	(12)
<b>Derivatives related to net investment hedging strategies (NIH)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Derivatives related to cash flow hedging strategies (CFH)</b>	<b>120</b>	<b>(16)</b>	<b>2,212</b>	<b>(209)</b>
Forward exchange transactions and currency swaps	120	(16)	2,194	(208)
Currency options			18	(1)
<b>Derivatives not eligible for hedge accounting</b>	<b>866</b>	<b>(94)</b>	<b>2,833</b>	<b>(150)</b>
Forward exchange transactions and currency swaps	477	(7)	1,228	1
Currency options			72	(5)
Cross-currency swaps	389	(88)	1,533	(145)
<b>TOTAL</b>	<b>1,163</b>	<b>(88)</b>	<b>5,432</b>	<b>(371)</b>

A significant share of undocumented financial instruments in 2016 and 2015 corresponds to derivatives subscribed to hedge foreign exchange risk on monetary assets and liabilities and on financial assets and liabilities, which constitutes a natural hedge.

Based on market data at the date of closing, the impact of currency derivative instruments qualified as cash flow hedges on the group's consolidated equity at year-end 2016 would be +6 million euros in the case of a 5% instantaneous increase in exchange rates against the euro, or -6 million euros in the case of a 5% decrease in exchange rates. Using these assumptions, the impacts were +70 million euros and -77 million euros at year-end 2015.

In view of the group's policy, which is to hedge all currency exposures:

- undocumented derivatives are used to hedge assets and liabilities in currencies for identical amounts;

- unhedged assets and liabilities are immaterial.

The impact on the group's financial statements of an instant variation of +5% or -5% of exchange rates compared with the euro is relatively neutral.

**Operations held for sale**

As security, AREVA SA has committed to guaranteeing the derivatives of New AREVA Holding with banking counterparties, for the benefit of New AREVA Holding. That guarantee will end once the New AREVA Holding capital increase has been carried out, in the amount of at least 3 billion euros.

At December 31, 2016, derivatives set up by NewCo to hedge foreign exchange risk were as follows:

<i>(Notional amounts by maturity date at December 31, 2016)</i>	2017	2018	2019	2020	2021	> 5 years	Total	Market value
Forward exchange transactions and currency swaps	2,237	1,194	595	202			4,228	(185)
Currency options	52						52	(2)
Cross-currency swaps	63	65	317				445	6
<b>TOTAL</b>	<b>2,352</b>	<b>1,259</b>	<b>912</b>	<b>202</b>	<b>0</b>	<b>0</b>	<b>4,725</b>	<b>(180)</b>

Derivative financial instruments used to hedge NewCo's foreign exchange risk were as follows at December 31, 2016 and December 31, 2015:

<i>(in millions of euros)</i>	2016	
	Nominal amounts in absolute value	Market value
<b>Derivatives related to fair value hedging strategies (FVH)</b>	<b>337</b>	<b>(8)</b>
Forward exchange transactions and currency swaps	337	(8)
<b>Derivatives related to net investment hedging strategies (NIH)</b>	<b>0</b>	<b>0</b>
<b>Derivatives related to cash flow hedging strategies (CFH)</b>	<b>3,139</b>	<b>(157)</b>
Forward exchange transactions and currency swaps	3,139	(157)
<b>Derivatives not eligible for hedge accounting</b>	<b>1,250</b>	<b>(15)</b>
Forward exchange transactions and currency swaps	752	(19)
Currency options	52	(2)
Cross-currency swaps	445	6
<b>TOTAL</b>	<b>4,725</b>	<b>(180)</b>

### COMMODITY RISK

The group has little commodity risk and no hedge had been set up at December 31, 2016.

### INTEREST RATE RISK

Rate risk management is entirely centralized in the department of Financial Operations and Treasury Management, which consolidates the subsidiaries' current or stable cash surpluses or requirements and arranges external financing as appropriate, except as otherwise required by regulations or specific circumstances.

The group uses several types of derivatives, as required by market conditions, to allocate its borrowings between fixed rates and floating rates and to manage its investment portfolio, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses.

The amount of the commitments and the sensitivity of the positions taken by the trading desk in the framework of AREVA's rate management policy are subject to limits based on the type of transaction involved.

## 20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**Continuing operations**

At December 31, 2016, the following financial instruments were used to hedge interest rate exposure:

<i>(in millions of euros)</i>	Notional amounts by maturity date at December 31, 2016						Market value
	Total	2017	2018	2019	2020	2021 > 5 years	
<b>Interest rate swaps – variable lender – EUR</b>							
USD variable borrower	389					389	(11)
<b>GRAND TOTAL</b>	<b>389</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>389</b>	<b>(11)</b>

At December 31, 2016, the group used the following derivatives to hedge interest rate exposure:

<i>Rate instruments (in millions of euros)</i>	Market value of contracts <sup>(1)</sup>				Total
	Nominal amount of contract	Cash flow hedges (CFH)	Fair value hedges (FVH)	Not formally documented (Trading)	
<b>Interest rate swaps – variable lender – EUR</b>					
USD variable borrower	389			(11)	(11)
<b>TOTAL</b>	<b>389</b>	<b>0</b>	<b>0</b>	<b>(11)</b>	<b>(11)</b>

(1) Gain/(loss).

The following tables summarize the group's net rate risk exposure, before and after rate management transactions, at the end of 2016 and 2015.

**Maturities of the group's financial assets and borrowings at December 31, 2016**

<i>(in millions of euros)</i>	Less than one year	1 year to 2 years	2 years to 3 years	3 years to 4 years	4 years to 5 years	More than 5 years	Total
<b>Financial assets</b>	<b>799</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>799</b>
including fixed rate assets	0						0
including floating rate assets	828						828
including non-interest-bearing assets	(30)						(30)
<b>Borrowings</b>	<b>(831)</b>	<b>(1,251)</b>	<b>(0)</b>	<b>0</b>	<b>(99)</b>	<b>(0)</b>	<b>(2,182)</b>
including fixed rate borrowings	(1)	(0)	(0)			(0)	(2)
including floating rate borrowings	(801)	(1,251)					(2,052)
including non-interest-bearing borrowings	(29)				(99)		(128)
<b>Net exposure before hedging</b>	<b>(32)</b>	<b>(1,251)</b>	<b>(0)</b>	<b>0</b>	<b>(99)</b>	<b>(0)</b>	<b>(1,383)</b>
share exposed to fixed rates	(1)	(0)	(0)	0	0	(0)	(2)
share exposed to floating rates	27	(1,251)	0	0	0	0	(1,224)
non-interest-bearing share	(58)	0	0	0	(99)	0	(157)
<b>Off-balance sheet hedging</b>							
on borrowings: fixed rate swaps							
on borrowings: floating rate swaps							
<b>Net exposure after hedging</b>	<b>(32)</b>	<b>(1,251)</b>	<b>(0)</b>	<b>0</b>	<b>(99)</b>	<b>(0)</b>	<b>(1,383)</b>
share exposed to fixed rates	(1)	(0)	(0)	0	0	(0)	(2)
share exposed to floating rates	27	(1,251)	0	0	0	0	(1,224)
non-interest-bearing share	(58)	0	0	0	(99)	0	(157)

**Maturities of the group's financial assets and borrowings at December 31, 2015**

<i>(in millions of euros)</i>	Less than one year	1 year to 2 years	2 years to 3 years	3 years to 4 years	4 years to 5 years	More than 5 years	Total
<b>Financial assets</b>	<b>1,010</b>	<b>3</b>	<b>1</b>	<b>41</b>	<b>32</b>	<b>45</b>	<b>1,133</b>
including fixed rate assets	0						0
including floating rate assets	972						972
including non-interest-bearing assets	39	3	1	41	32	45	161
<b>Borrowings</b>	<b>(1,439)</b>	<b>(879)</b>	<b>(122)</b>	<b>(818)</b>	<b>(613)</b>	<b>(3,473)</b>	<b>(7,344)</b>
including fixed rate borrowings	(1,036)	(869)	(122)	(818)	(613)	(2,997)	(6,456)
including floating rate borrowings	(266)	(10)	0	0	0	(255)	(530)
including non-interest-bearing borrowings	(138)					(221)	(359)
<b>Net exposure before hedging</b>	<b>(429)</b>	<b>(875)</b>	<b>(122)</b>	<b>(777)</b>	<b>(581)</b>	<b>(3,427)</b>	<b>(6,211)</b>
share exposed to fixed rates	(1,036)	(869)	(122)	(818)	(613)	(2,997)	(6,456)
share exposed to floating rates	706	(10)	0	0	0	(255)	442
non-interest-bearing share	(99)	3	1	41	32	(175)	(197)
<b>Off-balance sheet hedging</b>							
on borrowings: fixed rate swaps	180		61	155	532	729	1,657
on borrowings: floating rate swaps	(180)		(61)	(155)	(532)	(729)	(1,657)
<b>Net exposure after hedging</b>	<b>(429)</b>	<b>(875)</b>	<b>(122)</b>	<b>(777)</b>	<b>(581)</b>	<b>(3,427)</b>	<b>(6,211)</b>
share exposed to fixed rates	(855)	(869)	(61)	(664)	(81)	(2,269)	(4,799)
share exposed to floating rates	526	(10)	(61)	(155)	(532)	(983)	(1,215)
non-interest-bearing share	(99)	3	1	41	32	(175)	(197)

Based on the group's exposure at December 31, 2016, a 1% increase in interest rates would have an impact on borrowing costs on a full-year basis estimated at -12 million euros and, therefore, on the group's consolidated income before tax. That impact was -12 million euros at year end 2015.

**Operations held for sale**

At December 31, 2016, the following financial instruments were used to hedge NewCo's interest rate exposure:

<i>(in millions of euros)</i>	Notional amounts by maturity date at December 31, 2016							Market value
	Total	2017	2018	2019	2020	2021	> 5 years	
<b>Interest rate swaps – variable lender – EUR</b>								
Fixed borrower – EUR	175						175	(6)
<b>Interest rate swaps – variable lender – EUR</b>								
EUR variable borrower	75						75	(1)
CAD variable borrower	381	63		317				(1)
<b>Interest rate swaps – fixed lender – EUR</b>								
EUR variable borrower	550			50	150	150	200	43
<b>Interest rate swaps – JPY fixed lender</b>								
EUR variable borrower	65		65					0
<b>Inflation rate swaps – variable lender – USD</b>								
USD fixed lender	166				166			(38)
<b>GRAND TOTAL</b>	<b>1,411</b>	<b>63</b>	<b>65</b>	<b>367</b>	<b>316</b>	<b>150</b>	<b>450</b>	<b>(1)</b>

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

At December 31, 2016, the group used the following derivatives to hedge NewCo's interest rate exposure:

Rate instruments (in millions of euros)	Market value of contracts <sup>(1)</sup>				Total
	Nominal amount of contract	Cash flow hedges (CFH)	Fair value hedges (FVH)	Not formally documented (Trading)	
<b>Interest rate swaps – variable lender – EUR</b>					
<i>Fixed borrower – EUR</i>	175			(6)	(6)
<b>Interest rate swaps – variable lender – EUR</b>					
<i>EUR variable borrower</i>	75			(1)	(1)
<i>CAD variable borrower</i>	381			(1)	(1)
<b>Interest rate swaps – fixed lender – EUR</b>					
<i>EUR variable borrower</i>	550		43		43
<b>Interest rate swaps – JPY fixed lender</b>					
<i>EUR variable borrower</i>	65			0	0
<b>Inflation rate swaps – variable lender – USD</b>					
<i>USD fixed lender</i>	166			(38)	(38)
<b>TOTAL</b>	<b>1,411</b>		<b>43</b>	<b>(45)</b>	<b>(1)</b>

(1) Gain / (loss).

**RISK FROM EQUITY INVESTMENTS**

**Continuing operations**

The group holds of publicly traded shares and is exposed to changes in the financial markets. Those shares are subject to a risk of volatility inherent in the financial markets.

They are presented in the investment portfolio earmarked for end-of-lifecycle operations (see note 13).

The risk on shares held in the portfolio of assets earmarked for end-of-lifecycle operations is an integral component of asset management, which uses shares to increase long-term returns as part of its allocation between bonds and equities (see note 13). Exposure to European equities is managed by various management companies, either through a mandate given to an investment firm or through several dedicated mutual funds, with management guidelines limiting the tracking error.

**Operations held for sale**

The group holds of publicly traded shares in a significant amount and is exposed to changes in the financial markets. Those traded shares are subject to a risk of volatility inherent in the financial markets.

They are presented in the investment portfolio earmarked for end-of-lifecycle operations (see note 13).

The risk on shares held in the portfolio of assets earmarked for end-of-lifecycle operations is an integral component of asset management, which uses shares to increase long-term returns as part of its allocation between bonds and equities (see note 13). Exposure to European equities is managed by various management companies, either through a mandate given to an investment firm or through several dedicated mutual funds, with management guidelines limiting the tracking error.

The sensitivity of the value of equity investments to variations in the equity markets is as follows:

**Upper scenario (10% increase in the value of equity investments)**

December 31, 2016 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,401</b>	
Income statement impact		
Impact on shareholders' equity	240	

**Lower scenario (10% decrease in the value of equity investments)**

December 31, 2016 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,401</b>	
Income statement impact	(2)	
Impact on shareholders' equity	(238)	

**COUNTERPARTY RISK**

The group is exposed to the credit risk of counterparties linked to its use of financial derivatives to cover its risks

The group uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks, and its exposure to risks on commodities. The group primarily uses forward buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions expose the group to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, the group's cash management department deals only with diversified, top quality counterparties based on their ratings in the Standard & Poor's and Moody's rating systems, with a minimum rating of Investment Grade. A legal framework agreement is always signed with the counterparties.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. The allocation of limits is reviewed at least once a year and approved by the group's Chief Financial Officer, unless the counterparty's rating has been downgraded. The limits are verified in a specific report produced by the internal control team of the Treasury Management Department. During periods of significant financial instability that may involve an increased risk of bank default, which may be underestimated by ratings agencies, the group monitors advanced indicators as necessary, such as the value of the credit default swaps (CDS) of the eligible counterparties, to determine if limits should be adjusted.

When conditions warrant (rising counterparty risk, longer term transactions, etc.), market transactions are managed by margin calls that reduce the group's counterparty risk to a predetermined threshold: the Credit Support Annex for trades documented under an ISDA master agreement, or the Collateral Annex for trades documented under a French Banking Federation (FBF) master agreement.

**Continuing operations****Balance sheet netting of the fair value of derivatives**

December 31, 2016  (in millions of euros)	Effect of clearing agreements			
	Gross carrying amount	Financial instruments	Fair value of financial collateral	Net exposure
Assets	8	(8)		0
Shareholders' equity and liabilities	(129)	8	25	(96)
<b>TOTAL</b>	<b>(121)</b>	<b>0</b>	<b>25</b>	<b>(96)</b>

**Operations held for sale****Balance sheet netting of the fair value of derivatives**

December 31, 2016  (in millions of euros)	Effect of clearing agreements			
	Gross carrying amount	Financial instruments	Fair value of financial collateral	Net exposure
Assets	81	(54)		27
Shareholders' equity and liabilities	(258)	54	0	(205)
<b>TOTAL</b>	<b>(178)</b>	<b>(1)</b>	<b>0</b>	<b>(178)</b>



**20.2 Notes to the consolidated financial statements for the year ended December 31, 2016****LIQUIDITY RISK**

The group's liquidity in 2016 was ensured by draws on available lines of credit in the amount of approximately 2 billion euros on January 4 and 5, 2016.

At December 31, 2016, AREVA's short-term borrowings amounted to 831 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA guarantees NewCo's borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the NewCo capital increase planned in 2017.

Beyond 2017, the last maturity of AREVA's significant debt consists of the reimbursement of the syndicated line of credit of 1.25 billion euros in January 2018.

As mentioned previously, on January 10, 2017, the European Commission authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA in the amount of 2 billion euros and the other for NewCo in the amount of 1.3 billion euros.

In addition, in early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and maturing on January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases.

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1.250 billion euros, maturing on January 16, 2018, to proceed

with the NewCo capital increase and authorize de facto the loss of control. In return for this consent, the lenders of that facility receive better terms, including an additional security and early repayment clauses, in particular as regards the income from the sale of AREVA NP.

**CREDIT RISK**

AREVA's only exposure to credit risk is through its investments of cash surpluses in marketable securities and in mutual funds or money market funds. Investment in these marketable securities is subject to limits of exposure based on the issuer's rating (short-term rating of Investment Grade). The group's management approves these limits. As regards mutual funds and money market funds, the group invests its cash surpluses only subject to limits of exposure based on the issuer's rating (under criteria as described above) and in investment vehicles with an average duration of less than 3 months.

**MARKET VALUE OF FINANCIAL INSTRUMENTS**

The market value of financial instruments pertaining to currency, rate and commodity transactions are calculated based on market data as of the closing date, on discounted future cash flows, or on prices provided by financial institutions. The use of different market assumptions could have a significant impact on estimated market values.

**NOTE 32. ADDITIONAL INFORMATION ON FINANCIAL INSTRUMENTS****FINANCIAL ASSETS AND LIABILITIES BY CATEGORY**

2016

**Assets**

<i>(in millions of euros)</i>	Balance sheet value	Non-financial assets and liabilities	Including				Fair value of financial assets
			Loans and receivables	Fair value recognized in profit or loss	Assets available for sale	Assets held to maturity	
<b>Non-current assets</b>	<b>312</b>	<b>79</b>	<b>233</b>				<b>233</b>
Goodwill on consolidated companies	-						
Intangible assets	42	42					
Property, plant and equipment	25	25					
End-of-lifecycle assets (third party share)							
Assets earmarked for end-of-lifecycle operations							
Investments in joint ventures and associates	10	10					
Other non-current assets	234	1	233				233
Deferred tax assets	1	1					
<b>Current assets</b>	<b>28,417</b>	<b>27,398</b>	<b>816</b>	<b>193</b>		<b>11</b>	<b>1,019</b>
Inventories and work-in-process	2	2					
Trade accounts receivable and related accounts	154	135	19				19
Other operating receivables	252	220	21			10	31
Current tax assets	7	7					
Other non-operating receivables	142	2	140				140
Cash and cash equivalents	686		493	193			686
Other current financial assets	143		142			1	143
Assets of operations held for sale	27,032	27,032					
<b>TOTAL ASSETS</b>	<b>28,729</b>	<b>27,477</b>	<b>1,048</b>	<b>193</b>		<b>11</b>	<b>1,252</b>

Financial instruments at fair value recognized in profit or loss and in "other items of comprehensive income" according to:

■ Level 1: valuation based on quoted market prices in an active market;

■ Level 2: if a market for a financial instrument is not active, valuation based on readily observed market inputs;

■ Level 3: valuation based on criteria that cannot be readily observed.

<i>(in millions of euros)</i>	Level 1	Level 2	Level 3	Total
<b>Non-current assets</b>				
<b>Current assets</b>	<b>193</b>	<b>11</b>		<b>204</b>
Other operating receivables		10		10
Cash and cash equivalents	193			193
Other current financial assets		1		1
<b>TOTAL ASSETS</b>	<b>193</b>	<b>11</b>	<b>-</b>	<b>204</b>

## 20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

***Analysis of assets in the level 3 category***

<i>(in millions of euros)</i>	Amount at December 31, 2015	Increase	Disposals	Operations held for sale	Other	Amount at December 31, 2016
Other non-current assets	12	1	-	(16)	2	0

***Liabilities and equity***

<i>(in millions of euros)</i>	Balance sheet value	Including					Fair value of financial liabilities
		Non-financial assets and liabilities	Liabilities at amortized cost	Fair value recognized in profit or loss	Assets available for sale	Derivatives	
<b>Equity and minority interests</b>	<b>(3,427)</b>	<b>(3,427)</b>					
Capital	1,456	1,456					
Consolidated premiums and reserves	(4,611)	(4,611)					
Actuarial gains and losses on employee benefits	(420)	(420)					
Deferred unrealized gains and losses on financial instruments	93	93					
Currency translation reserves	64	64					
Minority interests	(10)	(10)					
<b>Non-current liabilities</b>	<b>1,354</b>	<b>4</b>	<b>1,252</b>			<b>99</b>	<b>1,351</b>
Employee benefits	4	4					
Provisions for end-of-lifecycle operations							
Other non-current provisions							
Share in negative net equity of joint ventures and associates							
Long-term borrowings	1,351		1,252			99	1,351
Deferred tax liabilities	-	-					
<b>Current liabilities</b>	<b>30,802</b>	<b>29,513</b>	<b>1,261</b>			<b>29</b>	<b>1,290</b>
Current provisions	2,060	2,060					
Short-term borrowings	831		822			9	831
Advances and prepayments received	30	30					
Trade accounts payable and related accounts	265	5	260				260
Other operating liabilities	222	26	176			20	196
Current tax liabilities	1	1					
Other non-operating liabilities	3		3				3
Liabilities of operations held for sale	27,391	27,391					
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>28,729</b>	<b>26,089</b>	<b>2,513</b>			<b>128</b>	<b>2,640</b>

<i>(in millions of euros)</i>	Level 1	Level 2	Level 3	Total
<b>Non-current liabilities</b>		<b>99</b>		<b>99</b>
Long-term borrowings		99		99
<b>Current liabilities</b>		<b>29</b>		<b>29</b>
Short-term borrowings		9		9
Other operating liabilities		20		20
<b>TOTAL LIABILITIES</b>		<b>128</b>		<b>128</b>

## 2015

Assets

<i>(in millions of euros)</i>	Including							Fair value of financial assets
	Balance sheet value	Non- financial assets and liabilities	Loans and receivables	Fair value recognized in profit or loss	Assets available for sale	Assets held to maturity	Derivatives	
<b>Non-current assets</b>	<b>17,747</b>	<b>11,069</b>	<b>1,131</b>		<b>4,814</b>	<b>610</b>	<b>123</b>	<b>6,813</b>
Goodwill on consolidated companies	1,272	1,272						
Intangible assets	1,648	1,648						
Property, plant and equipment	7,642	7,642						
End-of-lifecycle assets (third party share)	178	178						
Assets earmarked for end-of-lifecycle operations	6,122		739		4,773	610		6,257
Investments in joint ventures and associates	100	100						
Other non-current assets	573	17	392		41		123	555
Deferred tax assets	212	212						
<b>Current assets</b>	<b>11,240</b>	<b>9,278</b>	<b>1,542</b>	<b>356</b>			<b>65</b>	<b>1,962</b>
Inventories and work-in-process	1,216	1,216						
Trade accounts receivable and related accounts	941	271	669					669
Other operating receivables	865	600	239				26	265
Current tax assets	51	51						
Other non-operating receivables	81	64	18					18
Cash and cash equivalents	804		449	356				805
Other current financial assets	207		168				39	207
Assets of operations held for sale	7,076	7,076						
<b>TOTAL ASSETS</b>	<b>28,987</b>	<b>20,347</b>	<b>2,673</b>	<b>356</b>	<b>4,814</b>	<b>610</b>	<b>187</b>	<b>8,775</b>

Financial instruments at fair value recognized in profit or loss and in "other items of comprehensive income" according to:

- Level 1: valuation based on quoted market prices in an active market;
- Level 2: if a market for a financial instrument is not active, valuation based on readily observed market inputs;
- Level 3: valuation based on criteria that cannot be readily observed.

<i>(in millions of euros)</i>	Level 1	Level 2	Level 3	Total
<b>Non-current assets</b>	<b>5,329</b>	<b>341</b>	<b>12</b>	<b>5,682</b>
Assets earmarked for end-of-lifecycle operations	5,329	189	-	5,518
Other non-current assets		152	12	164
<b>Current assets</b>	<b>356</b>	<b>65</b>	<b>-</b>	<b>421</b>
Other operating receivables		26		26
Cash and cash equivalents	356	-	-	356
Other current financial assets	-	39	-	39
<b>TOTAL ASSETS</b>	<b>5,685</b>	<b>406</b>	<b>12</b>	<b>6,103</b>

20.2 Notes to the consolidated financial statements for the year ended December 31, 2016

**Liabilities and equity**

<i>(in millions of euros)</i>	Including						Fair value of financial liabilities
	Balance sheet value	Non-financial assets and liabilities	Liabilities at amortized cost	Fair value recognized in profit or loss	Assets available for sale	Derivatives	
<b>Equity and minority interests</b>	<b>(2,281)</b>	<b>(2,281)</b>					
Capital	1,456	1,456					
Consolidated premiums and reserves	(3,797)	(3,797)					
Actuarial gains and losses on employee benefits	(293)	(293)					
Deferred unrealized gains and losses on financial instruments	166	166					
Currency translation reserves	(48)	(48)					
Minority interests	235	235					
<b>Non-current liabilities</b>	<b>14,676</b>	<b>8,772</b>	<b>5,684</b>			<b>221</b>	<b>5,710</b>
Employee benefits	1,455	1,455					
Provisions for end-of-lifecycle operations	6,921	6,921					
Other non-current provisions	238	238					
Share in negative net equity of joint ventures and associates	59	59					
Long-term borrowings	5,905		5,684			221	5,710
Deferred tax liabilities	100	100					
<b>Current liabilities</b>	<b>16,592</b>	<b>13,080</b>	<b>3,261</b>			<b>251</b>	<b>3,512</b>
Current provisions	3,990	3,990					
Short-term borrowings	1,440		1,426			14	1,440
Advances and prepayments received	2,895	2,895					
Trade accounts payable and related accounts	941	18	923				923
Other operating liabilities	1,904	817	849			238	1,087
Current tax liabilities	39	39					
Other non-operating liabilities	64	1	63				63
Liabilities of operations held for sale	5,320	5,320					
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>28,987</b>	<b>19,571</b>	<b>8,944</b>			<b>472</b>	<b>9,222</b>

<i>(in millions of euros)</i>	Level 1	Level 2	Level 3	Total
<b>Non-current liabilities</b>	-	221	-	221
Long-term borrowings	-	221	-	221
<b>Current liabilities</b>	-	251	-	251
Short-term borrowings	-	14	-	14
Other operating liabilities	-	238	-	238
<b>TOTAL LIABILITIES</b>	-	472	-	472

**NET GAINS AND LOSSES ON FINANCIAL INSTRUMENTS****Available-for-sale securities****2016**

<i>(in millions of euros)</i>	Interest income and dividends	Other income and expenses	Subsequent valuation		Gain (loss) from disposal
			Changes in fair value and foreign exchange impact	Impairment	
Other items of comprehensive income*			(50)		(112)
Statement of Income	0	0		(5)	(2)
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>(50)</b>	<b>(5)</b>	<b>(114)</b>

\* excluding tax impact.

At December 31, 2016, the net change in the fair value of available-for-sale securities recognized in "other items of comprehensive income" represented a total unrealized gain of 335 million euros.

**2015**

<i>(in millions of euros)</i>	Interest income and dividends	Other income and expenses	Subsequent valuation		Gain (loss) from disposal
			Changes in fair value and foreign exchange impact	Impairment	
Other items of comprehensive income*			173		(86)
Statement of Income	0	0		0	10
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>173</b>	<b>0</b>	<b>(76)</b>

\* : excluding tax impact.

At December 31, 2015, the net change in the fair value of available-for-sale securities recognized in "other items of comprehensive income" represented a total unrealized gain of 497 million euros.

**Loans and receivables****2016**

<i>(in millions of euros)</i>	Interest	Impairment	Debt forgiveness
Net income	38	51	

**2015**

<i>(in millions of euros)</i>	Interest	Impairment	Debt forgiveness
Net income	86	(19)	-

**Financial assets and liabilities at fair value recognized through profit or loss**

Income from financial assets and liabilities recognized at fair value through profit and loss was insignificant at December 31, 2016, compared with 1 million euros at December 31, 2015.

**Financial liabilities at amortized cost**

**2016**

<i>(in millions of euros)</i>	Interest expense and commissions	Other income and expenses
Net income	(120)	0

**2015**

<i>(in millions of euros)</i>	Interest expense and commissions	Other income and expenses
Net income	(64)	-

**Derivatives used for hedging**

At December 31, 2016, the ineffective share of derivatives used for hedging recognized in profit or loss is as follows:

- Cash flow hedges: (17) million euros
- Fair value hedges: (2) million euros

**CASH FLOW HEDGES**

<i>(in millions of euros)</i>	Value before tax at December 31, 2015	New transactions	Change in value	Recognition through profit and loss	Value before tax at December 31, 2016
Cash flow hedging instruments	(199)	(4)	97	(49)	(155)

**LASTING IMPAIRMENT OF AVAILABLE-FOR-SALE SECURITIES**

<i>(in millions of euros)</i>	Amount at December 31, 2015	Charges	Reversal of depreciation on disposals	Currency translation adjustments	Other changes	Value before tax at December 31, 2016
Earmarked funds	(112)		7		105	-
Other available-for-sale securities	(29)				29	-
<b>TOTAL</b>	<b>(141)</b>		<b>7</b>		<b>134</b>	<b>-</b>

**NOTE 33. COMMITMENTS GIVEN AND RECEIVED****CONTINUING OPERATIONS**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>Less than one year</b>	<b>1 to 5 years</b>	<b>&gt; 5 years</b>	<b>December 31, 2015</b>
<b>Commitments given</b>	<b>1,058</b>	<b>384</b>	<b>357</b>	<b>317</b>	<b>966</b>
Operating commitments given	587	130	239	217	659
• Contract guarantees given	585	128	239	217	657
• Other operating guarantees	2	2	-	-	2
Commitments given on financing	460	250	110	100	271
Other commitments given	11	3	7	-	36
<b>Commitments received</b>	<b>344</b>	<b>190</b>	<b>60</b>	<b>94</b>	<b>335</b>
Operating commitments received	262	188	46	28	334
Commitments received on collateral	50	-	-	50	-
Other commitments received	32	2	14	16	1
<b>Reciprocal commitments</b>	<b>114</b>	<b>38</b>	<b>76</b>	<b>-</b>	<b>2,250</b>

The amounts above do not include off-balance-sheet commitments of operations sold, discontinued or held for sale; they do not include construction contracts for which the group is currently in negotiations.

**Commitments given**

Operating commitments represent the majority of commitments given. Most of these commitments consist of performance bonds.

The group gave a parent company commitment to its customer TVO for the execution of contractual obligations for the construction of an EPR in Finland. The group received a counter guarantee from Siemens in the amount of its share in the contract with TVO. The commitment given by the group corresponds to the amount of the contract, unless TVO succeeds in demonstrating the existence of a serious and intentional offence by the supplier. TVO has called on this commitment several times, and the group rejected these calls. No value concerning these guarantees was included in the previous table.

**Reciprocal commitments**

In January 2013, the group established a 1.25-billion-euro syndicated line of credit available in euros over a 5-year period. The group also had bilateral bank lines of credit available to it in the amount of 795 million euros, maturing in 2017. As of the end of December 2016, these lines were fully drawn.

Moreover, AREVA negotiated and put in place between February and April 2016 a bridge loan in the amount of 1.2 billion euros with a maturity date of January 20, 2017. This financing expired without having been used.

In early December 2016, AREVA entered into discussions with certain banking partners to set up new bank financing in the amount of approximately 300 million euros, with a maturity of January 2018. On January 23, 2017, AREVA accepted the letters of commitment received from the banking partners for this financing. The credit contract is presently being drafted.

Reciprocal commitments at December 31, 2016 include the future minimum payments to be made on operating leases, as follows:

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>Less than one year</b>	<b>1 to 5 years</b>	<b>&gt; 5 years</b>	<b>December 31, 2015</b>
	<b>113</b>	38	75	-	<b>155</b>



**OPERATIONS HELD FOR SALE**

<i>(in millions of euros)</i>	<b>December 31, 2016</b>	<b>December 31, 2015</b>
<b>Commitments given</b>		
New NP	1,480	1,697
NewCo	289	-
Other operations	29	32
<b>Sub-total</b>	<b>1,798</b>	<b>1,729</b>
<b>Commitments received</b>		
New NP	1,904	2,219
NewCo	111	-
Other operations	9	10
<b>Sub-total</b>	<b>2,023</b>	<b>2,229</b>
<b>Reciprocal commitments</b>		
New NP	409	428
NewCo	251	-
Other operations	2	1
<b>Sub-total</b>	<b>661</b>	<b>429</b>

**NOTE 34. DISPUTES AND POTENTIAL LIABILITIES**

**Olkiluoto 3 EPR power plant (OL3) (dispute concerning AREVA NP)**

On December 5, 2008, the AREVA-Siemens consortium initiated arbitration proceedings with the International Court of Arbitration (ICC) for delays and disruptions suffered in connection with contract performance, and the resulting additional costs incurred (“D&D Claim”). In July 2012, the court of arbitration rendered a final partial verdict enjoining TVO to release 100 million euros (plus interest) due to the AREVA-Siemens consortium and withheld in contravention of the contractual provisions. That decision was duly executed by TVO.

At December 31, 2016, after eight years of legal proceedings (exchanges of briefs by the parties and hearings with the arbitration court), the parties’ respective claims amounted to approximately 3.5 billion euros for the consortium (on tranches 1 and 2 of its claim covering the start of the project to February 2014) and 2.3 billion euros for TVO.

In accordance with the schedule for the arbitral proceeding, substantive hearings on the dispute took place over the course of 2016 and gave rise in the second part of the year to expert statements through witness depositions. The arbitral court rendered a partial decision on November 7, 2016. While that decision allows some of TVO’s claims, it does not constitute a decision on the financial outcome of the dispute between the parties.

Other intermediate decisions are expected before the final decision, still expected for the end of 2017 at the earliest, but more probably in early 2018.

Moreover, the consortium and its legal counsel consider that the allegations of serious/intentional offense described in TVO’s claim remain unfounded.

**Quality audit**

Following the announcement in late April that documentary anomalies had been found in the follow-up of equipment manufacturing processes at the Creusot plant, an audit is currently being conducted on all of the manufacturing files.

As of late December 2016, the review of the “marked files” continued. For the operating reactors in particular, error reports were systematically constituted as soon as the review of these files revealed irregularities.

In October 2016, Greenpeace and other associations filed a complaint against EDF and AREVA with the public prosecutor’s office of the High Court of Paris concerning these anomalies, in particular those affecting a steam generator of Fessenheim unit 2.

Furthermore, in October 2016, in accordance with article 40 of the French Code of Criminal Procedure, under which any established authority and any publicly appointed official or civil servant with knowledge of a felony or a misdemeanor within the framework of his/her functions is required to “advise the State Prosecutor without delay”, the Chairman of ASN referred the matter of “irregularities” in the part manufacturing files at AREVA NP’s Creusot plant to the State Prosecutor. According to a judicial source, pursuant to this referral, a preliminary investigation has been opened by the public health section of the public prosecutor’s office of Paris.

This situation could result in other civil or penal implications, both in France and abroad.

**Paluel 2**

On March 31, 2016, a steam generator fell during handling in reactor building number 2 of the Paluel nuclear generating station.

ASN conducted an inspection concerning this event on April 7, 2016.

Moreover, following this event, a court-ordered appraisal was initiated by EDF to determine the circumstances of the event and the potential liability of the members of the consortium in charge of steam generator handling, consisting of AREVA NP and three other companies.

**Bioenergy operations**

In an unfavorable market environment and with no possibility for its sale, it was decided in April 2015 to terminate the Bioenergy Europe operations. Similarly, following inconclusive discussions with potential buyers in 2015, the decision was made on February 22, 2016 to terminate the Bioenergy Asia and Bioenergy Brazil operations. The Bioenergy operations are to be gradually phased out while meeting AREVA's contractual commitments, in particular upon completion of the GIFT project in the Philippines and the Commeny project in France.

Nevertheless, following the announced cessation of Bioenergy Brazil operations, various claims were made against the Bioenergy Brazil entity. Consequently, all of the litigation in progress in Brazil has been reassessed, and additional provisions were set up at June 30, 2016.

**Koeberg contract**

On September 6, 2014, AREVA signed a contract with the South African utility Eskom to replace the steam generators of the Koeberg nuclear power plant. This 4.3-billion-rand project (about 300 million euros) called for the design and manufacturing of six steam generators, their installation in the power plant's two reactors, and related engineering services.

On August 27, 2014, Westinghouse submitted a complaint to the South African courts challenging the call for bids process which led to the award of said contract to AREVA.

Thrown out by the lower court, Westinghouse's claims were partially admitted by the Supreme Court of Appeal which, on December 9, 2015, annulled the decision awarding the contract to AREVA but declined the request for the substitution of Westinghouse.

Eskom and AREVA appealed that decision before the Constitutional Court of South Africa in January 2016. On December 21, 2016, the Constitutional Court of South Africa rendered its decision in favor of AREVA, finding Westinghouse's request for annulment of the call for bids inadmissible.

**Miscellaneous investigations**

AREVA is also aware of the existence of other preliminary investigations in progress led by the French National Financial Prosecutor's Office.

Since these inquiries are being carried out in connection with legal proceedings against parties unknown, AREVA is not currently implicated.

**NOTE 35. EVENTS SUBSEQUENT TO YEAR-END**

On January 5, 2017, AREVA's interest in Adwen was sold. Gamesa is taking over AREVA's offshore wind energy operations (see note 3). AREVA's off-balance-sheet commitments are taken over by Gamesa. AREVA retains the obligations for indemnification according to the new terms.

On January 10, 2017, the European Commission gave its consent to the French State to participate in the capital increases of AREVA SA and of NewCo (see note 1.1).

On February 3, 2017, the Combined General Meeting of Shareholders approved the capital increase reserved for the French State in the total amount of 2 billion euros. In addition, the par value of the AREVA SA share was reduced from 3.80 euros to 0.25 euros.

On February 21, 2017, in accordance with the terms of the share purchase agreement signed on January 5, 2017, Adwen sent a notice to AREVA and Gamesa following the identification of quality problems on the fleet of wind turbines installed offshore. More in-depth, technical counter-examinations will be necessary in the coming months to determine the financial impact, the division of responsibilities, and the solutions. In the absence of such information, no additional provision was recognized at December 31, 2016. Based on Adwen's estimates, which have not been verified by AREVA at this stage, the maximum exposure would be 70 million euros and would fall within the cap of guarantees given to Adwen, provided for that purpose by the share purchase agreement (see note 24).

**NOTE 36. MAIN CONSOLIDATED COMPANIES AND ASSOCIATES**

Name of unit or controlling entity: Company name, legal form	Business reg. no.		December 31, 2016		December 31, 2015	
	Country	(Siren no.)	Method	Percentage of interest	Method	Percentage of interest
<b>Nuclear</b>						
AREVA NC SA	France	305 207 169	FC	100	FC	100
AREVA NP SAS	France	428 764 500	FC	100	FC	100
AREVA GmbH	Germany		FC	100	FC	100
AREVA Inc.	United States		FC	100	FC	100
AREVA TA SA	France	772 045 879	FC	85.08	FC	83.58
Eurodif SA	France	723 001 889	FC	70.76	FC	59.65
AREVA Resources Southern Africa	Great Britain		FC	100	FC	100
AREVA Resources Canada	Canada		FC	100	FC	100
Katco	Kazakhstan		FC	51	FC	51
SET	France	440 252 666	FC	95	FC	88
ETC	Great Britain		EM	50	EM	50
AREVA Mines	France	501 493 605	FC	100	FC	100
Somaïr	Niger		FC	63.40	FC	63.40
TN International	France	602 039 299	FC	100	FC	100
CFMM	France	300 574 894	FC	100	FC	100
ANC Expansion	France	538 613 613	FC	86.51	FC	86.51
Imouraren SA	Niger		FC	57.66	FC	57.66
<b>Renewable Energies</b>						
Adwen	Germany		EM	50	EM	50
<b>Holding company and other operations – Investments</b>						
AREVA SA	France	712 054 923	FC	100	FC	100
AREVA BS	France	421 356 593	FC	100	FC	100
New AREVA Holding	France	330 956 871	FC	100	FC	100

FC: full consolidation

EM: equity method

The percentages of voting rights held by AREVA in each company belonging to the consolidation perimeter are the same as the percentages of interests.

## NOTE 37. TRANSITION OF 2015 FINANCIAL STATEMENTS AS REPORTED TO RESTATED 2015 FINANCIAL STATEMENTS

This note recapitulates the main impacts of the adoption of IFRS 5 on the financial statements for the period ended December 31, 2015.

### RECONCILIATION OF STATEMENT OF INCOME AS REPORTED TO RESTATED STATEMENT OF INCOME

<i>(in millions of euros)</i>	2015 reported	IFRS 5 adjustments	2015 restated
<b>REVENUE</b>	<b>4,199</b>	<b>(4,166)</b>	<b>33</b>
Other income from operations	5	(4)	0
Cost of sales	(4,492)	3,542	(950)
<b>Gross margin</b>	<b>(288)</b>	<b>(629)</b>	<b>(917)</b>
Research and development expenses	(112)	99	(13)
Marketing and sales expenses	(52)	48	(3)
General and administrative expenses	(165)	77	(88)
Other operating expenses	(863)	589	(274)
Other operating income	91	(83)	8
<b>OPERATING INCOME</b>	<b>(1,388)</b>	<b>100</b>	<b>(1,287)</b>
Share in net income of joint ventures and associates	(21)	(6)	(26)
<b>OPERATING INCOME AFTER SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES</b>	<b>(1,409)</b>	<b>95</b>	<b>(1,314)</b>
Income from cash and cash equivalents	20	67	87
Gross borrowing costs	(205)	137	(68)
<b>Net borrowing costs</b>	<b>(185)</b>	<b>204</b>	<b>19</b>
Other financial expenses	(477)	400	(77)
Other financial income	348	(336)	12
<b>Other financial income and expenses</b>	<b>(129)</b>	<b>63</b>	<b>(65)</b>
<b>NET FINANCIAL INCOME</b>	<b>(313)</b>	<b>267</b>	<b>(46)</b>
<b>Income tax</b>	<b>(124)</b>	<b>217</b>	<b>93</b>
<b>NET INCOME FROM CONTINUING OPERATIONS</b>	<b>(1,846)</b>	<b>580</b>	<b>(1,267)</b>
Net income after tax from operations sold, discontinued or held for sale	(190)	(580)	(770)
<b>NET INCOME FOR THE PERIOD</b>	<b>(2,036)</b>	<b>-</b>	<b>(2,036)</b>
Including:			
Group:			
Net income from continuing operations	(1,853)	586	(1,267)
Net income from operations sold, discontinued or held for sale	(185)	(586)	(771)
<b>NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT</b>	<b>(2,038)</b>	<b>-</b>	<b>(2,038)</b>
Minority interests:			
Net income from continuing operations	7	(7)	0
Net income from operations sold, discontinued or held for sale	(5)	7	2
<b>NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS</b>	<b>2</b>	<b>-</b>	<b>2</b>
Number of shares outstanding	383,204,852		383,204,852
Average number of shares outstanding	383,204,852		383,204,852
Average number of treasury shares	908,871		908,871
Average number of shares outstanding, excluding treasury shares	382,295,981		382,295,981
Earnings per share from continuing operations	(4.85)		(3.31)
Basic earnings per share	(5.33)		(5.33)
Diluted earnings per share	(5.33)		(5.33)

**RECONCILIATION FROM STATEMENT OF COMPREHENSIVE INCOME AS REPORTED TO RESTATED STATEMENT OF COMPREHENSIVE INCOME**

<i>(in millions of euros)</i>	<b>2015 reported</b>	<b>IFRS 5 adjustments</b>	<b>2015 restated</b>
<b>Net income</b>	<b>(2,036)</b>	<b>-</b>	<b>(2,036)</b>
<b>Items not recyclable to the income statement</b>	<b>292</b>	<b>-</b>	<b>292</b>
Actuarial gains and losses on the employee benefits of consolidated companies	217	(217)	-
Income tax related to non-recyclable items	9	(9)	-
Share in non-recyclable items from joint ventures and associates, net of tax	12	(12)	-
Non-recyclable items related to operations sold, discontinued or held for sale, net of tax	55	236	292
<b>Items recyclable to the income statement</b>	<b>(160)</b>	<b>-</b>	<b>(160)</b>
Currency translation adjustments on consolidated companies and other	(136)	136	-
Change in value of available-for-sale financial assets	84	(84)	-
Change in value of cash flow hedges	(87)	91	4
Income tax related to recyclable items	(28)	28	-
Share in recyclable items from joint ventures and associates, net of tax	-	-	-
Recyclable items related to operations sold, discontinued or held for sale, net of tax	7	(171)	(164)
<b>Total other items of comprehensive income (net of income tax)</b>	<b>132</b>	<b>-</b>	<b>132</b>
<b>COMPREHENSIVE INCOME</b>	<b>(1,905)</b>		<b>(1,905)</b>
• Attributable to equity owners of the parent	(1,825)		(1,825)
• Minority interests	(80)		(80)

## RECONCILIATION OF STATEMENT OF CASH FLOWS AS REPORTED TO RESTATED STATEMENT OF CASH FLOWS

<i>(in millions of euros)</i>	2015 reported	IFRS 5 adjustments	2015 restated
<b>Net income for the period</b>	<b>(2,036)</b>	-	<b>(2,036)</b>
Less: income from operations sold	190	580	770
<b>Net income from continuing operations</b>	<b>(1,846)</b>	<b>580</b>	<b>(1,267)</b>
(Profit) / loss of joint ventures and associates	21	6	26
Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months	812	(772)	40
Goodwill impairment	26	0	26
Net increase in (reversal of) provisions	919	(272)	648
Net effect of unwinding of assets and provisions	253	(253)	0
Income tax expense (current and deferred)	124	(217)	(93)
Net interest included in borrowing costs	178	(204)	(26)
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value	(148)	139	(8)
Other non-cash items	14	(4)	9
Dividends from joint ventures and associates	1	(1)	0
<b>Cash flow from operations before interest and taxes</b>	<b>356</b>	<b>(999)</b>	<b>(643)</b>
Net interest received (paid)	(176)	216	40
Income tax paid	(140)	189	49
<b>Cash flow from operations after interest and tax</b>	<b>40</b>	<b>(593)</b>	<b>(554)</b>
Change in working capital requirement	322	(211)	111
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>	<b>362</b>	<b>(804)</b>	<b>(442)</b>
Investment in PP&E and intangible assets	(646)	634	(13)
Loans granted and acquisitions of non-current financial assets	(2,408)	2,331	(77)
Acquisitions of shares of consolidated companies, net of acquired cash	-	-	-
Disposals of PP&E and intangible assets	8	(8)	1
Loan repayments and disposals of non-current financial assets	2,338	(2,312)	26
Disposals of shares of consolidated companies, net of disposed cash	-	-	-
<b>NET CASH FLOW FROM INVESTING ACTIVITIES</b>	<b>(708)</b>	<b>645</b>	<b>(64)</b>
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries	-	-	-
Treasury shares sold/(acquired)	-	-	-
Transactions with minority interests	-	-	-
Dividends paid to minority shareholders of consolidated companies	(132)	132	0
Increase in borrowings	(693)	(65)	(758)
<b>NET CASH FLOW FROM FINANCING ACTIVITIES</b>	<b>(825)</b>	<b>67</b>	<b>(758)</b>
Increase (decrease) in securities recognized at fair value through profit and loss	35	0	35
Impact of foreign exchange movements	(6)	5	(1)
<b>NET CASH GENERATED BY OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE</b>	<b>331</b>	<b>88</b>	<b>419</b>
<b>INCREASE (DECREASE) IN NET CASH</b>	<b>(811)</b>	-	<b>(811)</b>
<b>NET CASH AT THE BEGINNING OF THE YEAR</b>	<b>1,556</b>	-	<b>1,556</b>
<b>NET CASH AT THE END OF THE YEAR</b>	<b>745</b>	-	<b>745</b>

## 20.3. 2016 FINANCIAL STATEMENTS

### 20.3.1. STATUTORY AUDITORS' REPORT ON THE ANNUAL FINANCIAL STATEMENTS

N.B.: All amounts are presented in thousands of euros unless otherwise indicated. Certain totals may include rounding differences.

This is a free translation into English of the statutory auditors' report on the annual financial statements issued in the French and is provided solely for the convenience of English speaking users.

The statutory auditors' report includes information specifically required by French law in such reports, whether modified or not. This information is presented below the audit opinion on the annual financial statements and includes explanatory paragraphs discussing the auditors' assessments of certain significant accounting and auditing matters. These assessments were considered for the purpose of issuing an audit opinion on the annual financial statements taken as a whole and not to provide separate assurance on individual account balances, transactions or disclosures.

This report also includes information relating to the specific verification of information given in the management report.

This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

To the Shareholders,

In compliance with the assignment entrusted to us by your Annual General Meeting, we hereby report to you, for the year ended December 31, 2016, on:

- The audit of the accompanying financial statements of AREVA SA;
- The justification of our assessments;
- The specific verifications and information required by law.

These financial statements have been approved by the Board of Directors. Our role is to express an opinion on these financial statements based on our audit.

#### I - OPINION ON THE FINANCIAL STATEMENTS

We conducted our audit in accordance with professional standards applicable in France; those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit involves performing procedures, using sampling techniques or other methods of selection, to obtain audit evidence about the amounts and disclosures in the financial statements. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the company as of December 31, 2016 and of the results of its operations for the year then ended in accordance with French accounting principles.

Without qualifying our opinion, we draw your attention to the matter set out in the following notes to the financial statements:

- Notes 1.1 and 6.4 regarding the company's liquidity situation and the information relating to the application of the going concern principle;
- Note 1.1 regarding the context of the closing, the implementation of the group's restructuring project and in particular, the carve-out of the nuclear cycle activities within New AREVA Holding.

## II - JUSTIFICATION OF OUR ASSESSMENTS

Accounting estimates contributing to the production of the financial statements have been made under the terms described in Note 1.1 to the financial statements. Within this framework, and in accordance with the requirements of article L. 823-9 of the French Commercial Code (*Code de commerce*) relating to the justification of our assessments, we bring to your attention the following matters:

- Participating interests were valued in accordance with the accounting methods described in Note 2.2 to the financial statements entitled "Accounting policies, rules and methods – Long-term investments". As part of our audit, we reviewed the procedures for executing the valuation of those long-term investments and assessed the consistency of the underlying assumptions with the forecasted data of these entities concerned. We also verified the appropriateness of the abovementioned information provided in the notes of the financial statements;
- Provisions for risks, litigation and contingent liabilities are described in Note 6.8 to the financial statements. We examined the existing procedures for the identification, evaluation and presentation in the accounts of the company's risks, litigation and contingent liabilities. We also verified that the main disputes identified during the implementation of these procedures are described appropriately in the note to the financial statements;
- In the frame of our assessment on the going concern assumption, we examined the Company's liquidity situation detailed in Notes 1.1 and 6.4 to the financial statements. We acknowledged the cash flow forecasts, the debt repayment schedules, the current credit lines and the related covenants, as well as the future capital increase transactions and the related conditions and shareholders' commitments.

These assessments were made as part of our audit of the financial statements taken as a whole, and therefore contributed to the opinion we formed which is expressed in the first part of this report.

## III – SPECIFIC VERIFICATIONS AND INFORMATION REQUIRED BY LAW

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law.

Except for the possible impact of the facts set out in the first part of this report, we have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the Management Report of the Board of Directors and in the documents addressed to shareholders with respect to the financial position and the financial statements.

Concerning the information given in accordance with the requirements of article L. 225-102-1 of the French Commercial Code (*Code de commerce*) relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements, or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your company from companies controlling your company or controlled by it. Based on this work, we attest the accuracy and fair presentation of this information.

In accordance with French law, we have verified that the required information concerning the purchase of investments and controlling interests and the identity of the shareholders and holders of voting rights has been properly disclosed in the Management Report.

Courbevoie and Paris-La Défense, March 9, 2017

French original signed by

The Statutory Auditors

MAZARS

Cédric Haaser

Jean-Louis Simon

ERNST & YOUNG Audit

Aymeric de La Morandière

Jean Bouquot



**20.3.2. STATEMENT OF FINANCIAL POSITION**

<b>Assets</b>	Note	2016			2015
		Gross	Amortization & Depreciation	Net	Net
<i>In thousands of euros</i>					
Uncalled share capital					
<b>Non-current assets</b>					
Research and development expenses					
Concessions, patents, licenses, software and similar rights		151,718	113,179	38,539	52,890
Leasehold					
Other intangible assets					
Intangible assets in progress		3,655		3,655	2,639
Advances and prepayments					
<b>Total intangible assets</b>	<b>20.4.4.1/4.2</b>	<b>155,373</b>	<b>113,179</b>	<b>42,195</b>	<b>55,529</b>
Land		204		204	204
Buildings		114	114		
Plant, equipment and tooling		172	85	87	98
Other property, plant and equipment (PPE)		63,938	51,193	12,745	19,423
Plant, property and equipment in progress		3,391		3,391	5,766
Advances and prepayments on PPE					
<b>Total property, plant and equipment</b>	<b>20.4.4.1/4.2</b>	<b>67,819</b>	<b>51,392</b>	<b>16,427</b>	<b>25,491</b>
Associates		6,043,978	5,249,584	794,394	2,312,092
Loans to associates		1,330,551	576,308	754,243	5,047,703
Long-term shareholdings in trading portfolio					
Other long-term securities		183	59	124	124
Loans					
Other long-term investments		13,219	6,753	6,466	16,501
<b>Total long-term investments</b>	<b>20.4.4.3/4.4</b>	<b>7,387,931</b>	<b>5,832,703</b>	<b>1,555,228</b>	<b>7,376,420</b>
<b>Total non-current assets</b>		<b>7,611,123</b>	<b>5,997,273</b>	<b>1,613,849</b>	<b>7,457,441</b>
<b>Current assets</b>					
Raw materials and supplies					
Goods in process					
Intermediate and finished products					
Goods					
<b>Total inventories and work-in-process</b>					
<b>Advances and prepayments on orders</b>		<b>17,146</b>		<b>17,146</b>	<b>23,753</b>
Accounts receivable and related accounts		142,648		142,648	101,685
Other accounts receivable		214,038	749	213,289	478,355
Subscribed capital called for, unpaid					
<b>Total receivables</b>	<b>20.4.4.5</b>	<b>356,686</b>	<b>749</b>	<b>355,937</b>	<b>580,041</b>
Marketable securities		203,993	334	203,659	428,181
Cash instruments		24,980		24,980	55,700
Cash and cash equivalents		2,439,729	60,775	2,378,954	1,901,641
<b>Total cash and marketable securities</b>	<b>20.4.4.7</b>	<b>2,668,702</b>	<b>61,109</b>	<b>2,607,593</b>	<b>2,385,522</b>
<b>Prepaid expenses</b>		<b>7,985</b>		<b>7,985</b>	<b>15,657</b>
<b>Total current assets</b>		<b>3,050,519</b>	<b>61,858</b>	<b>2,988,661</b>	<b>3,004,972</b>
Deferred charges		1,390		1,390	12,768
Bond redemption premiums					17,095
Unrealized foreign exchange gains					
<b>GRAND TOTAL</b>		<b>10,663,031</b>	<b>6,059,132</b>	<b>4,603,900</b>	<b>10,492,275</b>

**Shareholders' equity and liabilities***(in thousands of euros)*

	Note	2016	2015
<b>Share capital</b>	<b>20.4.4.8</b>	<b>1,456,178</b>	<b>1,456,178</b>
Additional paid-in capital, merger premiums, share premiums		1,148,130	1,148,130
Legal reserve		145,618	145,618
Reserves in accordance with the articles of association			
Other reserves		9,707	9,707
Retained earnings		-4,329,112	-1,413,175
Net income for the year		69,709	-2,915,938
Investment subsidies		322	654
Tax-driven provisions		8,238	7,895
<b>Total shareholders' equity</b>	<b>20.4.4.9</b>	<b>-1,491,211</b>	<b>-1,560,931</b>
<b>Other shareholders' equity</b>			
Proceeds from issues of equity securities			
Advances subject to covenants		83	83
<b>Total other shareholders' equity</b>		<b>83</b>	<b>83</b>
<b>Provisions for contingencies and losses</b>			
Provisions for contingencies		1,466,370	1,515,629
Provisions for losses		6,937	40,871
<b>Total provisions for contingencies and losses</b>	<b>20.4.4.10</b>	<b>1,473,306</b>	<b>1,556,500</b>
<b>Liabilities</b>			
Convertible bond issues			
Other bond issues			5,867,450
Bank borrowings		2,064,687	201,797
Miscellaneous loans and borrowings		2,047,307	3,575,483
Advances and prepayments on orders			
Trade accounts payable and related accounts		118,260	99,811
Taxes and employee-related liabilities		16,777	17,510
Accounts payable on non-current assets and related accounts		127	471
Other liabilities		284,755	518,259
Financial instruments		89,094	147,455
Unearned income		715	68,388
<b>Total liabilities</b>	<b>20.4.4.11</b>	<b>4,621,722</b>	<b>10,496,623</b>
Unrealized foreign exchange losses			
<b>TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES</b>		<b>4,603,900</b>	<b>10,492,275</b>

**20.3.3. STATEMENT OF INCOME**

<i>(in thousands of euros)</i>	Note Appendix	2016	2015
<b>Operating income</b>			
Sales of goods			
Sales of products			
Services performed		416,672	452,145
<b>Revenue <sup>(1)</sup></b>		<b>416,672</b>	<b>452,145</b>
Production in inventory			
Self-constructed assets		6,445	10,148
Operating subsidies			
Reversals of provisions, amortization and depreciation		6,089	4,817
Transferred expenses		18	10
Other income		1,001	494
<b>Total operating income</b>		<b>430,226</b>	<b>467,614</b>
<b>Operating expenses</b>			
Purchase of goods			
Change in inventory (goods)			
Purchases of raw materials and other supplies		-136	-1,662
Change in inventory (raw materials and supplies)			
Other purchases and expenses		557,949	553,739
Taxes and related expenses		2,110	3,521
Salaries and other compensation		3,377	10,791
Social security taxes		3,264	6,385
Amortization, depreciation and provisions		42,001	27,756
Other expenses		3,329	4,565
<b>Total operating expenses</b>		<b>611,894</b>	<b>605,094</b>
<b>Current operating income</b>	<b>20.4.5.1</b>	<b>-181,669</b>	<b>-137,480</b>
<b>Share of net income from joint operations</b>			
Profit allocated or loss transferred			
Loss allocated or profit transferred			
<b>Financial income</b>			
From equity interests		110,533	223,799
From other marketable securities and capitalized receivables		1	70
Other interest and related income		146,758	170,747
Reversals of provisions, amortization and depreciation		632,082	992,036
Transferred expenses			
Foreign exchange gains		299,840	796,818
Net income from disposals of marketable securities		895	1,529
<b>Total financial income</b>		<b>1,190,109</b>	<b>2,184,999</b>
<b>Financial expenses</b>			
Amortization, depreciation and provisions		631,576	3,676,817
Interest and related expenses		350,603	465,583
Foreign exchange losses		290,736	794,808
Net loss on disposals of marketable securities		708	565
<b>Total financial expenses</b>		<b>1,273,623</b>	<b>4,937,773</b>
<b>Net financial income</b>	<b>20.4.5.2</b>	<b>-83,513</b>	<b>-2,752,774</b>
<b>Income before tax and exceptional items</b>		<b>-265,182</b>	<b>-2,890,254</b>
<i>(1) including direct exports</i>		40,847	60,408

**STATEMENT OF INCOME (CONTINUED)**

<i>(in thousands of euros)</i>	Note Appendix	2016	2015
<b>Exceptional income</b>			
On financial management transactions		8	3,648
On capital or non-current asset transactions		337	21,664
Reversals of provisions, amortization and depreciation		255,074	171,886
Transferred expenses			
<b>Total exceptional income</b>		<b>255,419</b>	<b>197,198</b>
<b>Exceptional expenses</b>			
On financial management transactions		13,731	5,229
On capital or non-current asset transactions		32,200	46,197
Amortization, depreciation and provisions		2,866	260,775
<b>Total exceptional expenses</b>		<b>48,797</b>	<b>312,201</b>
<b>Exceptional items</b>	<b>20.4.5.3</b>	<b>206,623</b>	<b>-115,002</b>
Employee profit-sharing			
Income tax	20.4.5.4	-128,268	-89,319
<b>NET INCOME</b>		<b>69,709</b>	<b>-2,915,938</b>

## 20.4. NOTES TO THE ANNUAL FINANCIAL STATEMENTS

The notes hereunder supplement the statement of financial position for the period ended December 31, 2016 showing total assets of 4,603,900 thousand euros, and the statement of income, showing net income of 69,709 thousand euros. These statements are for the 12-month period beginning January 1 and ending December 31, 2016.

The notes include:

- Highlights of the year;
- Accounting principles and methods;

- Notes to the statement of financial position;
- Notes to the statement of income;
- Additional information.

These notes and tables are an integral part of the annual financial statements approved by Board of Directors on February 28, 2017. They will be submitted to the Annual General Meeting of Shareholders for approval on May 18, 2017.

### 20.4.1. NOTABLE ITEMS IN THE 2016 FINANCIAL STATEMENTS

#### 20.4.1.1. CONTEXT OF THE 2016 FINANCIAL STATEMENTS

To restore its competitiveness and reestablish its financial position, the group designed and has started to implement the Restructuring Plan, consistent with the 2016-2020 "roadmap" presented to the market on June 15, 2016.

The Restructuring Plan includes the following three main sections:

- conversion of the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) into subsidiaries within the New AREVA Holding entity, a wholly owned subsidiary of AREVA SA;
- capital increases of AREVA SA and New AREVA Holding in the total amount of 5 billion euros; and
- asset sales in order to withdraw from certain operations and refocus on the nuclear fuel cycle operations.

At the end of implementation of the Restructuring Plan, and subject to its execution, AREVA SA's main mission will be to complete the Olkiluoto 3 EPR reactor project ("OL3") in Finland via its subsidiary AREVA NP with the necessary resources, in compliance with its contractual obligations. Another objective of AREVA will be to close out the remaining renewables projects; it will keep the responsibility associated with outstanding component contracts and potentially non-outstanding component contracts for which serious anomalies might be identified and unresolved by the completion of the sale of New NP. Lastly, AREVA SA will assume responsibility for the redemption of bank borrowings which remain on its balance sheet (bilateral lines of credit and RCF) in 2017 and 2018.

#### Subsidiarization of the nuclear fuel cycle operations within New AREVA Holding

Subsidiarization involved contributing the nuclear fuel cycle operations (including the Mining, Front End and Back End operations) to the New AREVA Holding entity, within which strategic investors are destined to invest alongside the French State.

The bearers of bonds issued by AREVA SA maturing in 2017, 2019, 2020, 2021, 2022, 2023 and 2024, assembled in general meetings, and the sole holder of the 2018 bond approved the contribution on September 19, 2016 and September 27, 2016 respectively.

On November 3, 2016, AREVA SA's shareholders, assembled in an Extraordinary General Meeting, also approved the contribution, the draft partial asset contribution agreement signed between AREVA SA and New AREVA Holding, and the valuation of and payment for the contribution, and delegated authority to the Board of Directors to effect the contribution. Furthermore, the contribution and correlative capital increase of New AREVA Holding were approved by the New AREVA Holding shareholders on November 3, 2016.

The contribution was effected on November 10, 2016, giving rise to a capital increase for New AREVA Holding in the amount of 44,581 thousand euros. The transcription of the items concerned by this partial asset contribution is presented in the notes to the financial statements, in the "partial asset contribution" column.

#### European Commission consent for the Restructuring Plan

On April 29, 2016, the French authorities notified the European Commission of a restructuring aid measure which takes the form of twin capital increases by the injection of public capital in the amount of 2 billion euros in AREVA SA and in the maximum amount of 2.5 billion euros in New AREVA Holding.

On January 10, 2017, at the end of the review of the matter by the European Commission, the latter authorized the French State's participation in the capital increases of AREVA SA and of New AREVA Holding, finding in particular that (i) the planned aid measures enable the group's return to long-term viability, (ii) the group is contributing significantly to the costs of its restructuring and (iii) the compensatory measures proposed by the group are sufficient and adequate.

The European Commission's authorization is conditioned on the fulfillment of the following two preconditions:

- the findings of the Autorité de sûreté nucléaire ("ASN") on the results of the demonstration program concerning the problem of carbon segregation identified in parts of the EPR reactor vessel of the Flamanville 3 project, without calling into question the suitability for service of the vessel parts due to that segregation or, alternatively, a decision by EDF, duly notified to the group in view of the sale of New NP, to waive the condition precedent related to the EPR reactor of the Flamanville 3 project as concerns the carbon segregation identified in parts of that reactor's vessel; and
- the European Commission's authorization of the merger between EDF and New NP.

Moreover, the European Commission's authorization is accompanied by a certain number of commitments on the part of the group until the end of its restructuring plan, i.e. the end of 2019. In particular, it covers the obligation not to proceed with acquisitions of interests in companies which it does not already control (with the exception of (i) a certain number of already identified projects and (ii) after the European Commission's authorization of projects which would be necessary to its return to viability), and the obligation to withdraw completely from the reactor and fuel assembly operations. By that date, neither AREVA SA nor New AREVA Holding will have a capitalistic relationship with New NP.

On January 10, 2017, the European Commission also authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA SA in the amount of 2 billion euros and the other for New AREVA Holding in the amount of 1.3 billion euros, to enable the group to meet its financial obligations until the effective completion of the AREVA SA and New AREVA Holding capital increases.

These advances from the shareholder current account, to be credited to the amount of the above-mentioned capital increases reserved for the French State, will be reimbursed by converting the State's receivable into capital within the framework of those capital increases, subject to the fulfillment of the two preconditions described above.

### Capital increase of AREVA SA

Within the framework of the group's Restructuring Plan, AREVA SA plans to carry out a capital increase reserved for the French State with cancellation of the shareholders' preemptive subscription right (the "Reserved Capital Increase"). In its meeting of December 15, 2016, AREVA SA's Board of Directors approved the principle of the Reserved Capital Increase and convened a General Meeting of Shareholders on February 3, 2017 with a view to authorizing the Reserved Capital Increase. AREVA SA's Board of Directors met again on January 11, 2017 to set the main terms and conditions of the Reserved Capital Increase, including the subscription price.

The proposed Reserved Capital Increase was approved by the Combined General Meeting of Shareholders held on February 3, 2017, with a view to carrying it out upon the fulfillment of the conditions accompanying the European Commission's authorization, in conformance with European regulations relative to State aid.

The total amount of the Reserved Capital Increase, including the share premium, will be 2 billion euros, corresponding to the sum of the 444,444,444 new shares issued multiplied by the subscription price per new share of 4.50 euros.

The purpose of the Reserved Capital Increase, as a supplement to the income from asset sales in progress, is to enable AREVA SA to meet its cash requirements and in particular to ensure the successful completion of the OL3 project.

Subject to the completion of the Reserved Capital Increase, the admission of the shares thus issued to trading on the Euronext Paris regulated market will be the subject of a prospectus which will be submitted to the AMF for approval.

The French State confirmed its commitments to participating in the Reserved Capital Increase at the level of 2 billion euros.

### Public buyout offer for AREVA SA shares

Considering the loss of control of New AREVA Holding resulting from its capital increase, and in accordance with the provisions of article 236-6 of the AMF's general regulations, the French State announced its intention of filing a public buyout offer, followed as applicable by a mandatory squeeze-out. The price of this public buyout offer would be identical to the issue price of the Reserved Capital Increase, i.e. 4.50 euros per share, on the condition that no significant event occurs between now and the launch of the public buyout offer which might lead to a change of price, upwards or downwards.

The proposed public buyout offer remains subject to AMF's Conformity Decision.

### Liquidity position and continuity of operations

In 2016, the group's liquidity was ensured by draws, on January 4 and 5, on available lines of credit in the amount of approximately 2 billion euros.

At December 31, 2016, AREVA SA's less than one year borrowings amounted to 815 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA SA guarantees New AREVA Holding's

borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the New AREVA Holding capital increase, planned in 2017.

To meet those commitments and ensure the continuity of operations in 2017, the main sources of financing in 2017 are spread out as follows:

- rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA SA in the amount of 2 billion euros and the other for New AREVA Holding in the amount of 1.3 billion euros, was authorized by the European Commission on January 10, 2017. These advances from the shareholder current account, to be credited to the capital increases planned in 2017, fill in the gap with the latter;
- the purpose of said capital increases and the income expected from asset sales in 2017 (AREVA TA, Adwen and New NP) is to strengthen the financial structure of AREVA SA and New AREVA Holding and to enable them to meet their liquidity requirements with regard to their obligations in 2017 and beyond, subject to, as concerns AREVA and the year of 2017, the sale of New NP no later than the fourth quarter;
- if the sale of New NP were to occur late in the year, AREVA SA has secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, which should be signed in the near future and will have a maturity date of January 8, 2018. Draws on this financing are conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases. With regard to the milestones already met and the work remaining to be accomplished in connection with the selling of New NP, AREVA SA has not identified items likely to compromise the completion of the New NP sale before the end of 2017. Moreover, AREVA SA is maintaining tight control of the sales process and of the fulfillment of the conditions precedent stipulated in the share purchase agreement.

Taken together, these items will ensure the continuity of operations for the 2017 financial year.

Beyond 2017, the last significant maturity of AREVA SA's debt consists of the redemption of the syndicated line of credit of 1.25 billion euros in January 2018. Although it is not presently expected that the sale of New NP in 2018 will be delayed, alternative solutions are being examined in addition to the internal optimization measures already identified (monetization of receivables, factoring, etc.) with a view to being able to ensure AREVA SA's funding until the receipt of the income from the sale of New NP, if it were to be delayed in 2018.

### OL3 contract

Discussions were entered into with TVO in early 2016 with the main objectives of getting TVO's consent for the transfer to AREVA SA of the contract related to the project to construct the Olkiluoto 3 EPR power plant ("OL3"), and of signing a comprehensive settlement agreement ending the arbitration between TVO and the AREVA-Siemens consortium. These negotiations did not lead to an agreement and were suspended during the first half of 2016.

In the absence of an agreement with TVO, the OL3 contract (currently held by AREVA NP) was not transferred to AREVA SA, and it was thus kept within the AREVA NP consolidation scope.

Following the sale of its operations to EDF (previously transferred to New NP), AREVA NP will be kept within the AREVA SA consolidation scope and will keep all of the resources needed to complete the OL3 project, in compliance with its contractual obligations.

### Sale of New NP

Following the memorandum of understanding signed on July 28, 2016, AREVA SA, AREVA NP and EDF signed a share purchase agreement on November 15, 2016 which sets the terms and conditions for the sale of an interest giving EDF the exclusive control of an entity tentatively called "New NP", a wholly owned subsidiary of AREVA NP, which will combine the industrial operations of the design and supply of nuclear reactors and equipment, fuel assemblies and services to the installed base.

The selling price for 100% of the capital of New NP was set at 2.5 billion euros, excluding any price adjustments and/or supplements.

#### 20.4.1.2. WRITE-DOWN OF INVESTMENTS IN AND LOANS TO ASSOCIATES

In connection with the review undertaken at the end of 2016 of the business outlook for the different Business Units, and considering the current market environment and the difficulties encountered on certain construction or upgrade projects in progress, the profitability outlook for some first-tier subsidiaries was revised significantly downward.

The recoverable amounts resulting therefrom translate into the write-down of certain investments in associates, of non-trade current accounts, of loans to associates held by AREVA SA (see note 4.4.1), and of the provision for financial risk (see note 4.10.2). The subsidiaries concerned are mainly:

- AREVA NP;
- AREVA Energies Renouvelables.

#### 20.4.1.3. SALE OF THE INTEREST IN ADWEN

Consistent with its objective of refocusing on the nuclear fuel cycle operations, AREVA SA announced that at the conclusion of a three-month competitive process designed to solicit and assess proposals from potential third-party investors, the

company's Board of Directors had given authority to management to exercise the option to sell its 50% interest in Adwen's capital, signed on June 17, 2016 with Gamesa.

This option to sell was exercised on September 14, 2016, and the sale closed on January 5, 2017.

#### 20.4.1.4. CAPITAL INCREASE OF AREVA TA

On December 7, 2016, during the Extraordinary General Meeting of AREVA TA Shareholders, a capital increase accompanied by the cancellation of the preemptive subscription right of minority interests for the benefit of AREVA SA was decided. The percentage of AREVA SA's interest thus went from 83.6% to 85.1%.

#### 20.4.1.5. SALE OF AREVA TA

The company announced on December 17, 2015 and confirmed on January 27, 2016 the plan to sell AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

On December 15, 2016, the company signed a share purchase agreement for all of its shares in AREVA TA with a consortium of buyers composed of the Agence des participations de l'État (APE, 50.32% of the capital), the Commissariat à l'énergie atomique et aux énergies renouvelables (CEA, 20.32%), and DCNS (20.32%). EDF will keep its 9.03% interest in the capital.

The sale, for which the plan has already been the subject of consultation with employee representative bodies and which has been approved by AREVA SA's governance, is scheduled to close in March or April 2017, subject in particular to the publication of the ministerial orders related to the sale and the absence of any unfavorable significant event with an impact of more than 55 million euros on the value of the company's equity. On the date the sale closes, the French State will control AREVA TA.

## 20.4.2. ACCOUNTING PRINCIPLES AND METHODS

The financial statements of AREVA SA for the year ended December 31, 2016 were prepared in accordance with French accounting standards as defined in articles 121-1 and 121-2 *et seq.* of the *Plan comptable général 2014*. The accounting policies were applied in compliance with the provisions of the French Commercial Code, the Accounting Decree of November 29, 1983 and the ANC 2014-03 regulations of the French Accounting Board related to the redrafting of the *Plan comptable général* applicable to year-end closing.

#### 20.4.2.1. VALUATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Property, plant and equipment (PPE) and intangible assets are valued at their acquisition or production cost, including start-up expenses.

They are depreciated based on the approach deemed most representative of the loss of economic value of each component, with each component depreciated based on its own useful life. Depreciation is calculated using the straight-line method and rates normally applicable to these categories of assets.

The maximum depreciation periods are as follows:

- 3 years for off-the-shelf software;
- 10 years for integrated management software packages;

- 25 years for buildings;
- 10 years for building improvements and office furniture; and
- 5 years for office equipment, computers and transportation equipment.

Depreciation may be supplemented for certain assets when the value in use becomes less than its carrying amount. The resulting carrying amount may be considered to be economically justified.

#### 20.4.2.2. LONG-TERM INVESTMENTS

Long-term investments appear on the assets side of the balance sheet at their transfer value or acquisition cost. The acquisition cost means the purchase price plus costs directly related to the purchase, in particular commissions paid to acquire the investment.

Investments in associates are written down when their original cost exceeds their value in use, determined investment by investment.

This write-down is calculated based on the share of net assets held at year end. This assessment also takes into account the subsidiaries' estimated profitability or market value, as well as events or situations subsequent to year-end.

Loans to associates are recorded at face value. A provision for impairment is recognized if necessary to reflect the actual value at year end.

#### 20.4.2.3. RECEIVABLES AND BORROWINGS

Receivables and borrowings are recorded at nominal value. Receivables may be written down by a provision to reflect potential collection difficulties based on information available at closing.

Receivables and borrowings in foreign currencies are translated and recorded in euros based on exchange rates in effect at year end. Unrealized gains and losses are recorded on the balance sheet as currency translation differences. Receivables and borrowings in foreign currencies whose exchange rates have been hedged are recorded in euros based on the hedged rate. Unrealized foreign exchange losses are recognized through a contingency provision.

#### 20.4.2.4. FINANCIAL INSTRUMENTS

AREVA SA uses derivatives to hedge foreign exchange risks, interest rate risks and the price of commodities, both for its own account and for transactions carried out by its subsidiaries. The derivatives used are mainly forward exchange contracts, currency and interest rate swaps, inflation swaps, currency options and commodity options.

The risks hedged relate to receivables, borrowings and firm commitments in foreign currencies, planned transactions in foreign currencies, and planned sales and purchases of commodities. Derivatives traded to hedge subsidiaries' exposure are issued by banking counterparties. Thus, AREVA SA's exposure to its subsidiaries is strictly offset by AREVA SA's positions with the banks.

Accounting principles:

- Gains and losses on derivatives traded to hedge the subsidiaries' exposure are recognized through profit and loss at maturity, thus matching the gains and losses recognized on the derivatives negotiated by AREVA SA with the banks.
- Interest rate derivatives negotiated by AREVA SA are qualified as hedging instruments. Interest is recognized as accrued.

#### 20.4.2.5. MARKETABLE SECURITIES

Marketable securities are valued at the lower of their acquisition cost or their net carrying amount. A provision for impairment is recorded when the valuation at the end of the period shows an overall capital loss by class of securities. The net carrying amount is equal to the average closing market price of the securities for the last month of the period.

A provision for impairment of other cash investments, such as debt instruments that are not publicly traded, is recorded separately when warranted.

#### 20.4.2.6. NON-TRADE CURRENT ACCOUNTS

Non-trade current accounts are reported under "cash and cash equivalents" on the assets side of the balance sheet; otherwise, they appear in borrowings on the liabilities side.

#### 20.4.2.7. BOND ISSUES

Bond debt is recognized as borrowings, as provided in generally accepted accounting principles in France (*Plan comptable général*).

Redemption premiums and deferred charges related to bond issues are amortized in a straight line over the term of the issue.

#### 20.4.2.8. PROVISIONS FOR CONTINGENCIES AND LOSSES

AREVA's provisions for contingencies and losses are consistent with French accounting board rules on liabilities dated December 7, 2000 (CRC 2000-06).

AREVA SA records provisions for contingencies and losses, for instance to cover restructuring or litigation expenses.

Contingent liabilities represent obligations that are neither probable nor certain at the date of closing, or obligations that are probable but where no resource is likely to be expended. Contingent liabilities are not recognized in provisions, but rather disclosed in the notes (see Section 4.10).

#### 20.4.2.9. EMPLOYEE BENEFITS

In the case of defined contribution plans, the group's payments are recognized as expenses for the period to which they relate.

The financial statements also reflect all of AREVA's pension, retirement and related benefit commitments, both for active personnel and for retirees, net of any plan assets and unrecognized gains covering the liabilities.

For defined benefit plans, benefit costs are estimated using the projected credit unit method. Under this method, accrued pension benefits are allocated among service periods based on the plan vesting formula. If services in subsequent years result in accrued benefit levels that are substantially higher than those of previous years, the Company must allocate the accrued benefits on a straight-line basis. The amount of future benefit payments to employees is determined based on salary trend assumptions, retirement age and mortality, discounted to present value based on interest rates for long-term bonds from AAA issuers.

Actuarial gains and losses are spread out over the average expected remaining working life of personnel taking part in these plans for the portion exceeding the largest of the following values by more than 10%:

- the present value of the defined benefit obligation at the balance sheet opening date;
- the fair value of plan assets at the balance sheet opening date.

The costs of plan changes are allocated over the vesting period.

#### 20.4.2.10. EXCEPTIONAL ITEMS

Items related to the company's ordinary operations are recognized in income before tax and extraordinary items, even if they are exceptional in terms of frequency or amount. Only items that are not related to the company's ordinary operations are recognized as exceptional items in the income statement, in addition to transactions specifically qualified as exceptional items under French GAAP (regulated provisions, reversals of investment subsidies, gains on disposals of certain assets, etc.).



#### 20.4.2.11. TAX INFORMATION

As provided in article 223A of the French Tax Code, AREVA SA opted to be solely responsible for income tax due on the combined income of the group consisting of AREVA SA and the subsidiaries in which it holds at least 95% of the share capital. This regime remains in effect for the year ended December 31, 2016.

The relations between AREVA SA and its integrated subsidiaries are governed by a tax integration agreement based on the principle of tax neutrality. This agreement defines in particular the conditions for distributing tax liabilities among integrated companies and the rules applicable upon termination of the integration.

As provided in article 39-1-2 of the French Tax Code, depreciation is deductible for tax purposes only if properly recognized in the company's accounting records. To encourage capital spending, tax law may allow companies to recognize amortization that would not otherwise be required under reporting standards. Due to discrepancies between tax and accounting rules, AREVA SA recognizes accelerated depreciation in a manner that is consistent with accounting rules providing for minimum cumulative straight-line amortization.

### 20.4.3. EVENTS SUBSEQUENT TO YEAR-END CLOSING

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On January 5, 2017, AREVA SA's interest in Adwen was sold. Gamesa is taking over AREVA SA's offshore wind energy operations. AREVA's off-balance-sheet commitments are taken over by Gamesa. AREVA retains the obligations for indemnification according to the new terms.

On January 10, 2017, the European Commission gave its consent to the French State to participate in the capital increases of AREVA SA and of New AREVA Holding (see note 1.1).

On February 3, 2017, the Combined General Meeting of Shareholders approved the capital increase reserved for the French State in the total amount of 2 billion euros.

In addition, the par value of the AREVA SA share was reduced from 3.80 euros to 0.25 euros.

On February 21, 2017, in accordance with the terms of the share purchase agreement signed on January 5, 2017, Adwen sent a notice to AREVA SA and Gamesa following the identification of quality problems on the fleet of wind turbines installed offshore. More in-depth, technical counter-examinations will be necessary in the coming months to determine the financial impact, the division of responsibilities, and the solutions. In the absence of such information, no additional provision was recognized at December 31, 2016. Based on Adwen's estimates, which have not been verified by AREVA SA at this stage, the maximum exposure would be 70 million euros and would fall within the cap of guarantees given to Adwen, provided for that purpose by the share purchase agreement.

**20.4.4. NOTES TO THE BALANCE SHEET****20.4.4.1. GROSS VALUES OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS**

Gross amount <i>(in thousands of euros)</i>	Note Appendix	2015	Partial asset contribution	Increase	Decrease	Transfers from account to account	2016
<b>Intangible assets</b>							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		148,061		3,656			151,718
Leasehold							
Other intangible assets							
Intangible assets in progress		2,639		3,415	2,399		3,655
Advances and prepayments							
<b>TOTAL INTANGIBLE ASSETS</b>	<b>20.4.4.1.1.</b>	<b>150,701</b>		<b>7,071</b>	<b>2,399</b>		<b>155,373</b>
<b>Property, plant and equipment</b>							
Land		204					204
Buildings:							
• Buildings erected on owned land		114					114
• Buildings erected on third party land							
• Buildings, facilities, fixtures							
Plant, equipment and tooling:							
• Plant, equipment and tooling		174			2		172
• End-of-lifecycle assets							
Other PPE:							
• Miscellaneous facilities, fixtures and improvements		66,769		964	19,018		48,716
• Transportation equipment							
• Office equipment, computer equipment and furniture		20,056		324	5,158		15,222
• Other property, plant and equipment							
Plant, property and equipment in progress		5,766		3,349	5,724		3,391
Advances and prepayments on PPE							
<b>TOTAL PROPERTY, PLANT AND EQUIPMENT</b>	<b>20.4.4.1.2.</b>	<b>93,082</b>		<b>4,638</b>	<b>29,902</b>		<b>67,819</b>

**20.4.4.1.1.** The increase in assets in progress is mainly tied to the project to replace obsolescent infrastructure and certain applications used by the finance function.

**20.4.4.1.2.** The decrease in property, plant and equipment is mainly due to the scrapping of fixtures and improvements of rooms at the rue La Fayette site and at the Colombes site.

## 20.4.4.2. AMORTIZATION AND DEPRECIATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Amortization and depreciation <i>(in thousands of euros)</i>	Note	2015	Partial asset contribution	Increase	Decrease	Transfers from account to account	2016
<b>Intangible assets</b>							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		95,171		18,007			113,179
Leasehold							
Other intangible assets							
Intangible assets in progress							
<b>TOTAL INTANGIBLE ASSETS</b>		<b>95,171</b>		<b>18,007</b>			<b>113,179</b>
<b>Property, plant and equipment</b>							
Land and improvements							
Buildings:							
• Buildings erected on owned land		114					114
• Buildings erected on third party land							
• Buildings, facilities, fixtures							
Plant, equipment and tooling:							
• Plant, equipment and tooling		75		11	2		85
• End-of-lifecycle assets							
Other PPE:							
• Miscellaneous facilities, fixtures and improvements		50,583		6,862	19,018		38,427
• Transportation equipment							
• Office equipment, computer equipment and furniture		16,819		1,097	5,149		12,766
• Other property, plant and equipment							
Plant, property and equipment in progress							
<b>TOTAL PROPERTY, PLANT AND EQUIPMENT</b>		<b>67,591</b>		<b>7,969</b>	<b>24,169</b>		<b>51,392</b>

**20.4.4.2.1.** The decrease in depreciation of property, plant and equipment is mainly due to the scrapping of fixtures and improvements of rooms at the rue La Fayette site and at the Colombes site.

## 20.4.4.3. LONG-TERM INVESTMENTS

Gross amount <i>(in thousands of euros)</i>	Note	2015	Partial asset contribution	Increase	Decrease	2016
Associates	20.4.4.3.1	8,467,665	-2,954,455	530,775	8	6,043,978
Loans to associates	20.4.4.3.2	5,597,158	-3,677,531	148,912	737,988	1,330,551
Investment portfolio						
Other long-term securities		183				183
Loans						
Other long-term investments:						
• Other long-term investments	20.4.4.3.3	22,422	-7,061	3,546	5,689	13,219
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>14,087,428</b>	<b>-6,639,047</b>	<b>683,234</b>	<b>743,684</b>	<b>7,387,931</b>

**20.4.4.3.1. The “Associates” line totaling 6,043,978 thousand euros and primarily comprises the following securities:**

■ AREVA NP	5,092,280 thousand euros
■ New AREVA Holding	693,820 thousand euros
■ AREVA Énergies Renouvelables	155,003 thousand euros
■ AREVA TA	96,520 thousand euros

The principal changes in the “Associates” line consists of:

- Partial asset contribution transactions which increase the value of New AREVA Holding’s investments in associates by 442,280 thousand euros (including the acquisition of AREVA Nuclear Materials shares in the amount of 358,391 thousand euros);
- The merger between AREVA TA and CEDEC transferring the value of CEDEC shares for the interest in AREVA TA in the amount of 33,466 thousand euros;
- The subscription to the capital increase of AREVA Business Support in the amount of 122,000 thousand euros;
- The subscription to the capital increase of AREVA TA in the amount of 49,000 thousand euros.

**20.4.4.3.2. The “loans to associates” line in the amount of 1,330,551 thousand euros concerns medium-term loans granted to companies of the group, including accrued interest (see note 4.6). At December 31, 2016, these companies were mainly:**

■ AREVA Énergies Renouvelables	576,308 thousand euros
■ AREVA Inc.	536,108 thousand euros (565,111 thousand USD)
■ Atmea	110 501 thousand euros

■ AREVA Solar PTY Limited	65,074 thousand euros (94,939 thousand AUD)
■ AREVA Stockage d’Énergie	42,017 thousand euros

The principal changes in the “loans to associates” line consists of:

- Partial asset contribution transactions transferring to New AREVA Holding 3,677,531 thousand euros of receivables;
- Repayments received by AREVA Inc during the year in the amount of 454,747 thousand euros;
- Repayments received by AREVA Solar Inc during the year in the amount of 111,292 thousand euros;
- Repayments received by SET during the year in the amount of 88,762 thousand euros;
- The increase in loans granted to AREVA Énergies Renouvelables in the amount of 130,000 thousand euros.

**20.4.4.3.3. “Other long-term investments” include:**

- Security deposits related to commercial leases for the AREVA Tower in Courbevoie in the amount of approximately 2,582 thousand euros at December 31, 2016;
- Treasury shares bought back from the Framépargne fund in connection with a liquidity contract in the amount of 9,937 thousand euros;
- The liquidity contact with Natixis in the amount of 167 thousand euros, with purchases and sales of these shares constituting the principal changes in this item.

AREVA SA’s membership in the European Liability Insurance for the Nuclear Industry (Elini) mutual insurance company and its membership in the BlueRE mutual insurance company were transferred to New AREVA Holding.

**20.4.4.4. WRITE-DOWNS OF LONG-TERM INVESTMENTS**

Write-downs (in thousands of euros)	Note	2015	Partial asset contribution	Increase	Decrease	2016
Associates	20.4.4.4.1	6,155,573	-529,128	123,167	500,029	5,249,584
Loans to associates	20.4.4.4.2	549,455	-114,093	140,946		576,308
Investment portfolio						
Other long-term securities		59				59
Loans						
Other long-term investments:						
● Receivables related to end-of-lifecycle operations						
● End-of-lifecycle assets - Third party share						
● Other long-term investments	20.4.4.4.3	5,921		6,753	5,921	6,753
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>6,711,008</b>	<b>-643,221</b>	<b>270,866</b>	<b>505,950</b>	<b>5,832,703</b>

**20.4.4.4.1. In view of the accounting rules and methods (see 2.2.), charges to provisions for shares in associates correspond to write-downs of the shares as follows:**

■ AREVA Business Support	122,000 thousand euros
■ AREVADelfi	922 thousand euros

Reversals correspond to provisions on the shares:

■ AREVA Mines	499,000 thousand euros;
■ Cilas	1,029 thousand euros.

In connection with the partial asset contribution transactions made at carrying amount, the balance of provisions on investments in associates, mainly concerning the shares of AREVA Mines, AREVA Business Support and AREVADelfi, were transferred to New AREVA Holding.

**20.4.4.4.2. The change in provisions for loans to associates corresponds to charges to provisions for receivables:**

- AREVA Énergies Renouvelables 140,355 thousand euros;
- AREVA Ressources Centrafrique 591 thousand euros.

In connection with the partial asset contribution transactions made at carrying amount, the balance of provisions on loans to associates of AREVA Ressources Centrafrique were transferred to New AREVA Holding.

**20.4.4.4.3. The change in the provision for other long-term investments corresponds to the write-down of AREVA SA treasury shares in the total amount of 6,753 thousand euros based on the market price of the AREVA SA share at December 31, 2016.**
**20.4.4.5. STATEMENT OF RECEIVABLES**

<i>(in thousands of euros)</i>	Note	Gross amount	Maturing in less than 1 year	Maturing in more than 1 year
<b>Non-current assets</b>				
Loans to associates		1,330,551	222,468	1,108,083
Loans				
Other long-term investments:				
• Receivables related to end-of-lifecycle operations				
• End-of-lifecycle assets - Third party share				
• Other long-term investments		13,219	200	13,018
<b>TOTAL CAPITALIZED RECEIVABLES</b>		<b>1,343,770</b>	<b>222,669</b>	<b>1,121,101</b>
<b>Current assets</b>				
<b>Suppliers: advances and prepayments made</b>		<b>17,146</b>	<b>17,146</b>	
<b>Working capital: receivables</b>				
Doubtful accounts				
Other trade accounts receivable		142,648	142,648	
Accounts payable to employees and related accounts		29	29	
Social security administration and other social institutions				
French State and local governments:				
• Income tax		123,830	123,830	
• Value added tax		31,354	31,354	
• Other taxes and related expenses		118	118	
• Miscellaneous French State				
Group and associates				
Trade accounts and other receivables		58,706	58,706	
<b>TOTAL GROSS RECEIVABLES – WORKING CAPITAL</b>		<b>356,686</b>	<b>356,686</b>	
<b>Prepaid expenses</b>		<b>7,985</b>	<b>7,985</b>	
<b>TOTAL GROSS RECEIVABLES</b>		<b>1,725,587</b>	<b>604,486</b>	<b>1,121,101</b>

## 20.4.4.6. ACCRUED INCOME

(French decree 83-1020 of November 29, 1983, article 23)

<i>(in thousands of euros)</i>	Note	2016	2015
<b>Long-term investments</b>			
Loans to associates	20.4.4.6.1.	4,924	27,072
Other long-term investments			
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>4,924</b>	<b>27,072</b>
<b>Working capital: receivables</b>			
Trade accounts receivable and related accounts	20.4.4.6.2.	46,708	18,131
Accounts payable to employees and related accounts			
Social security administration and other social institutions			1
French State and local governments			
Trade accounts and other receivables	20.4.4.6.3.	30,669	309,388
<b>TOTAL RECEIVABLES – WORKING CAPITAL</b>		<b>77,377</b>	<b>327,519</b>
<b>Marketable securities</b>			
<b>Cash and cash equivalents</b>			
<b>TOTAL INCOME RECEIVABLE</b>		<b>82,302</b>	<b>354,592</b>

20.4.4.6.1. The change in accrued interest on loans to associates came mainly from the transfer of receivables in connection with the partial asset contribution.

20.4.4.6.2. The change in trade accounts receivable and related accounts includes in particular the regularization of service fees for 2016 and the rebilling of costs related to sales of associates in connection with the group's reorganization.

20.4.4.6.3. The change in miscellaneous trade accounts and other receivables is mainly due to the revaluation of cash instruments at the closing rate and reflects the transfer of those instruments in connection with the partial asset contribution.

## 20.4.4.7. NET CASH

<i>(in thousands of euros)</i>	Note	2016	2015
Other marketable securities		203,993	428,467
Write-downs		-334	-286
	20.4.4.7.1.	203,659	428,181
Cash instruments		24,980	55,700
Non-trade current accounts	20.4.4.7.2.	1,969,810	1,657,221
Write-downs	20.4.4.7.3.	-60,775	-9,722
		1,909,035	1,647,499
Cash and cash equivalents		469,919	254,142
<b>TOTAL CASH AND MARKETABLE SECURITIES</b>		<b>2,607,593</b>	<b>2,385,522</b>

20.4.4.7.1. At December 31, 2016, other marketable securities consisted primarily of certificates of deposit in the amount of 9,487 thousand euros, of money market funds and treasury bonds in the amount of 192,983 thousand euros, and of treasury shares acquired in connection with the liquidity contract in the amount of 1,323 thousand euros.

The write-down of 334 thousand euros corresponds to the change in the value of the treasury shares as a function of stock market prices at December 31, 2016.

At December 31, 2015, other marketable securities consisted primarily of certificates of deposit in the amount of 112,000 thousand euros, of money market funds and treasury bonds in the amount of 314,933 thousand euros, and of treasury shares acquired in connection with the liquidity contract in the amount of 1,334 thousand euros.

**20.4.4.7.2. Non-trade current accounts amounted to 1,969,810 thousand euros. The companies concerned at December 31, 2016 were mainly:**

■ AREVA NP	1,560,185 thousand euros
■ AREVA Solar Inc.	280,732 thousand euros
■ AREVA Inc.	55,131 thousand euros
■ AREVA Énergies Renouvelables	51,424 thousand euros
■ AREVA Renewables GmbH	12,830 thousand euros
■ FRACOQ 2	9,368 thousand euros

**20.4.4.7.3. The increase in write-downs of non-trade current accounts corresponds to the hedging of the risk of non-recoverability of certain subsidiaries:**

■ AREVA Énergies Renouvelables	51,424 thousand euros
■ AREVA Ressources Centrafrique	2,673 thousand euros
■ FRACOQ 2	2,760 thousand euros

**20.4.4.8. SHARE STRUCTURE**

(French decree 83-1020 of November 29, 1983, article 24-12)

Category of shares	Par value	Number of shares			
		at the beginning of the year	Increase	Decrease	at year-end
Ordinary shares	3.80 euros	383,204,852			383,204,852

The AREVA SA share has been traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN FR0011027143 since May 30, 2011.

The authorized capital of AREVA SA at December 31, 2016 was as follows:

	2016	2015	2014
CEA	54.4%	54.4%	54.4%
French state	28.8%	28.8%	28.8%
Kuwait Investment Authority (KIA)	4.8%	4.8%	4.8%
CDC/BPI France Participations	3.3%	3.3%	3.3%
Total	1.0%	1.0%	1.0%
Employees	1.2%	1.2%	1.2%
EDF	2.2%	2.2%	2.2%
Public	4.0%	4.0%	4.0%
Treasury shares	0.2%	0.2%	0.2%
<b>TOTAL</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

## 20.4.4.9. EQUITY

<i>(in thousands of euros)</i>	Note Appendix	2015	Allocation of the result	Partial asset contribution	Net income for the year	Increase	Decrease	2016
Subscribed capital		1,456,178						1,456,178
Additional paid-in capital, share premiums		1,148,130						1,148,130
Revaluation adjustment								
Legal reserve		145,618						145,618
Restricted reserves								
Regulated reserves		3,304						3,304
Other reserves		6,403						6,403
Retained earnings		-1,413,175	-2,915,938					-4,329,112
Net income for the year		-2,915,938	2,915,938		69,709			69,709
Net investment subsidies		654					332	322
Tax-driven provisions		7,895				343		8,238
<b>TOTAL SHAREHOLDERS' EQUITY</b>	<b>20.4.4.9.1</b>	<b>-1,560,931</b>	<b>-</b>	<b>-</b>	<b>69,709</b>	<b>343</b>	<b>332</b>	<b>-1,491,211</b>

20.4.4.9.1. The company's shareholders' equity became negative at December 31, 2015.

## 20.4.4.10. PROVISIONS FOR CONTINGENCIES AND CHARGES

<i>(in thousands of euros)</i>	Note Appendix	2015	Partial asset contribution	Increase	Decrease	Reclassifications	2016
<b>Provisions for contingencies</b>							
Provisions for litigation							
Provisions for customer guarantees							
Provisions for taxes	20.4.4.10.1	11,019					11,019
Provisions for foreign exchange losses							
Other provisions for contingencies	20.4.4.10.2	1,504,610	-4,934	304,291	348,618		1,455,350
<b>TOTAL PROVISIONS FOR CONTINGENCIES</b>		<b>1,515,629</b>	<b>-4,934</b>	<b>304,291</b>	<b>348,618</b>		<b>1,466,370</b>
<b>Provisions for charges</b>							
Provisions for retirement and similar benefits		2,281		375	2,498		158
Provisions for taxes							
Provisions for work completion							
Provisions for accrued expenses							
Provisions for mining site reclamation							
End-of-lifecycle provisions							
Provisions for decontamination of tooling							
Other provisions for charges	20.4.4.10.3	38,590		3,584	35,395		6,779
<b>TOTAL PROVISIONS FOR CHARGES</b>		<b>40,871</b>		<b>3,959</b>	<b>37,893</b>		<b>6,937</b>
<b>TOTAL PROVISIONS FOR CONTINGENCIES AND CHARGES</b>		<b>1,556,500</b>	<b>-4,934</b>	<b>308,250</b>	<b>386,511</b>		<b>1,473,306</b>
Including charges and reversals							
• Operating				3,935	6,089		
• Financial				304,315	125,347		
• Exceptional					255,074		



**20.4.4.10.1. The provision for taxes corresponds mainly to the provisions set up for the AREVA Mines dispute concerning the write-down of the long-term advance to AREVAExplo RCA.**

**20.4.4.10.2. The change in other provisions for contingencies mostly concerns:**

- underlying losses on rate swaps in the amount of 11,433 thousand euros;
- a net provision reversal of 43,000 thousand euros set up for the experimental reactor construction project, for which AREVA SA agreed to bear a majority share of the existing and probable costs identified to date for the reactor design and construction contracts in exchange for a cap on the related financial risks;
- a net provision reversal for the negative net situation of AREVA Business Support in the amount of 121,278 thousand euros;
- a provision for the negative net situation of AREVA Energies Renouvelables in the amount of 20,265 thousand euros;

- an increase in the provisions for financial risk as regards AREVA NP in the amount of 267,000 thousand euros;
- a provision reversal of 180,000 thousand euros for costs arising from the transfer of the OL3 contract from AREVA NP to AREVA SA in connection with the subsidiary's restructuring due to the fact that this initial plan was not implemented but rather replaced by a plan for the contribution of AREVA NP's operations to a new entity, New NP.

**20.4.4.10.3. The change in other provisions for losses corresponds mostly to reversals of provisions for commitments concerning real estate leases devoid of future economic benefit for the company following the restructuring of the company's offices in the Paris area, and to commitments for the use of licenses.**

20.4.4.11. **STATEMENT OF LIABILITIES**

<i>(in thousands of euros)</i>	Note	Gross amount	Maturing in less than 1 year	Maturing 1 to 5 years	Maturing in more than 5 years
<b>Borrowings</b>					
Convertible bond issues					
Other bond issues	20.4.4.11.1				
Bank borrowings	20.4.4.11.2	2,064,687	814,687	1,250,000	
Miscellaneous loans and borrowings	20.4.4.11.3	2,047,307	2,047,221		86
<b>TOTAL BORROWINGS</b>		<b>4,111,994</b>	<b>2,861,908</b>	<b>1,250,000</b>	<b>86</b>
<b>Advances and prepayments on orders</b>					
<b>Other liabilities</b>					
Trade accounts payable and related accounts		118,260	109,260	9,000	
Taxes and employee-related liabilities:					
• Accounts payable to employees and related accounts		853	853		
• Social security administration and other social institutions		327	327		
• French State and local governments:					
• Value added tax		13,483	13,483		
• Other taxes		761	761		
• Income tax		1,353	1,353		
Accounts payable on non-current assets and related accounts		127	127		
Group and associates		177,521	34,529	142,992	
Other liabilities		107,234	107,234		
Cash instruments		89,094	89,094		
<b>TOTAL OTHER LIABILITIES</b>		<b>509,013</b>	<b>357,021</b>	<b>151,992</b>	
Unearned income	20.4.4.11.4	715	597	118	
<b>TOTAL UNEARNED INCOME</b>		<b>715</b>	<b>597</b>	<b>118</b>	
<b>TOTAL GROSS LIABILITIES</b>		<b>4,621,722</b>	<b>3,219,526</b>	<b>1,402,110</b>	<b>86</b>

**20.4.4.11.1. Bond issues**

In the framework of the partial asset contribution, all of the bonds issued by AREVA SA were transferred to New AREVA Holding, with the exception of the 2016 bond, which was redeemed by AREVA SA on September 23, 2016.

**20.4.4.11.2. Bank borrowings**

Loans and borrowings came to 2,064,687 thousand euros at December 31, 2016, mainly including:

- bank account credit balances of 1,047 thousand euros;
- a syndicated line of credit for 1,262,944 thousand euros, including 12,944 thousand euros of accrued interest, maturing on January 16, 2018;
- bilateral lines of credit for 800,696 thousand euros, including 5,696 thousand euros of accrued interest, redeemable in 2017.

In early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and which will mature on January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases. In addition to the standard default and early redemption clauses in the event of predefined events, a default clause is provided in the event that certain contractual risks associated with AREVA SA's operations were to materialize above a certain threshold.

**20.4.4.11.4 Unearned income**

	June 30, 2016	December 31, 2015
Unearned financial income		66,977
Unearned operating income	715	1,411
<b>TOTAL</b>	<b>715</b>	<b>68,388</b>

Within the framework of the partial asset contribution, unearned income relating to the bond debt was transferred to New AREVA Holding.

**20.4.4.12. ACCRUED EXPENSES**

<i>(in thousands of euros)</i>	Note	2016	2015
<b>Borrowings</b>			
Convertible bond issues			
Other bond issues	20.4.4.12.1.		81,414
Bank borrowings	20.4.4.12.2.	18,640	88
Miscellaneous loans and borrowings			1
<b>TOTAL BORROWINGS</b>		<b>18,640</b>	<b>81,503</b>
<b>Other liabilities</b>			
Trade accounts payable and related accounts		77,626	73,978
Taxes and employee-related liabilities		1,871	6,522
Accounts payable on non-current assets and related accounts			334
Other liabilities	20.4.4.12.3.	72,328	294,734
<b>TOTAL OTHER LIABILITIES</b>		<b>151,825</b>	<b>375,568</b>
<b>TOTAL ACCRUED EXPENSES</b>		<b>170,466</b>	<b>457,071</b>

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1,250 billion euros, to have a maturity date of January 16, 2018, to proceed with the New AREVA Holding capital increase and authorizing de facto the loss of its control. In return for this consent, the lenders of that facility receive better terms, including an additional security and early redemption clauses, in particular as regards the income from the sale of AREVA NP.

**20.4.4.11.3. Miscellaneous loans and borrowings**

At December 31, 2016, this item amounted to 2,047,307 thousand euros, corresponding mainly to non-trade current liabilities. The companies concerned at December 31, 2016 were mainly:

■ New AREVA Holding	1,298,750 thousand euros
■ AREVA TA	508,686 thousand euros
■ AREVA GmbH	138,240 thousand euros
■ Intercontrole	30,386 thousand euros
■ FBFC International	13,038 thousand euros
■ AREVA NP Canada	12,389 thousand euros

**20.4.4.12.1. Within the framework of the partial asset contribution, all of the bonds issued by AREVA SA were transferred to New AREVA Holding.**

**20.4.4.12.2. The change in loans and borrowings with credit institutions corresponds to the accrued interest on the syndicated line of credit and the bilateral lines of credit.**

**20.4.4.12.3. The change in other liabilities is mainly due to the revaluation of cash instruments at the closing rate and reflects the transfer of those instruments in the framework of the partial asset contribution.**

## 20.4.5. NOTES TO THE INCOME STATEMENT

### 20.4.5.1. CURRENT OPERATING INCOME

Reported revenue includes:

- the rebilling of a trademark fee and shared services to the subsidiaries in the total amount of 307,122 thousand euros;

The trademark fee is due by all customer entities of the AREVA brand and associated activities. Three types of activities are concerned:

- marketing and sales,
- communications,
- public affairs.

By default, the fee is 0.9% of each relevant subsidiary's contribution to consolidated revenue. Shared services are billed based on a catalogue of services;

- the revenue from real estate operations in the amount of 35,277 thousand euros;
- the rebilling of seconded personnel in the amount of 7,732 thousand euros.

Operating expenses reflect holding company activities and services provided to subsidiaries. The operating loss came to 181,669 thousand euros.

### 20.4.5.2. NET FINANCIAL INCOME

Net financial income in the amount of -83,513 thousand euros mainly includes:

■ net income on non-trade accounts and loans to associates	115,191 thousand euros
■ debt forgiveness for AREVA TA in connection with the RJH project	-14,000 thousand euros
■ net charge on financial instruments	3,136 thousand euros
■ interest expenses on loans	-197,672 thousand euros
■ foreign exchange gain	9,104 thousand euros

■ charges to provisions for investments in associates	-123,167 thousand euros <sup>(1)</sup>
■ reversal of provisions for loans to associates	-140,946 thousand euros <sup>(2)</sup>
■ charges to provisions for financial risk	-304,231 thousand euros <sup>(3)</sup>
■ charges to provisions for current accounts	-54,184 thousand euros <sup>(4)</sup>
■ reversals of provisions for investments in associates	500,029 thousand euros <sup>(5)</sup>
■ reversals of provisions for financial risk	125,347 thousand euros <sup>(6)</sup>
■ net gain from disposals of securities	188 thousand euros

### 20.4.5.3. EXCEPTIONAL ITEMS

Exceptional items amounting to 206,623 thousand euros correspond mainly to:

■ net reversals of provisions related to the restructuring of the company's Paris-area properties	16,135 thousand euros
■ net reversal of provisions for contingencies related to a prototype experimental reactor	14,000 thousand euros
■ scrapping of property, plant and equipment and intangible assets	-3,187 thousand euros
■ reversal of a provision for the OL3 contract, not transferred from AREVA NP to AREVA SA	180,000 thousand euros

(1) mainly AREVA Business Support.

(2) mainly AREVA Énergies Renouvelables.

(3) mainly AREVA NP and AREVA Énergies Renouvelables.

(4) mainly AREVA Énergies Renouvelables.

(5) mainly AREVA Mines.

(6) mainly AREVA Business Support.

20.4.5.4. **INCOME TAX**

In accordance with the provisions of article 223A of the French Tax Code, AREVA SA opted to be solely responsible for income tax due on the comprehensive income of the consolidated group.

In 2016, AREVA SA and its consolidated subsidiaries generated a comprehensive loss of 302,127 thousand euros.

The tax income recognized for 2016 came to 128,268 thousand euros.

It is broken down as follows:

■ Tax savings generated by tax consolidation	127,777 thousand euros
■ Income tax on earnings from all previous financial years	-824 thousand euros
■ Tax credits	1,316 thousand euros

**20.4.6. ADDITIONAL INFORMATION**20.4.6.1. **WORKFORCE**

The company employed 1 person at December 31, 2016, as indicated in the following table:

	2016	2015	2014
Management personnel	1	23	29
Supervisors	0	0	0
Support staff	0	0	0
<b>TOTAL</b>	<b>1</b>	<b>23</b>	<b>29</b>

At July 1, 2016, the majority of AREVA SA's employees had been transferred to AREVA Business Support.

20.4.6.2. **PENSIONS AND OTHER EMPLOYEE BENEFITS**

AREVA SA pays retirement bonuses to its retiring employees based on their compensation and seniority.

This defined benefit plan is recognized in accordance with the accounting principles defined in note 2.9. Each year, independent actuaries determine AREVA's commitments at year end.

**Balance sheet reconciliation (in thousands of euros)**

	2016	2015	2014
<b>TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS</b>	<b>158</b>	<b>2,281</b>	<b>1,857</b>

Key actuarial assumptions used for valuation purposes

	2016	2015	2014
Inflation	1.50%	1.60%	1.60%
Discount rate	1.50%	2.15%	1.85%

- Mortality tables used: INSEE 2000-2002 Men/Women
- Retirement age: 65 for management personnel, 62 for non-management personnel
- Average attrition

- Assumed rate of salary increase, net of inflation

	Management personnel	Non-management personnel	Management personnel	Non-management personnel
< 30 years	1.60%	1.60%	1.00%	1.00%
30-39	1.60%	1.60%	0.50%	0.50%
40-49	1.60%	1.60%	0.00%	0.00%
50-54	1.60%	1.60%	-0.30%	-0.30%
55 and above	0.00%	0.00%	-0.50%	-0.50%

**Net carrying amount of defined benefit obligations**

<i>(in thousands of euros)</i>	2016	2015	2015
Defined benefit obligation	69	3,753	3,772
Fair value of plan assets			
Unrecognized actuarial losses	106	-1,157	-1,566
Unrecognized past service gains	-17	-315	-349
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>158</b>	<b>2,281</b>	<b>1,857</b>

**Change in the provision**

<i>(in thousands of euros)</i>	2016	2015	2014
Change in the provision:			
Restated opening balance	2,281	1,857	2,700
Mergers and acquisitions/Transfers <sup>(1)</sup>	-2,498		-1,134
Total expense	374	426	293
Contributions collected/benefits paid		-2	-2
<b>BENEFIT OBLIGATION AT DECEMBER 31</b>	<b>158</b>	<b>2,281</b>	<b>1,857</b>

(1) Change in liabilities due to outgoing transfers to AREVA Business Support.

**Total expense for the year**

<i>(in thousands of euros)</i>	2016	2015	2014
Current service cost	184	198	172
Interest cost	84	73	108
Expected return on plan assets			
Amortization of actuarial gains or losses	34	34	4
Past service cost	72	121	9
Plan creation, curtailment or liquidation			
<b>TOTAL EXPENSE FOR THE YEAR</b>	<b>374</b>	<b>426</b>	<b>293</b>

**20.4.6.3. INFORMATION ON LEASE ARRANGEMENTS**

Finance lease contracts carried by Euriware were taken over by AREVA SA on April 30, 2014.

Balance sheet account	Fees paid		Accrued fees			Total to be paid	Residual purchase price
	for the year	cumulative	up to 1 year	1 year to 5 years	> 5 years		
Computer equipment	3,517	15,805	1,248	44	-	1,292	-
<b>TOTAL</b>	<b>3,517</b>	<b>15,805</b>	<b>1,248</b>	<b>44</b>	<b>-</b>	<b>1,292</b>	<b>-</b>

**20.4.6.4. COMPANY EXPOSURE TO MARKET RISK**
**General objectives**

AREVA SA has an organization dedicated to implementing market risk management policies approved by the Executive Committee for centralized management of exposure to foreign exchange, commodity, rate and liquidity risks.

In the Finance department, the Financial Operations and Treasury Management Department (DOFT) makes transactions on financial markets and acts as a central desk that provides services and manages AREVA SA's financial exposure. This department is organized with a front, middle and back office and accounting, ensuring the separation of functions, and has all the human, technical, and information system resources necessary to accomplish its mission. Transactions handled by DOFT cover foreign exchange and commodities trading, interest rates, centralized cash management, internal and external financing, borrowings and investments, and asset management.

To report on financial risk and exposure limits, DOFT prepares a monthly report presenting the group's positions and the performance of its financial transactions. The report is sent to the senior management of the AREVA group and to the Finance, Legal and Strategy departments. The reporting system includes weekly reports submitted to the Chief Financial Officer, including a valuation of all positions at their market value. Together, these reports and reviews are used to monitor the counterparty risk.

### Foreign exchange risk management

The volatility of exchange rates may impact AREVA SA's currency translation adjustments, equity and income.

**Balance sheet risk:** Loans and borrowings granted by AREVA SA to its subsidiaries are systematically converted into euros through currency swaps.

To limit the currency risk for long-term investments generating future cash flows in foreign currencies, AREVA SA uses a liability in the same currency to offset the asset.

**Trade exposure:** AREVA SA's policy, which was approved by the Executive Committee, is to systematically hedge foreign exchange risk generated by its

operations; it recommends hedging potential risks during the proposal phase, to the extent possible, to minimize the impact of exchange rate fluctuations on net income.

AREVA SA acquires derivatives (principally currency futures) or special insurance contracts issued by Coface to hedge its foreign exchange exposure from trade, including accounts receivable and payable, confirmed off-balance sheet commitments (orders received from customers or placed with suppliers), highly probable future cash flows (budgeted sales or purchases, anticipated margins on contracts) and proposals made in foreign currencies. These hedges are backed by underlying transactions for identical amounts and maturities and, generally, are documented and eligible for hedge accounting (except for hedges of proposals submitted in foreign currencies).

The Financial Operations and Treasury Management Department covers its exposures directly with its banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken by the trading desk, is monitored daily by specialized teams that are also charged with valuation of the transactions. In addition, analyses of sensitivity to changes in exchange rates are periodically performed.

At December 31, 2016, derivatives used by AREVA SA to manage foreign exchange risk were as follows:

(Notional amounts by maturity date at December 31, 2016)	2017	2018	2019	2020	2021	> 5 years	Total	Market value
Forward exchange transactions and currency swaps	999	135	55	33	-	-	1,221	-6
Currency options	-	-	-	-	-	-	-	-
Cross-currency swaps	-	-	-	-	389	-	389	-88
<b>TOTAL</b>	<b>999</b>	<b>135</b>	<b>55</b>	<b>33</b>	<b>389</b>	<b>-</b>	<b>1,610</b>	<b>-93</b>

### Interest rate risk management

AREVA SA is exposed to the fluctuations of interest rates on its floating rate borrowings and on its financial investments. The Financial Operations and Treasury Management Department manages all interest rate risks.

AREVA SA uses several types of derivative instruments, as required by market conditions, to allocate its borrowings between fixed rates and floating rates and to manage its investment portfolio, with the goal being mainly to reduce its borrowing costs while optimizing the management of its cash surpluses.

At December 31, 2016, the financial instruments used were:

- cross-currency swaps covering loans to subsidiaries in USD;
- rate swaps and inflation swaps negotiated with banks to cover New AREVA Holding.

The amount of the commitments and the sensitivity of the positions taken by the trading desk in connection with rate management are subject to limits based on the type of transaction involved.

At December 31, 2016, the following financial instruments were used to hedge interest rate exposure:

Interest rate instruments (in millions of euros)	Total	Notional amounts by maturity date at December 31, 2016						Market value
		2017	2018	2019	2020	2021	> 5 years	
<b>Interest rate swaps – EUR variable lender</b>								
USD variable borrower	389	-	-	-	-	389	-	-11
<b>Interest rate swaps – EUR variable lender</b>								
EUR fixed borrower	250	-	-	-	100	50	100	-19
<b>Interest rate swaps – EUR fixed lender</b>								
EUR variable borrower	250	-	-	-	100	50	100	19
<b>Inflation rate swaps – USD variable lender</b>								
USD fixed borrower	76	-	-	-	76	-	-	-18
<b>Inflation rate swaps – USD fixed lender</b>								
USD variable borrower	76	-	-	-	76	-	-	18
<b>GRAND TOTAL</b>	<b>1,041</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>352</b>	<b>489</b>	<b>200</b>	<b>-11</b>

### Commodity risk

AREVA SA does not have significant exposure to commodities.

### Equity risk

To manage its long-term investment positions, AREVA SA may elect to use puts and calls backed by portfolio equities. No such transaction was pending at the end of the year.

### Counterparty risk

AREVA SA is exposed to the credit risk of counterparties linked to its use of financial derivatives to cover its risks. AREVA SA uses different types of financial instruments to manage its exposure to foreign exchange and interest rate risks, and its exposure to risks on commodities and publicly traded equities. AREVA SA primarily uses forward buy/sell currency and commodity contracts and rate derivative products such as swaps, futures or options to cover these types of risk. These transactions expose AREVA SA to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, AREVA SA's trading desk deals only with diversified, top quality counterparties based on their ratings in the Standard & Poor's and Moody's rating systems, with a minimum rating of Investment Grade. A legal framework agreement is always signed with the counterparties.

The limits allowed for each counterparty are determined based on its rating and the type and maturity of the instruments traded. Assuming the rating of the counterparty is not downgraded earlier, the limits are reviewed at least once a year and approved by the Chief Financial Officer. The limits are verified in a specific report produced by the internal control team of Treasury Operations. During periods of significant financial instability that may involve an increased risk of bank default, which may be underestimated by ratings agencies, AREVA SA monitors advanced indicators such as the value of the credit default swaps (CDS) of the eligible counterparties to determine if limits should be adjusted.

When conditions warrant (rising counterparty risk, longer term transactions, etc.), market transactions are managed by margin calls that reduce AREVA SA's counterparty risk to a predetermined threshold: the Credit Support Annex for trades documented under an ISDA master agreement, or the Collateral Annex for trades documented under a French Banking Federation (FBF) master agreement.

### Market value of financial instruments

The market value of financial instruments pertaining to currency, rate and commodity transactions was calculated based on market data at the closing date, on discounted future cash flows, or on prices provided by financial institutions. The use of different market assumptions could have a significant impact on estimated market values.

### Liquidity risk

The group's liquidity in 2016 was ensured by draws, on January 4 and 5, 2016, on available lines of credit in the amount of approximately 2 billion euros.

At December 31, 2016, AREVA SA's short-term borrowings amounted to 815 million euros, consisting mainly of bilateral lines of credit maturing over the course of 2017. In addition, AREVA SA guarantees New AREVA Holding's borrowings (bond debt and financing of the Georges Besse II industrial asset in the total amount of 5.5 billion euros) until the execution of the New AREVA Holding capital increase planned in 2017.

Beyond 2017, the last significant maturity of AREVA SA's debt consists of the redemption of the syndicated line of credit of 1.25 billion euros in January 2018.

As mentioned previously, on January 10, 2017, the European Commission authorized rescue aid in the form of two advances from the shareholder current account of the French State, one for AREVA SA in the amount of 2 billion euros and the other for New AREVA Holding in the amount of 1.3 billion euros.

In addition, in early February 2017, AREVA SA secured and accepted a commitment from its banking partners for "senior secured" interim financing of 300 million euros, expected to be signed in the near future and to have a maturity date of January 8, 2018. Draws on this financing will be conditioned on the French State's subscription to the AREVA SA and New AREVA Holding capital increases.

Furthermore, AREVA SA secured the necessary consent from the lenders of the syndicated credit of 1.250 billion euros, to have a maturity date of January 16, 2018, to proceed with the New AREVA Holding capital increase and authorizing de facto the loss of its control. In return for this consent, the lenders of that facility receive better terms, including an additional security and early redemption clauses, in particular as regards the income from the sale of AREVA NP.

20.4.6.5. **RELATED PARTIES**

The transactions with related parties listed in this paragraph are considered significant and were not concluded at normal market conditions based on the criteria indicated below.

A transaction is deemed significant if a lack of disclosure or an erroneous disclosure may have an influence on economic decisions by third parties who rely on the financial statements. Whether a transaction is significant or not depends on the nature and/or the amount of the transaction.

Conditions may be considered "normal" when they are customarily employed by the company in its dealings with third parties, such that the beneficiary of the transaction does not receive a more favorable treatment than other third parties dealing with the company, taking into account the practices of other companies in the same sector.

On May 20, 2016, AREVA SA confirmed its participation in the financing of the RJH project in the form of the acquisition of a reserved and guaranteed right of access to the experimentation capacity of RJH.

20.4.6.6. **OFF-BALANCE-SHEET COMMITMENTS**

<i>(in thousands of euros)</i>	<b>Note</b>	<b>Total</b>	<b>&lt; 1 year</b>	<b>1 to 5 years</b>	<b>&gt; 5 years</b>
<b>Commitments given</b>					
Bid guarantees					
Performance warranties		896,636	190,749	488,644	217,243
Down payment guarantees		377,436	585	5,400	371,451
Guarantees for waivers of warranty retentions					
After-sales warranties					
Other operating commitments		134,058			134,058
<b>Total operating commitments given</b>		<b>1,408,130</b>	<b>191,334</b>	<b>494,044</b>	<b>722,752</b>
Comfort letters given		100,000			100,000
Guarantees and surety		6,184,530	2,015,945	2,171,314	1,997,271
Liens given					
Mortgages given					
Other funding guarantees		227,053	171,428	55,625	
<b>Total commitments and collateral given on financing</b>		<b>6,511,583</b>	<b>2,187,373</b>	<b>2,226,939</b>	<b>2,097,271</b>
Guarantees of assets and liabilities		15,000		15,000	
Guarantees pertaining to rental obligations given		8,870	1,672	7,198	
Other commitments given		1,653	1,653		
<b>Total other commitments given</b>		<b>25,523</b>	<b>3,325</b>	<b>22,198</b>	
<b>I. TOTAL COMMITMENTS GIVEN</b>		<b>7,945,236</b>	<b>2,382,032</b>	<b>2,743,181</b>	<b>2,820,023</b>
<b>Commitments received</b>					
Market guarantees received		3,787	3,787		
Vendor warranties received		677	677		
Other commitments received		50,000			50,000
<b>II. TOTAL COMMITMENTS RECEIVED</b>		<b>54,464</b>	<b>4,464</b>		<b>50,000</b>
<b>Reciprocal commitments</b>					
Firm multiyear purchase commitments					
Firm multiyear sales commitments					
Unused lines of credit					
Future minimum payments on operating leases		113,349	37,783	75,566	
Other reciprocal commitments					
<b>III. TOTAL RECIPROCAL COMMITMENTS</b>		<b>113,349</b>	<b>37,783</b>	<b>75,566</b>	

**Commitments given**

The group gave a parent company guarantee to its customer TVO for the execution of contractual obligations for the construction of an EPR in Finland. The group received a counter guarantee from Siemens in the amount of its share in the contract with TVO. The commitment given by the group corresponds to the amount of the

contract, unless TVO succeeds in demonstrating the existence of a serious and intentional offence by the supplier. TVO has called on this guarantee several times, and the group has rejected these calls. No value concerning these guarantees was included in the previous table.



As security, AREVA SA has committed to guaranteeing the redemption of all bond issues contributed to New AREVA Holding and to guaranteeing the derivatives of New AREVA Holding with banking counterparties, for New AREVA Holding's benefit. At December 31, 2016, the carrying amount of New AREVA Holding's bond debt was 4,886,230 thousand euros.

Those guarantees will end once the capital increase of New AREVA Holding has been carried out in the amount of at least 3 billion euros or, for the guarantee concerning the bond issues, once they have been redeemed.

In June 2014, AREVA SA gave a parent company guarantee to a banking pool to secure the redemption of the amortized loan of Société d'Enrichissement du Tricastin. The parent company guarantee covers 115% of the remaining amount outstanding of the loan, for which the carrying amount was 555 million euros at the end of 2016. Within the framework of the partial contribution of assets from AREVA SA to New AREVA Holding, SET's bank borrowings and related security (security interests in future receivables and bank accounts) were transferred to New AREVA Holding, with the exception of the parent company guarantee, which remains in force until the loss of control of New AREVA Holding (except in the event of prior release according to the contract conditions).

### Reciprocal commitments

In January 2013, the group set up a 1.25-billion-euro syndicated line of credit available in euros over a 5-year period. The group also had bilateral lines of credit available to it in the amount of 795 million euros, maturing in 2017. As of the end of December 2016, these lines were fully drawn.

Moreover, AREVA SA negotiated and put in place between February and April 2016 a bridge loan in the amount of 1.2 billion euros with a maturity date of January 20, 2017. This financing expired without having been used.

In early December 2016, AREVA SA entered into discussions with certain banking partners to set up new bank financing in the amount of approximately 300 million euros, with a maturity of January 2018. On January 23, 2017, AREVA SA accepted the letters of commitment received from the banking partners for this financing. The credit contract is presently being drafted.

#### 20.4.6.7. COMPENSATION OF OFFICERS AND DIRECTORS

Compensation and benefits paid to executive officers (members of the Board of Directors) during the year by the company and the companies it controls, per article L. 225-102-1 of the French Commercial Code introduced by the New Economic Regulations Law of May 15, 2001 and amended by the Financial Security Act of August 1, 2003, amounted to 1,517 thousand euros.

#### 20.4.6.8. DISPUTES AND POTENTIAL LIABILITIES

##### Olkiluoto 3 EPR power plant (OL3) (dispute concerning AREVA NP)

On December 5, 2008, the AREVA-Siemens consortium initiated arbitration proceedings with the International Court of Arbitration (ICC) for delays and disruptions suffered in connection with contract performance, and the resulting

additional costs incurred ("D&D Claim"). In July 2012, the court of arbitration rendered a final partial decision enjoining TVO to release 100 million euros (plus interest) due to the AREVA-Siemens consortium and withheld in contravention of the contractual provisions. That decision was duly executed by TVO.

At December 31, 2016, after eight years of legal proceedings (exchanges of briefs by the parties and audiences with the arbitration court), the parties' respective claims amounted to approximately 3.5 billion euros for the consortium (on sections 1 and 2 of its claim covering the start of the project to February 2014) and 2.3 billion euros for TVO.

In accordance with the schedule for the arbitration proceeding, substantive hearings on the dispute took place over the course of 2016 and gave rise in the second part of the year to expert statements through witness depositions. The arbitral court rendered a partial decision on November 7, 2016. While that decision allows some of TVO's claims, it does not necessarily constitute a decision on the financial outcome of the dispute between the parties.

Other intermediate decisions are expected before the final decision, still expected for the end of 2017 at the earliest, but more probably in early 2018.

In addition, the consortium and its counsel consider that the allegations of serious/intentional offense made in TVO's counterclaim remain unfounded.

### Quality audit

Following the announcement in late April that documentary anomalies had been found in the follow-up of equipment manufacturing processes at the Creusot plant, an audit is currently being conducted on all of the manufacturing files.

As of late December 2016, the review of the "marked files" continued. For the operating reactors in particular, error reports were systematically constituted as soon as the review of these files revealed irregularities.

In October 2016, Greenpeace and other associations filed a complaint against EDF and AREVA with the public prosecutor's office of the High Court of Paris concerning these anomalies, in particular those affecting a steam generator of Fessenheim unit 2.

Furthermore, in October 2016, in accordance with article 40 of the French Code of Criminal Procedure under which any established authority and any publicly appointed official or civil servant with knowledge of a felony or a misdemeanor within the framework of his/her functions is required to "advise the State Prosecutor without delay", the Chairman of ASN referred the matter of "irregularities" in the part manufacturing files at AREVA NP's Creusot plant to the State Prosecutor. According to a judicial source, pursuant to this referral, a preliminary investigation has been opened by the public health section of the public prosecutor's office of Paris.

This situation could result in other civil or penal implications, both in France and abroad.

### Miscellaneous investigations

AREVA SA is also aware of the existence of other preliminary investigations in progress led by the French National Financial Prosecutor's Office.

Since these inquiries are being carried out in connection with legal proceedings against parties unknown, AREVA SA is not currently implicated.

20.4.6.9. **SUBSIDIARIES AND ASSOCIATES (ARTICLE L.233-15 OF THE FRENCH COMMERCIAL CODE)**

	Equity share (in %)	Share capital	Equity other than authorized capital	Carrying amount of shares held		Unpaid loans and advances	Guarantees given	Revenue before tax of last financial year	Income from last financial year	Dividends received
				Gross	Net					
<b>A - Detailed financial information on subsidiaries and associates (net carrying amount exceeds 1% of the company's equity)</b>										
<b>1 - Subsidiaries (more than 50% of the equity held)</b>										
<b>AREVA NP SAS</b>										
Tour AREVA -92084 Paris La Défense Cedex - France	100.00	400,000	-1,509,076	5,092,280	-			2,287,782	-1,460,175	
<b>New AREVA Holding</b>										
Tour AREVA -92084 Paris La Défense Cedex - France	99.99	52,831	642,757	693,820	693,820			-	101,633	
<b>AREVA Énergies Renouvelables SAS</b>										
Tour AREVA -92084 Paris La Défense Cedex - France	100.00	155,003	-657,383	155,003	-	576,308		498	-146,218	
<b>AREVA TA</b>										
Les Hautes Rives - 91190 Villiers le Bacle - France	85.08	22,140	28,546	96,520	96,520			332,919	48,160	
<b>2 - Associates (10% to 50% of the equity held)</b>										
<b>B. - Summary information on other subsidiaries and associates</b>										
<b>1 - Subsidiaries not included in section A 1</b>										
French subsidiaries				26	4					
Foreign subsidiaries										
<b>2 - Associates not included in section A 2</b>										
French companies				6,098	4,049					
Foreign companies				230	-					

## 20.5. FIVE-YEAR FINANCIAL SUMMARY

Type of indicator (thousands of euros)	2012	2013	2014	2015	2016
<b>I - Share capital at year end</b>					
a) Share capital	1,456,178	1,456,178	1,456,178	1,456,178	1,456,178
b) Number of common shares outstanding	383,204,852	383,204,852	383,204,852	383,204,852	383,204,852
c) Number of shares with preferred dividend rights	0	0	0	0	0
<b>II - Operations and income for the year</b>					
a) Revenue before tax	430,415	490,444	487,137	452,145	416,672
b) Income before tax, employee profit-sharing and amortization, depreciation and provisions (including reversals)	310,831	-294,177	-230,703	-208,647	-275,362
c) Income tax	63,115	100,847	72,496	89,319	128,268
d) Employee profit-sharing for the year	0	0	0	0	0
e) Income after tax, employee profit-sharing and amortization, depreciation and provisions (increases-decreases)	241,683	-180,155	-5,309,351	-2,915,938	69,709
f) Net income distributed	0	0	0	0	0 <sup>(*)</sup>
<b>III - Earnings per share (in euros)</b>					
a) Income after tax and employee profit-sharing, before amortization, depreciation and provisions (increases-decreases)	0.98	-0.50	-0.41	-0.31	-0.38
b) Income after tax, employee profit-sharing and amortization, depreciation and provisions (increases-decreases)	0.63	-0.47	-13.86	-7.61	-0.18
c) Dividend per share (rounded to one eurocent)	0.00	0.00	0.00	0.00	0.00
<b>IV - Personnel</b>					
a) Average number of salaried employees during the year	125	45	33	28	11
b) Total payroll for the year	26,994	12,724	10,925	10,110	6,313
c) Payroll taxes and other benefit expenses (social security, benefits programs, etc.)	13,543	2,762	4,606	4,329	1,746

(\*) Preliminary data pending approval by the Annual General Meeting of Shareholders

## 20.6. INFORMATION ON ACCOUNTS PAYABLE TO SUPPLIERS

Accounts payable to suppliers at year-end, in accordance with articles L. 441-6-1 <sup>(1)</sup> and D. 441-4 of the French Commercial Code, by maturity dates:

<i>(in thousands of euros)</i>	2016	2015
Matured	-555	-2,694
0 to 30 days	37,182	22,032
31 to 45 days	1,148	769
More than 45 days	724	17
<b>TOTAL</b>	<b>38,499</b>	<b>20,124</b>

## 20.7. DIVIDEND POLICY

### 20.7.1. PAYMENT OF DIVIDENDS

According to article 45 of AREVA's articles of association, the payment of annual dividends is done at the dates set by the Board of Directors within nine months of the end of the financial year.

Dividends properly received are not subject to recovery. Dividends that have not been collected within five years of the date set for distribution are forfeited to the French State.

### 20.7.2. DIVIDEND DATA

<i>(euros)</i>	Dividend	Tax credit	Gross dividend
2013	-	-	-
2014	-	-	-
2015	-	-	-
<b>2016</b>	<b>-</b>	<b>-</b>	<b>-</b>

With a consolidated net loss attributable to owners of the parent of 665 million euros, application of the group's dividend policy led the AREVA Board of Directors to propose to the Shareholders that no dividend be paid for 2016.

### 20.7.3. DIVIDEND POLICY

The Board of Directors defines the dividend distribution policy based on its review of the financial results, the interim budget for 2017 reflecting the Company's requirements for the recovery of its financial situation and the economic context, and

debt management. Accordingly, the Board of Directors does not plan to propose a dividend distribution to the Shareholders convened to approve the financial statements for the year ending December 31, 2016.

## 20.8. LEGAL AND ARBITRATION PROCEEDINGS

The group is involved in a number of disputes with a potentially significant negative impact on its operations, financial position or reputation.

Appropriate provisions are set aside to cover the expenses that may result from these disputes or proceedings, based on case-by-case analysis.

In addition, some disputes concern damages or losses that are covered under the group's insurance policies or other forms of guarantee.

Except for the proceedings explained in Section 4.2.3. *Significant risks and disputes involving AREVA*, and to AREVA's knowledge, there is no other administrative, judicial or arbitration proceeding pending or threatened that had or could have a significant impact on the financial position, profitability or reputation of AREVA and/or of the group over the past 12 months.

For information, on June 21, 2013, the CCCM company instituted an arbitration request with the German Institute of Arbitration (Deutsche Institution für Schiedsgerichtsbarkeit, DIS) against the consortium of AREVA Renewables GmbH and AREVA Bioenergia Ltda. In July 2014, CCCM filed a second arbitration brief in which it asks, firstly, for 13,030,086.93 euros for alleged default on the Sao Borja EPC contract (construction of a biomass power plant in the State of Rio Grande do Sul, Brazil). Secondly, CCCM asks that the AREVA Renewables / Bioenergia Consortium be held liable for all damages suffered by CCCM as a result of the termination of three other biomass construction contracts among the same parties. CCCM is requesting 45,017,503.79 euros for damages and interest in this regard. Following the hearings and post-hearing writings of the parties in 2015, a decision was rendered on September 13, 2016 in favor of AREVA Renewables GmbH and AREVA Bioenergia Ltda.

## 20.9. SIGNIFICANT CHANGE IN THE ISSUER'S FINANCIAL OR TRADING POSITION

Significant events between year-end closing for 2016 (December 31, 2016) and the date of this Reference Document are mentioned in Note 35 of Section 20.2. *Notes to the consolidated financial statements for the year ended December 31, 2016*, and in section 9.3. *Events subsequent to year end closing for 2016 of this Reference Document*.

<b>21.1. SHARE CAPITAL</b>	<b>300</b>	<b>21.2. MEMORANDUM AND ARTICLES OF ASSOCIATION</b>	<b>303</b>
21.1.1. Amount of subscribed capital	300	21.2.1. Corporate purpose	303
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21.1.6. Information on the terms governing any acquisition right and/or any obligations attached to capital subscribed but not paid, or any company aiming to increase capital	301	21.2.6. Breaching shareholding thresholds	304
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21.1.9. Liens	302		

## 21.1. SHARE CAPITAL

### 21.1.1. AMOUNT OF SUBSCRIBED CAPITAL

The share capital of the company was fully paid up at December 31, 2016 and amounts to 1,456,178,437.60 euros, divided into 383,204,852 ordinary shares with a par value of 3.80 euros per share <sup>(1)</sup>.

All of the shares are quoted on Compartment A of NYSE Euronext Paris under Euroclear 062059150 and ISIN FR 0011027143.

Custodian services are provided by:

Société Générale Securities Services

SGSS SBO CSS BOC

32, rue du Champ-de-Tir

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Tel.: +33 (0)2 51 85 67 89

[www.sharinbox.societegenerale.com](http://www.sharinbox.societegenerale.com)

(1) The General Meeting of Shareholders of February 3, 2017 approved a reduction of AREVA's share capital motivated by losses, at the end of which the share capital of AREVA was brought from 1,456,178,437.60 euros to 95,801,213 euros by reduction of the par value of AREVA's shares from 3.80 euros to 0.25 euro.

### 21.1.2. SHARES NOT REPRESENTATIVE OF CAPITAL

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None.

### 21.1.3. TREASURY SHARES

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At December 31, 2016, AREVA held 970,516 of its own shares (740,490 shares in treasury and 230,026 shares under a liquidity contract).

### 21.1.4. LIQUIDITY CONTRACT

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Since 2013, at AREVA's request, Natixis has managed the liquidity contract for AREVA shares (Paris – ISIN FRO011027143) admitted for trading on NYSE Euronext Paris, in accordance with the Ethics Charter adopted by the French association of financial markets (AMAFI, Association française des marchés financiers) on

March 8, 2011 and approved by the French market authority (AMF, Autorité des marchés financiers) on March 21, 2011. Three million euros were allocated to the implementation of this liquidity contract, which covers a period of 12 months, renewable by tacit agreement.

### 21.1.5. CONVERTIBLE SECURITIES AND WARRANTS

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None.

### 21.1.6. INFORMATION ON THE TERMS GOVERNING ANY ACQUISITION RIGHT AND/OR ANY OBLIGATIONS ATTACHED TO CAPITAL SUBSCRIBED BUT NOT PAID, OR ANY COMPANY AIMING TO INCREASE CAPITAL

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None.

### 21.1.7. INFORMATION ON THE CAPITAL OF ANY MEMBER OF THE GROUP WHICH IS UNDER OPTION OR SUBJECT TO A FIRM OR CONTINGENT AGREEMENT CONTEMPLATING AN OPTION

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In connection with the Shareholders' Agreement between the French State, the Commissariat à l'énergie atomique et aux énergies alternatives (CEA) and the Kuwait Investment Authority (KIA) <sup>(1)</sup> for a term of 10 years as from December 28, 2010, the French State has an option to purchase the shares in the event that KIA violates

its commitment regarding the preemptive right. The exercise price for the purchase option shall be calculated based on the average weighted closing price of AREVA shares during the 90 trading days preceding the date of exercise of the option.

(1) Kuwait Investment Authority is an autonomous government institution in charge of the management and administration of the general reserve fund and the fund's assets for future generations of Kuwaitis, and of any other funds conveyed by the Ministry of Finance of Kuwait in the name and for the account of the State of Kuwait. Created in 1953 and with 592 billion dollars of assets under management as of June 2016, it was the sixth largest fund in the world in terms of managed assets at year-end 2016, according to the Sovereign Wealth Fund Institute.

### 21.1.8. DELEGATIONS OF COMPETENCE AND AUTHORITY TO THE BOARD OF DIRECTORS BY THE SHAREHOLDERS

The table hereunder summarizes the delegations of competence and authority granted to the Board of Directors by the Shareholders on 8 January 2015 regarding capital increases, which expired on March 8, 2017.

Type of authorization	Date of authorization	Term/Expiration	Maximum amount
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right maintained	AGM January 8, 2015 (14 <sup>th</sup> resolution)	26 months Expired March 8, 2017	436,000,000 euros
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right withdrawn, by a public offer	AGM January 8, 2015 (15 <sup>th</sup> resolution)	26 months Expired March 8, 2017	145,000,000 euros
Issue of ordinary shares and/or securities that are equity securities giving access to other equity securities or conferring a right to the allocation of debt instruments, and/or securities giving access to equity securities to be issued, with the preemptive subscription right withdrawn, by an offer pursuant to part II of article L. 411-2 of the French Monetary and Financial Code	AGM January 8, 2015 (16 <sup>th</sup> resolution)	26 months Expired March 8, 2017	145,000,000 euros
Authorization to increase the number of shares to be issued in the event of a share issue with or without preemptive subscription right of the shareholders	AGM January 8, 2015 (17 <sup>th</sup> resolution)	26 months Expired March 8, 2017	Within the limit of 15% of the initial share issue
Issue, without preemptive subscription right, of shares and/or securities giving access to share capital to remunerate contributions in kind granted to the company consisting of equity securities or securities giving access to share capital	AGM January 8, 2015 (18 <sup>th</sup> resolution)	26 months Expired March 8, 2017	145,000,000 euros
Capital increase by capitalization of reserves, retained earnings or premiums	AGM January 8, 2015 (19 <sup>th</sup> resolution)	26 months Expired March 8, 2017	Total amount eligible for capitalization
Total nominal cap on issues of ordinary shares and/or securities giving access to the company's share capital that may be carried out by virtue of the delegations conferred on the Board of Directors by the 14 <sup>th</sup> , 15 <sup>th</sup> , 16 <sup>th</sup> , 17 <sup>th</sup> , 18 <sup>th</sup> and 20 <sup>th</sup> resolutions	AGM January 8, 2015 (21 <sup>st</sup> resolution)		595,000,000 euros

The table hereunder summarizes the delegation of authority granted to the Board of Directors by the Shareholders on February 3, 2017.

Type of authorization	Date of authorization	Term/Expiration	Maximum amount
Authorization of a capital increase in the amount of 1,999,999,998 euros (including issuing premium) by means of an ordinary share issue reserved for the French State	AGM February 3, 2017 (4 <sup>th</sup> resolution)	18 months August 3, 2017	1,999,999,998 euros

### 21.1.9. LIENS

There are no liens on AREVA's share capital as of this date.



## 21.2. MEMORANDUM AND ARTICLES OF ASSOCIATION

### 21.2.1. CORPORATE PURPOSE

Article 3 of AREVA's articles of association defines the corporate purpose of the company, in France and abroad, as follows:

- to manage any industrial or commercial operation, especially in the nuclear, renewable energies, information technology and electronics fields, and to this end:
  - to sign any agreement related to these operations,
  - to examine projects relative to the creation, development or reorganization of any industrial enterprise,
  - to carry out these projects or contribute to their implementation by any appropriate means, more specifically by acquiring equity or interests in any existing or proposed business venture,
  - to provide financial resources to industrial enterprises, especially by acquiring equity interests and through loan subscriptions;
- to acquire direct or indirect equity and interests, in whatever form, in any French or foreign company or enterprise involved in financial, commercial, industrial, and tangible or intangible property operations;
- to purchase, sell, exchange, subscribe to or manage any equity shares and investment securities;
- to provide any type of service, particularly those benefiting all of the group's companies; and
- more generally, to undertake any industrial, commercial, financial, tangible or intangible property operation, in France or abroad, that is directly or indirectly related to the above in furtherance of its corporate purpose or to facilitate that purpose's achievement and development.

### 21.2.2. MEMBERS OF THE CORPORATE BODIES

For information on the members of the administrative and executive bodies, please refer to Sections 14 and 16 and to Appendix 1 of this Reference Document.

### 21.2.3. RIGHTS, PRIVILEGES AND RESTRICTIONS ON SALES OF COMPANY SHARES

1. Possession of a share automatically signifies acceptance of the company's Articles of Association and of the resolutions duly adopted by all of its Shareholders. The CEA, as AREVA's principal shareholder, does not have specific rights attached to the shares it holds.
2. Unless otherwise provided by law, each shareholder has as many voting rights as the number of fully paid-up shares he or she holds and may cast as many votes in shareholder meetings.
3. Shareholders are liable for the company's liabilities only up to the par value of their shares; additional cash calls are prohibited.
4. Each share signifies ownership of the company's equity and a right to share in the profits and the liquidating dividend proportionate to the share capital it represents.
5. The shares are freely transferable, except as provided by laws and regulations. The shares are registered in an account and transferred from account to account upon sale.

### 21.2.4. CONDITIONS FOR CONVENING GENERAL MEETINGS OF SHAREHOLDERS

According to articles 26 and 29 of AREVA's Articles of Association:

- General Meetings of Shareholders comprise all shareholders.
- General Meetings are convened by the Board of Directors.

They may also be convened:

- by the statutory auditors, but only after having unsuccessfully requested it of the Board of Director by registered letter with return receipt requested; if the auditors are in disagreement on the timeliness of that notice of meeting, one of them may ask the President of the Commercial Court in an urgent ruling for authorization to proceed, the other auditors and the Chairman of the Board of Directors being duly summoned;
  - by a representative designated by the President of the Commercial Court ruling in interlocutory proceedings at the request of any interested party or of the Works Committee, in urgent cases, or of one or more shareholders representing at least 5% of the share capital, or of an association of shareholders meeting the conditions set forth in article L. 225-120 of the French Commercial Code;
  - by the liquidators after dissolution of the company.
- The Works Committee may file a legal claim to designate a representative charged with convening the General Meeting as provided by law.
- The shareholders may, upon a decision of the Board of Directors published in the notice of meeting and/or notification to attend, attend General Meetings by video conference or by telecommunication means enabling their identification in

accordance with applicable legislation and regulations. The shareholders are in that case deemed to be present for the calculation of quorum and majority.

Any shareholder may participate in person or by proxy in General Meetings of Shareholders, as provided by law, by offering proof of his or her identity and of his or her ownership of the shares, either by registering the shares or certificates with the company at least two days before the General Meeting of Shareholders or, in the case of bearer shares, if any, by delivering a certificate of ownership through an authorized account representative confirming the registration of the shares in the bearer share accounts.

In the event of the subdivision of share or certificate ownership, only the voting right holder may attend or be represented at the General Meeting.

Joint owners of undivided shares are represented at the General Meeting by one of the joint owners or by a single proxy who shall be designated, in the event of disagreement, by order of the President of the Commercial Court in an urgent ruling at the request of any of the joint owners.

The Company Works Council designates two of its members to attend General Meetings of shareholders, one from among the company's managers, technicians and supervisors, and the other from among its administrative/clerical personnel and craft/manual workers. Alternatively, the persons mentioned in articles L. 2323-64 and L. 2323-65 of the French Labor Code may attend the General Meetings.

### 21.2.5. PROVISION HAVING THE EFFECT OF DELAYING, DEFERRING OR PREVENTING A CHANGE OF CONTROL OF AREVA – CONDITIONS GOVERNING CHANGES IN THE SHARE CAPITAL

Decree no. 83-1116 of December 21, 1983, as amended on January 14, 2016, requires that the French State, or the Commissariat à l'énergie atomique et aux énergies alternatives (CEA), or the other public institutions of the State, or the companies in which they hold a majority share, directly or indirectly, singly or severally, keep more than half of the capital of the company.

The Shareholders, meeting on February 3, 2017, authorized a capital increase reserved for the French State in the amount of 1,999,999,998 euros (including

issue premium) by the issue of ordinary shares, subject to the fulfillment of the conditions accompanying the European Commission decision in conformance with European regulations on State aid.

At the end of the reserved capital increase, if it is completed, the French State would hold 67.05% of the company's capital directly and 92.22% of the capital of the company jointly with the CEA.

### 21.2.6. BREACHING SHAREHOLDING THRESHOLDS

Aside from the thresholds provided by law, any natural person or corporate entity, acting alone or in concert, who comes into ownership, directly or indirectly, of a fraction equal to or greater than 0.5% or any multiple thereof of the share capital and/or voting rights of the company shall declare to the company within four trading days of exceeding the threshold, by registered letter to the head office with return

receipt requested, the number of shares and/or voting rights held and of securities giving access to the share capital and to the voting rights potentially attached thereto.

This same requirement to provide information applies, within the same period of time, when falling below the threshold of 0.5% or a multiple thereof.

## 21.3. AGREEMENTS REFERRED TO IN ARTICLE L. 225-102-1 PARAGRAPH 13 OF THE FRENCH COMMERCIAL CODE

Article L. 225-102-1, paragraph 13, of the French Commercial Code indicates that the Management Report must mention agreements signed, directly or through a third party, between, on the one hand and as the case may be, a member of the Board of Directors, the Chief Executive Officer, one of the Chief Operating Officers or one of the Shareholders holding more than 10% of a company's voting rights and, on the other hand, another company where the latter owns, directly or indirectly, more than half of the share capital, except when the agreement relates to a routine transaction concluded at arm's length.

One agreement enters into this category:

- Amendment dated February 27, 2015 to the Memorandum of Understanding between AREVA NC and the CEA signed December 22, 2004 relative to the transfer to COGEMA of CEA's obligations pertaining to future cleanup and dismantling expenses at the la Hague site and at Cadarache's CFCa facility.

## 21.4. REVIEW OF AGREEMENTS AUTHORIZED DURING PREVIOUS FINANCIAL YEARS WITH CONTINUING EFFECT IN THE LAST FINANCIAL YEAR

In accordance with the provisions of article L. 225-40-1 of the French Commercial Code, the Board of Directors of the company began a review on February 28, 2017 of agreements and commitments authorized and signed in previous years and whose execution continued in the most recent year, with the aim of evaluating whether those agreements still meet the criteria that initially led to their approval.

### Agreements ended in 2016

1. The purpose of the subordination agreement signed on June 13, 2014 is, inter alia, to subordinate the rights of AREVA SA, AREVA NC and SET Holding vis-à-vis SET (Société d'Enrichissement du Tricastin) in respect of any shareholder-provided funding, to the rights of SET's lending banks, until all amounts due to the latter have been repaid in full in connection with the bank financing of the Georges Besse II plant. To enable the implementation of the group's reorganization, a new subordination agreement was signed on November 10, 2016 between in particular AREVA SA, New AREVA Holding and AREVA NC, which cancels and replaces the initial agreement. This agreement is described in Appendix 2 of this Reference Document.
2. A framework agreement signed July 30, 2015 between EDF and AREVA SA which recapitulates and formalizes the state of progress of the discussions and the understanding of the stages enabling the successful creation of a partnership involving on the one hand a plan to sell at least 75% of the capital of the AREVA NP entity to EDF, and on the other hand a plan to create a joint entity devoted to the design, project management and marketing of new reactors. This agreement expired on March 31, 2016 and was replaced by the memorandum of understanding dated July 28, 2016. This agreement is described in Appendix 2 of this Reference Document.

### Agreement to be declassified under article L. 225-39 of the Code of Commerce

Agreement signed July 16, 2004 under which AREVA NC gave AREVA SA authority to manage or organize and control, in its name and on its behalf, assets earmarked to fund dismantling and radioactive waste management expenses. This agreement is described in Appendix 2 of this Reference Document.

### Agreements still in force

1. Tripartite memorandum of understanding signed July 20, 2015 between AREVA SA, the CEA and AREVA TA for the drafting and implementation of the terms for the final settlement of the Jules Horowitz Reactor project (RJH) situation, incorporating items relating to the funding of the project, to the conditions for the assumption of excess project costs by AREVA TA or the CEA beyond the situation recorded in the financial statements at December 31, 2012, and to the establishment of a management framework designed to minimize all potential differences of opinion on responsibilities, with strengthened joint governance, in a management approach with fixed project costs. This tripartite memorandum of understanding is described in Appendix 2 of this Reference Document.
2. Letters of support dated November 26, 2014 and July 2, 2015 from the company to its subsidiary AREVA TA, within the limit of 200 million euros, in the event that the latter does not have the ability itself to cope with large financial losses on projects in progress and debt forgiveness agreements resulting from them. On December 15, 2016, the Board of Directors decided to put an end to this mechanism of financial support, subject to the completion of the sale of AREVA TA. These letters and agreements are described in Appendix 2 of this Reference Document.
3. Commitments made by AREVA corresponding to compensation or benefits due or likely to be due to Mr. Philippe Knoche in his capacity as Chief Executive Officer due to the cessation or change of his duties. These commitments are described in Appendix 2 of this Reference Document.

The Board of Directors, meeting on February 28, 2017, decided to maintain these agreements and commitments.

Except for the contracts described in Chapters 6 and 9 of this Reference Document, AREVA did not enter into major contracts in 2015 and 2016 other than those entered into in the normal course of its business.

# THIRD PARTY INFORMATION, STATEMENTS BY EXPERTS AND DECLARATIONS OF INTEREST

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Not applicable.

<b>24.1. AVAILABILITY OF DOCUMENTS</b>	<b>308</b>	<b>24.3. FINANCIAL INFORMATION PROGRAMS</b>	<b>309</b>
<b>24.2. PERSONS RESPONSIBLE FOR FINANCIAL INFORMATION</b>	<b>308</b>	<b>24.4. TENTATIVE FINANCIAL COMMUNICATIONS SCHEDULE</b>	<b>309</b>

## 24.1. AVAILABILITY OF DOCUMENTS

The following documents, or copies thereof, may be consulted at AREVA's head office, Tour AREVA, 1 place Jean Millier, 92400 Courbevoie, France, during the period of validity of this Reference Document:

- establishing decree no. 83-1116 of December 21, 1983 and its amendments, decree no. 2007-1140 of July 27, 2007 published in the *Journal officiel* on July 28, 2007, decree no. 2010-1613 of December 23, 2010, and the Articles of Association of AREVA;

- all reports, correspondence and other documents, historical financial data, assessments and statements given by an expert at AREVA's request, some of which are included or referred to in this document; and
- historical financial data of AREVA and its consolidated subsidiaries for each of the two fiscal years preceding the date of registration of this Reference Document.

## 24.2. PERSONS RESPONSIBLE FOR FINANCIAL INFORMATION

### The persons responsible for financial information are:

- Stéphane Lhopiteau, Chief Legal and Financial Officer;
- Manuel Lachaux, Director of Financial Communications and Investor Relations.

### The team is also composed of:

- Anne-Sophie Jugean, Investor Relations Manager;
  - Catherine Barron, Marketing, Communications and Retail Shareholding Manager;
- The Shareholders Relations Service may be reached at our toll-free number (calls in France only), 0810 699 756 or by e-mail to: [actionnaires@areva.com](mailto:actionnaires@areva.com). It is based at the head office of AREVA, Tour AREVA, 1 place Jean Millier, 92400 Courbevoie, France.

## 24.3. FINANCIAL INFORMATION PROGRAMS

Executive management's objective is to report on the group's operations to shareholders. Accordingly, AREVA has had a financial communications program in place since it was formed. The goals of this program are to build strong relations with our shareholders and to develop the group's presence on the financial markets by providing more information on our operations.

Information of a financial, commercial, organizational or strategic nature that may be of interest to the financial community is provided to the national and international media and to press agencies *via* press releases. All information provided to the financial markets (press releases, audio and video presentations of a financial or strategic nature) is available in the "Finance" section of the group's website at [www.aveva.com](http://www.aveva.com). Persons wishing to receive press releases by e-mail may register on the group's website, which also features a schedule of upcoming events and announcements, as well as the Letter to the Shareholders begun in January 2012

and the Shareholder's Guide that went online in February 2014. AREVA publishes its half-year and annual results, in accordance with French law. It should be noted that, in the nuclear business, comparisons of quarterly data from one year to quarterly data of the previous year may show significant variations that may not be a good indicator of the expected trend for the year as a whole.

At least twice a year, the group organizes information meetings to comment on its business and financial performance. These meetings are broadcast live on the Internet.

The group organizes tours of its sites to increase awareness of its operations and facilities. The first tour specifically for individual shareholders was given on November 15, 2013 at the la Hague site.

## 24.4. TENTATIVE FINANCIAL COMMUNICATIONS SCHEDULE

A tentative schedule of upcoming events and announcements is provided below. It is regularly updated on the AREVA website.

Date	Event
March 1, 2017	2016 results (press release, conference and webcast)
May 18, 2017	Annual General Meeting of Shareholders

<b>25.1. SIGNIFICANT EQUITY INTERESTS OF AREVA</b>	<b>310</b>	<b>25.2. SHAREHOLDERS' AGREEMENTS</b>	<b>310</b>
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## 25.1. SIGNIFICANT EQUITY INTERESTS OF AREVA

Not applicable.

## 25.2. SHAREHOLDERS' AGREEMENTS

### 25.2.1. SHAREHOLDERS' AGREEMENTS CONCERNING AREVA SHARES

Except for agreements described hereunder, there is, to AREVA's knowledge, no agreement containing rights of first refusal concerning at least 0.5% of AREVA's share capital or voting rights.

#### SHAREHOLDERS' AGREEMENT BETWEEN THE FRENCH STATE, THE CEA AND KIA

The French State, the CEA and KIA entered into a 10-year shareholders' agreement effective December 28, 2010, whose key provisions are as follows:

- the French State has a preemptive right in the event that KIA sells all or part of its equity interest, except for sales of shares made on the market;
- KIA has an absolute right to dispose of its shares in the event of a change in control of AREVA, in the meaning of article L. 233-3 of the French Commercial Code.

The French State has an option to purchase the shares in the event that KIA violates its commitment regarding the preemptive right. The exercise price for the purchase

option shall be calculated based on the average weighted closing price of AREVA shares during the 90 trading days preceding the date of exercise of the option.

Within the framework of the General Meeting of Shareholders of February 3, 2017, in which the capital increase reserved for the French State with cancellation of the shareholders' preemptive subscription right was decided, KIA did not exercise its anti-dilution right.

#### MEMORANDUM OF UNDERSTANDING BETWEEN TOTAL CHIMIE, TOTAL NUCLÉAIRE AND AREVA

Under the terms of a memorandum of agreement dated June 27, 2001, Total Chimie and Total Nucléaire agree to retain their AREVA securities until such time as AREVA shares are admitted for trading on a regulated market. Although all AREVA shares are now traded on a regulated market, neither Total Chimie nor Total Nucléaire has yet chosen to dispose of their AREVA shares.



### AGREEMENT BETWEEN THE FRENCH STATE AND THE CEA

The Autorité des marchés financiers (the financial regulator) was informed that a three-year agreement (2014-2016), had been signed between the CEA and the French State on August 13, 2014 for the long-term financing of the CEA's nuclear expenses, in conformance with article L. 233-11 of the French Commercial Code.

This agreement provides that the price per AREVA share bought back by the French State from the CEA within this framework will be the highest of (a) the average closing price per share, weighted for trading volumes, for the 90 trading days preceding the date of calculation, or (b) the net equity per share, as per AREVA's financial statements for the period ended December 31 of the year preceding the transaction.

On December 11, 2014, the CEA sold 27,412,875 AREVA shares representing 7.15% of AREVA's share capital to the French State for the amount of 334,300,010.63 euros.

For 2015, the reclassification option was not used due to the proposed recapitalization of AREVA by the French State. To enable the CEA to continue its cleanup and dismantling program, the State (APE) granted a cash advance to the CEA within the framework of an agreement dated July 13, 2016 providing for reimbursement by the CEA in AREVA shares, based on the price offered by the State for one AREVA SA share in connection with the public buyout offer that the State intends to file as soon as the NewCo capital increase has been carried out.

## 25.2.2. MAIN SHAREHOLDERS' AGREEMENTS CONCERNING AREVA'S EQUITY INTERESTS

### EURODIF/SOFIDIF

On December 6, 2016, AREVA NC acquired the shares held by the minority shareholder Synatom thus, raising its direct interest in Eurodif's capital from 44% to 55%. AREVA NC presently holds, directly or indirectly through Sofidif, approximately 70% of Eurodif's capital.

As part of a bilateral agreement between France and Iran for cooperation in the field of enrichment, a memorandum of understanding was entered into in 1974 leading to the establishment of Sofidif, 40% of whose share capital is held by the Atomic Energy Organization of Iran (AEOI), with 60% held by AREVA NC.

Sofidif's sole asset is a 25% interest in Eurodif. Sofidif's business is limited to taking part in meetings of Eurodif's Supervisory Board, collecting its share of Eurodif's dividends and redistributing those dividends to its own shareholders.

### AREVA TA

A memorandum of understanding concerning a change in the shareholders of AREVA TA was signed on March 12, 1993 and subsequently amended on October 5, 2000, with AREVA SA holding 24.90% of AREVA TA's shares. This memorandum of understanding governed in particular the composition of AREVA TA's Board of Directors and the terms for the sale of its shares. In connection with the group's reorganization plan, a share purchase agreement was signed between AREVA SA, the French State, the CEA and DCNS under which AREVA SA would sell all of its interest in AREVA TA. In connection with that transaction, the memorandum of understanding concerning the change in AREVA TA's shareholders was modified accordingly.

### ETC

AREVA NC holds 50% of the shares of Enrichment Technology Company Ltd (ETC), which combines all of Urenco's operations involving the design and construction of facilities and equipment for uranium enrichment by centrifugation. A shareholders' agreement defines the relations between AREVA NC and Urenco in ETC, in particular concerning the composition of the Board of Directors, decisions requiring a unanimous vote by the directors present, and restrictions on selling ETC shares.

# APPENDIX 1

## REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS ON GOVERNANCE AND PROCEDURES FOR INTERNAL CONTROL AND RISK MANAGEMENT

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This report presents the composition of the Board of Directors, the application of the principle of balanced representation of men and women on the Board, and the conditions for preparing and organizing the work of the Board of Directors for the financial year ended December 31, 2016.

This report also provides information on procedures for internal control and risk management.

# 1. LEGISLATIVE AND REGULATORY FRAMEWORK

## 1.1. LEGAL PROVISIONS

This report is prepared pursuant to article L. 225-37 of the French Commercial Code under which *"In publicly traded companies, the Chairman of the Board of Directors shall submit a report on [...] the composition of the Board and on application of the principle of balanced representation of its men and women members, the preparation and organization of the activities of the Board, and internal control and risk management procedures established by the company, describing in particular those procedures relating to the preparation and treatment of accounting and financial information used to prepare the corporate financial statements and, if applicable, the consolidated financial statements."*

Article L. 225-37 also stipulates:

- *"This report also indicates the possible limitations that the Board of Directors applies to the powers of the Chief Executive Officer."*

The limitations on the powers of the Chief Executive Officer appear in paragraph 3.6 below.

- *"It also reports on the financial risks related to the effects of climate change and the measures that the company takes to reduce them by implementing a low-carbon strategy in all components of its operations."*

The financial risks related to the effects of climate change and the measurements that the company takes to reduce them appear in paragraph 4.8.3 of Section 4. Risk factors of this Reference Document.

- *"When a company defers voluntarily to a code of corporate governance drawn up by recognized business organizations, the [above-mentioned] report also indicates which provisions were set aside and for what reason. The report also specifies the place where this code may be consulted. If a company does not defer to such a code of corporate governance, this report indicates the rules adopted to supplement the legal requirements and explains why the company decided not to apply any of the provisions of this code of corporate governance."*

AREVA defers to the Afep-Medef Code of Corporate Governance under the conditions mentioned in paragraph 1.2. below.

- *"The [above-mentioned] report also specifies particular methods related to the attendance of the shareholders at the Annual General Meeting or refers to the provisions of Articles of Association setting forth those methods."*

AREVA's Articles of Association do not contain any particular provision concerning shareholder rights, which are exercised in accordance with common law at AREVA, as noted in Section 21 of the Reference Document.

- *"Moreover, this report presents the principles and rules decided upon by the Board of Directors to determine compensation and benefits of any kind granted to corporate officers."*

This information appears in Section 15 of the Reference Document.

- This report *"mentions the publication of information stipulated in article L. 225-100-3 of the French Commercial Code"*.

This information, which relates to items which may have an impact in the event of a takeover bid, appears in Section 21.2.5. of the Reference Document.

- *"The [above-mentioned] report is approved by the Board of Directors and made public."*

This report was submitted to the Compensation and Nominating Committee for comment on February 15, 2017, and to the Audit and Ethics Committee on February 23, 2017. The Board of Directors approved the report during its meeting of February 28, 2017.

## 1.2. THE STANDARD FOR AREVA: THE AFEP-MEDEF CODE OF CORPORATE GOVERNANCE <sup>(1)</sup>

### IMPLEMENTATION OF THE "APPLY OR EXPLAIN" RULE

AREVA defers to the "Code of Corporate Governance for Publicly Traded Companies" developed jointly by the Afep and the Medef in December 2008 and recently revised in November 2016 ("Afep-Medef Code").

In accordance with the "apply or explain" principle contained in article L. 225-37 of the French Commercial Code, AREVA provides hereunder the reasons that led it to depart from two recommendations of the Afep-Medef Code.

(1) The Code is available on the Medef website ([www.medef.fr](http://www.medef.fr)).

Afep-Medef recommendation	Departure	Explanation or corrective action taken
The Afep-Medef Code recommends that the terms of members of the Board of Directors be staggered to avoid massive renewals and promote the harmonious renewal of the directors - article 14 of the Code.	The terms of offices of the first members of the Board of Directors appointed on January 8, 2015 during adoption of the one-tier form of governance will in principle all expire on the same date, i.e. after the Annual General Meeting convened to approve the financial statements for the year ended December 31, 2018.	In connection with the restructuring in progress, AREVA plans to have new directors appointed for the statutory duration of four years, thus staggering the terms of office.
The Afep-Medef recommends that the Board of Directors hold a "relatively significant number" of shares and that the executive officers hold a "minimum number of shares" (articles 19 and 22 of the Code).	The company's Articles of Association and the Rules of Procedure of the Board of Directors do not require that its members hold a relatively significant number of shares. In addition, the Board of Directors has not set the number of shares that must be held by the executive officers until the end of their functions.	These recommendations are not suited to AREVA, considering the structure of its share ownership and the resulting composition of the Board of Directors.

## 2. REVIEWS PERFORMED TO PREPARE THIS REPORT

To prepare this report, the Chairman of the Board of Directors reviewed in particular the minutes of meetings of the Board of Directors and of its committees for the year ended and, for the section of the report concerning internal control procedures, information provided by the functional departments in connection with the annual review of internal control procedures and comments from the Internal Audit

Department. He also perused the company's Articles of Association and Rules of Procedure.

The work and reviews related to the preparation of this report were also submitted to the statutory auditors.

## 3. PREPARATION AND ORGANIZATION OF THE BOARD OF DIRECTOR'S WORK

### 3.1. COMPOSITION OF THE BOARD OF DIRECTORS

#### 3.1.1. GENERAL RULES RELATING TO THE COMPOSITION OF THE BOARD OF DIRECTORS

Every year, on the recommendation of the Compensation and Nominating Committee, the Board of Directors re-examines the Board's composition and that of its committees to seek balanced representation of men and women and to ensure the presence of independent members with recognized expertise from a variety of backgrounds, with a view to enriching the knowledge and experience of the Board and to bring in an external view. The objective of a diversity of skills and experience applies to all of its members, most of whom bring expertise from the management of large publicly traded groups in particular, with solid experience in international business relations, industrial vision, and recognized skills in accounting, finance, strategic planning and development.

As of the date of this report, and pursuant to the changes in the Board of Directors described below, women represent 25% of the Board of Directors, it being noted that the directors representing company personnel are not included in the calculation of that percentage.

Law no. 2011-103 of January 27, 2011 on balanced representation of men and women on boards of directors and supervisory boards and on gender equality in the workplace, known as the "Copé-Zimmermann Law", requires that the percentage of each gender on the board of directors of publicly traded companies be at least 40%. This obligation applies at the end of the first Ordinary General Meeting held after January 1, 2017.

As concerns AREVA SA, the legal obligation should therefore have been met following the Combined General Meeting of February 3, 2017 inasmuch as that meeting included an "ordinary" component.

The company and the State give great importance to matters of balanced representation and have done their best over the course of 2016 to meet that obligation. Unfortunately, they were unable to reach the required proportion within the period of time prescribed by the law, due in particular to the legal and financial restructuring in progress and the future changes in governance which this implies. As a result of the non-compliance with the balanced representation requirements within the allotted period of time, pursuant to article L. 225-45 of the Commercial Code, the payment of attendance fees has been suspended since the General Meeting of February 3, 2017.

In its meeting of February 28, 2017, the Board of Directors decided to submit the appointment of two women proposed by the French State pursuant to order no. 2014-948 of August 20, 2014 to the Annual General Meeting of Shareholders of May 18, 2017: Mrs. Marie-Solange Tissier and Mrs. Florence Touitou-Durand, who will bring added competence to the Board of Directors. The proposed resolutions appear in Appendix 5 of the Reference Document. If the Shareholders vote in favor of these appointments, 40% of the members of the Board of Directors will be women at the end of the meeting.

In accordance with article 15 of the Articles of Association, the company is governed by a Board of Directors comprised of no fewer than three and no more than eighteen members, including, if applicable, one representative of the French State appointed by ministerial order and directors appointed by the Annual General Meeting of Shareholders on the proposal of the French State pursuant to order no. 2014-948 of August 20, 2014 and decree no. 2014-949 of August 20, 2014.

The Board of Directors also comprises three directors elected by company personnel who are not counted in determining the minimum and maximum number of directors. The three members of the Board of Directors representing company personnel are elected by an electoral college consisting of engineers and managers (one member) and by an electoral college consisting of the other employees (two members).

As of the date of this report and pursuant to the resignation of Mr. Denis Morin on October 26, 2016 and that of Mrs. Sophie Boissard on November 1, 2016, the latter being replaced by Mrs. Marie-Hélène Sartorius as from that date, the Board of Directors is composed of eleven members:

- seven members appointed <sup>(1)</sup> by the Shareholders (including one member appointed on a proposal from the French State);
- one member representing the French State, appointed by ministerial order; and
- three members elected by salaried personnel\*.

The Board of Directors' members serve a term of four years, bearing in mind that the terms of the first members of the Board of Directors will end after the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

The duties of a member of the Board of Directors elected by company personnel end (i) upon the expiration of his or her four-year term, which must occur no later than the announcement of the results of the election that the company is required to organize, or (ii) upon the termination of his or her employment contract, or (iii) upon the date of his or her dismissal under the conditions provided in the Articles of Association and in the legislative and regulatory provisions in effect as of the date of the dismissal. It is hereby stated that the terms of the first members of the Board of Directors elected by company personnel will end no later than the announcement of the results of the election preceding the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

Pursuant to decree no. 83-1116 of December 21, 1983, as amended, and decree no. 55-733 of May 26, 1955, the following persons also attend meetings of the Board of Directors in an advisory capacity: the Director General for Energy and

Climate at the Ministry of Energy, who serves as Government Commissioner, and the representative of the Head of the Atomic Energy Control Mission of the General Economic and Financial Control Department, who serves as a member of the Company's General Economic and Financial Control Board. They may also attend sessions of the committees attached to the Board of Directors.

Pursuant to article 18 of the Articles of Association, the Board of Directors is assisted in the exercise of its duties by two censors, who attend its meetings without voting rights.

The statutory auditors have a standing invitation to the Audit and Ethics Committee meetings and are invited to the meetings of the Board of Directors when the annual and half-year financial reports are examined and to any other meeting when their presence is opportune.

### 3.1.2. INDEPENDENCE OF THE MEMBERS OF THE BOARD OF DIRECTORS

As of the date of this report, the Board of Directors is composed of three independent members. The proportion of at least one third independent members recommended by the Afep-Medef Code is thus met, it being noted that the directors representing the employees are not counted in establishing this proportion.

Pursuant to these criteria, and based on a recommendation of the Compensation and Nominating Committee, the Board of Directors, at its meeting of February 24, 2016, considered the following members of the Board of Directors to be independent:

- Mrs. Sophie Boissard;
- Mr. Claude Imauven;
- Mrs. Pascale Sourisse.

Pursuant to these criteria, during its meeting of October 27, 2016 and on the recommendation of the Compensation and Nominating Committee, the Board of Directors considered Mrs. Marie-Hélène Sartorius as independent; she was coopted during that meeting, effective November 1, 2016, to replace Mrs. Sophie Boissard.

Lastly, the Board of Directors, in its meeting of February 28, 2017 and on the recommendation of the Compensation and Nominating Committee, confirmed the qualification of Mrs. Marie-Hélène Sartorius, Mrs. Pascale Sourisse and Mr. Claude Imauven as independents.

The Board of Directors examined the business ties that might exist between AREVA and the companies in which these directors hold terms of office, and noted that none of the independent members of the Board of Directors has significant business relations with the company. The main criterion leading to this determination was the insignificant share of revenue resulting from existing business relations, if any, in comparison with the respective revenues of the company and of the companies in which the members concerned held positions.

### 3.1.3. CHANGES IN THE COMPOSITION OF THE BOARD OF DIRECTORS IN 2016

Mrs. Marie-Hélène Sartorius was coopted as director as from November 1, 2016 by a decision of the Board of Directors dated October 27, 2016 upon the recommendation of the Compensation and Nominating Committee dated October 24, 2016, replacing Mrs. Sophie Boissard, who has resigned as director, for the remainder of the latter's term, i.e. until the Ordinary General Meeting of Shareholders convened to approve the financial statements for the period ending December 31, 2018. The Combined Annual General Meeting of Shareholders ratified this cooptation on February 3, 2017.

\* As from the final sale of AREVA TA, Mrs. Odile Matte will be replaced as director representing company personnel and as director of the Strategy and Investments Committee by Mr. Gilbert Cazenobe, listed second on the ballot for the same labor union during elections of employee representatives.

(1) Or whose cooptation was ratified.

Mr. Denis Morin, a director appointed by the Shareholders on a proposal from the French State, resigned from his position as director as from October 26, 2016.

In its meeting of October 27, 2016 and on the recommendation of the Compensation and Nominating Committee, the Board of Directors decided to modify the composition of the committees as follows:

- Mrs. Marie-Hélène Sartorius replaced Mrs. Sophie Boissard as member of the Compensation and Nominating Committee and of the Ad Hoc Committee. She also replaced Mr. Denis Morin in the Audit and Ethics Committee;
- Mrs. Pascale Sourisse replaced Mrs. Sophie Boissard as the Chairman of the Audit and Ethics Committee (of which she was already a member). She also remained a member of the Ad Hoc Committee, which she had chaired up until then;
- Mr. Claude Imauven became Chairman of the Ad Hoc Committee, of which he was already a member.

Lastly, in its meeting of February 28, 2017, the Board of Directors modified the composition of the committees as follows:

- Mrs. Marie-Hélène Sartorius replaced Mrs. Pascale Sourisse as Chairman of the Audit and Ethics Committee. Mrs. Pascale Sourisse remained a member of that committee;
- Mr. Claude Imauven replaced Mrs. Pascale Sourisse as Chairman and member of the End-of-Lifecycle Obligations Monitoring Committee.

#### **Sophie Boissard (age 46 – French nationality)**

Mrs. Sophie Boissard is an alumnus of the École normale supérieure of Paris and holds diplomas from the Institut d'études politiques of Paris and of the École nationale d'administration.

#### **Other offices held**

- CEO of Korian <sup>(1)</sup> since January 26, 2016;
- Chairman of the Board of Directors of Korian Management (Korian) (since February 27, 2016);
- Chairman of the Board of Directors of Curanum (Korian) (since February 27, 2016);
- Chairman of the Institut du Bien Vieillir Korian (Korian) (since February 26, 2016);
- Director of Segesta SpA (Korian) (since February 26, 2016);
- Director of Senior Living Group NV (Korian) (since February 26, 2016);
- Director of the KOR Foundation (Korian) (since February 26, 2016);
- Director of Sanef;
- Chairman of Espaces Ferroviaires (SNCF) (term expired February 1, 2016);
- Chairman of the ICF Habitat group (SNCF) (term expired January 25, 2016).

#### **Other offices held during the past five years**

- Director of Eurostar International Limited (SNCF).

Mrs. Sophie Boissard resigned from her functions as director of AREVA on November 1, 2016.

#### **Denis Morin (age 61 – French nationality)**

Mr. Denis Morin is an alumnus of École nationale d'administration and holds diplomas from the École des hautes études commerciales of Paris (HEC) and from the Institut d'études politiques of Paris.

#### **Other offices held**

- Director of SNCF <sup>(1)</sup>;

(1) Publicly traded company.

- Director of Budget at the French Ministry of Economy and Finance (term expired December 22, 2016).
- President of the Second Chamber of the Cour des Comptes (since February 24, 2017).

#### **Other offices held during the past five years**

- Director of EDF <sup>(1)</sup>.

Mr. Denis Morin resigned from his functions as director of AREVA on October 26, 2016.

### 3.1.4. MEMBERS OF THE BOARD OF DIRECTORS AT DECEMBER 31, 2016

#### **Members appointed by the Shareholders/coopted by the Board of Directors**

The members of the Board of Directors are:

- Mr. Philippe Varin (Chairman);
- Mr. Claude Imauven (independent member);
- Mr. Philippe Knoche, Chief Operating Officer;
- Mr. Christian Masset (appointed on the proposal of the French State);
- Mrs. Marie-Hélène Sartorius (independent member);
- Mrs. Pascale Sourisse (independent member);
- Mr. Daniel Verwaerde (Vice Chairman).

Their respective terms will expire at the end of the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

The terms of office held by Mr. Denis Morin and Mrs. Sophie Boissard at December 31, 2016, who resigned on October 26, 2016 and November 1, 2016 respectively, are described in Section 14. Administrative, management and supervisory bodies and executive management and in Appendix 1. Report of the Chairman of the Board of Directors of the 2016 Reference Document.

#### **Philippe Varin (age 64 – French nationality) – Chairman of the Board of Directors**

An alumnus of École polytechnique and of the École des mines, Mr. Philippe Varin was appointed director by the Shareholders on January 8, 2015 and as Chairman of the Board of Directors by the Board of Directors, meeting on that same date.

#### **Other offices held**

- Director of Saint-Gobain <sup>(1)</sup>;
- Chairman of the Cercle de l'Industrie;
- Special envoy of the Minister of Foreign Affairs and International Development to ASEAN countries;
- Chairman of SASU PRM3C.

#### **Other offices held during the past five years**

- Director of EDF <sup>(1)</sup>;
- Chairman of the Managing Board of Peugeot SA <sup>(1)</sup>;
- Chairman of the Board of Directors of Peugeot Citroën Automobiles SA;
- Chairman of the Board of Directors of GEFCO SA;
- Director of Banque PSA Finance SA;
- Director of Faurecia SA;
- Director of PCMA Holding BV;

## 3. Preparation and organization of the Board of Director's work

- Director of BG Group Plc.

**Claude Imauven (age 59 – French nationality)**

Mr. Claude Imauven was appointed director by the Shareholders on January 8, 2015. He is an alumnus of École polytechnique and holds the rank of *Ingénieur* in the Corps des Mines.

Mr. Claude Imauven has exercised the duties of Chief Operating Officer of Saint-Gobain <sup>(1)</sup> since January 1, 2016.

**Other offices held**

- Director of Artelia Holding SAS;
- Chairman of the Board of Directors of the Institut Mines-Télécom (EPESCT) (since February 15, 2016);
- Director of Banque CIC Est (term expired May 19, 2016).

**Other offices held during the past five years**

- Chairman of the Board of Directors of Saint-Gobain Matériaux de Construction SAS (Saint Gobain);
- Chairman of the Board of Directors of Saint-Gobain PAM (Saint Gobain);
- Chairman of the Board of Directors of Saint-Gobain ISOVER (Saint Gobain);
- Director of the Supervisory Board and Chairman of Saint-Gobain Weber (Saint Gobain);
- Chief Executive Officer of BPB Limited.

**Philippe Knoche (age 48 – French nationality)**

Mr. Philippe Knoche was appointed Chief Executive Officer of the company by the Board of Directors at its meeting of January 8, 2015 after the Shareholders had appointed him director. He is an alumnus of École polytechnique and of the École des mines.

Mr. Philippe Knoche holds 100 AREVA shares.

**Other offices held**

- Chairman and Chief Executive Officer of AREVA NC (AREVA);
- Chairman of the Board of Directors of AREVA Mines (AREVA) (since February 18, 2016);
- Chairman of the Supervisory Board of AREVA GmbH (AREVA) (term expired November 8, 2016);
- Chairman of the Board of Canberra Industries Inc. (AREVA) (term expired July 1, 2016);
- Chairman of AREVA NP SAS (AREVA) (term expired June 30, 2016);
- Permanent representative of AREVA SA to the Board of Directors of AREVA TA (AREVA) (term expired February 11, 2016).

**Other offices held during the past five years**

- Chairman of the Board of Directors of AREVA Inc. (AREVA);
- Member of the Executive Board of AREVA.

**Christian Masset (age 60 – French nationality)**

Mr. Christian Masset was appointed director by the Shareholders on the proposal of the French State on January 8, 2015. An alumnus of École nationale d'administration (ENA), he holds diplomas from the Institut d'études politiques de Paris and the École supérieure des sciences économiques et commerciales (ESSEC).

Mr. Christian Masset is Secretary-General of the Quai d'Orsay (Ministry of Foreign Affairs and International Development).

**Other offices held**

- Director of EDF <sup>(1)</sup>;
- Director of the École nationale d'administration;
- Director of the Institut Français;
- Director of the Agence nationale des titres sécurisés (national agency for secure identity documents);
- Director of the Commission de récolement des dépôts d'œuvres d'art (commission for verification of registered works of art);
- Director of the Établissement de préparation et de réponse aux urgences sanitaires (health emergency planning and response institution);
- Director of France Médias Monde;
- Member of the French Atomic Energy Board (Comité de l'Énergie Atomique).

**Other offices held during the past five years**

- Member of the Supreme Council of the Institut du monde arabe (Arab World Institute);
- Director of the Agence pour l'enseignement du français à l'étranger (Agency for French Education Abroad);
- Director of France expertise international;
- Director of the Agence française de développement (French Development Agency);
- Director of the France-Israel Foundation.

**Marie-Hélène Sartorius (age 59 – French nationality)**

Mrs. Marie-Hélène Sartorius was coopted as director of the Board of Directors on October 27, 2016, effective November 1, 2016. She replaces Mrs. Sophie Boissard, who had resigned, for the remainder of the latter's term. The combined Shareholders ratified this cooptation on February 3, 2017.

She is a graduate of École polytechnique and of the École des ponts et chaussées.

**Other offices held**

- Member of the Supervisory Board of ANF Immobilier;
- Director of BNP Parisbas Cardif SA.

**Other offices held during the past five years**

- None.

**Pascale Sourisse (age 54 – French nationality)**

Mrs. Pascale Sourisse was appointed director by the Shareholders on January 8, 2015. She is an alumnus of École polytechnique and of the École nationale supérieure des télécommunications (ENST).

Mrs. Pascale Sourisse is Senior Executive Vice President of International Development with the Thales <sup>(1)</sup> group.

**Other offices held**

- Director of Vinci <sup>(1)</sup>;
- Director of Renault <sup>(1)</sup>;
- Chairman of Thales International SAS and Thales Europe SAS (Thales);
- Director of the Agence nationale des fréquences (French frequency agency);

(1) Publicly traded company.

- Chairman of the Board of École de Télécom Paris Tech;
- Permanent representative of Thales as Director of Odas;
- Director of the Agence nationale de la recherche (French national research agency; term expired July 1, 2016).

#### **Other offices held during the past five years**

- Member of the collective body of Thales Security Solutions & Services SAS;
- Chairman and Chief Executive Officer of Thalès Communications & Security SAS;
- Chairman of Thales Services SAS;
- Member of the Supervisory Board of Thales Alenia Space SAS;
- Member of the Board of Gifas;
- Member of the Board of Directors of DCNS;
- Chairman of Thales Canada Inc. (Canada);
- Director of Thalès UK Ltd (United Kingdom);
- Director of Thalès Electronics Ltd. (United Kingdom);
- Member of the Supervisory Board of Thales Netherland BV (Netherlands);
- Director of Thales USA Inc. (USA);
- Director of Australian Defence Industries Pty Ltd (Australia);
- Director of Thales Australia Holdings Pty Ltd (Australia);
- Director of Thales Underwater Systems Pty Ltd (Australia);
- Director of Thales Training & Simulation Holdings Pty Ltd (Australia);
- Director of ATM Pty Ltd (Australia);
- Director of Australia Corporate Finance Pty Ltd (Australia);
- Director of Australia Finance Pty Ltd (Australia);
- Permanent representative of Thales as Director of Sofresa.

#### **Daniel Verwaerde (age 62 – French nationality)**

Mr. Daniel Verwaerde was coopted as director and appointed Vice Chairman by the Board of Directors on February 2, 2015 to replace Mr. Bernard Bigot for the remainder of the term of his predecessor. The Shareholders ratified this cooptation on May 21, 2015. He is an alumnus of the École centrale de Paris.

Mr. Daniel Verwaerde is Chairman of the CEA and Chairman of its Board of Directors.

#### **Other offices held**

- Managing Director of SCI Richard;
- Managing Director of SCI Guillaume;
- Managing Director of SCI Mathilde.

#### **Other offices held during the past five years**

- Director of Sodern.

#### **MEMBER REPRESENTING THE FRENCH STATE, APPOINTED BY MINISTERIAL ORDER**

#### **Alexis Zajdenweber (age 40 – French nationality)**

Mr. Alexis Zajdenweber was appointed representative of the French State to the AREVA Board of Directors as from January 8, 2015 by ministerial order of January 7, 2015. His term will expire at the end of the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

Mr. Alexis Zajdenweber is a graduate of Institut d'études politiques of Paris and the École nationale d'administration.

#### **Other offices held**

- Director of Eramet <sup>(1)</sup>;
- Member of the Supervisory Board of ERDF;
- Director of the French Geological Survey (BRGM).

#### **Other offices held during the past five years**

- Director of La Monnaie de Paris.

#### **MEMBERS OF THE BOARD OF DIRECTORS REPRESENTING THE EMPLOYEES**

The Board of Directors has three directors representing the employees who were elected on October 31, 2014, subject to the change of governance. Their four-year terms took effect on January 8, 2015 and will end no later than the announcement of the results of the election preceding the Annual General Meeting convened to approve the financial statements for the year ending December 31, 2018.

#### **Jean-Michel Lang (age 54 – French nationality)**

Mr. Jean-Michel Lang was elected by the employee electoral college on October 31, 2014 as director representing the employees.

Mr. Jean-Michel Lang is an expert to the head of product quality for AREVA NC.

#### **Other offices held**

None.

#### **Other offices held during the past five years**

- Member of the Board of Directors of MELOX.

#### **Odile Matte (age 57 – French nationality)**

Mrs. Odile Matte was elected by the employee electoral college during the elections of October 31, 2014 as director representing the employees.

Mrs. Odile Matte is a project administrator with AREVA TA.

#### **Other offices held**

- Director elected by the employees of AREVA TA (AREVA);
- Managing Director of SCI Les Cèdres.

#### **Other offices held during the past five years**

None.

#### **Françoise Pieri (age 49 – French nationality)**

Mrs. Françoise Pieri was elected by the employee electoral college during the elections of October 31, 2014 as director representing the employees.

Mrs. Françoise Pieri is an integrated management system specialist (AREVA NC).

#### **Other offices held**

None.

#### **Other offices held during the past five years**

None.

(1) Publicly traded company.



## PERMANENT GUESTS WITH AN ADVISORY ROLE

### Economic and Financial Comptroller General

Mr. Bruno Rossi, appointed head of the Atomic Energy Control Mission of the General Economic and Financial Control Department by a decision of the Ministry of Economy, Industry and Employment on June 24, 2008, serves as the General Economic and Financial Comptroller of the company pursuant to decree no. 83-1116 of December 21, 1983, as amended. Mr. Rossi is represented by Mr. Christian Bodin, Head of the Control Mission, alumnus of the École nationale d'administration, who exercises control of AREVA under his authority and in that capacity attends the meetings of the Board of Directors and of its specialized committees.

### Government Commissioner

Mr. Laurent Michel, Director General for Energy and Climate by decree of December 19, 2012, serves as the Government Commissioner for the company pursuant to decree no. 83-1116 of December 21, 1983, as amended. In that capacity, he attends the meetings of the Board of Directors and of its specialized committees.

By virtue of article 3 of decree no. 83-1116 of December 21, 1983 relative to the AREVA company, the deliberations of the Board of Directors become effective and valid if the Government Commissioner or the authority in charge of economic and financial control do not oppose them within five days following the Board of Directors meeting, if they attended it, or of the receipt of the minutes of the meeting.

Such opposition, of which the Minister of Economy and the Minister of Energy are immediately informed by the author of same, ceases to have effect if, within a limit of fifteen days, it has not been confirmed by one of those ministers.

### Censors

Pursuant to article 18 of AREVA's Articles of Association, the Board of Directors renewed Mr. Pascal Faure and the CEA, represented by Mr. Christophe Gégout, in their role as censors in 2016 and in 2017.

The censors assist the Board of Directors in the performance of its duties and attend its meetings without the right to vote.

Each censor is appointed for a period of one year, which may be renewed without limitation.

### Secretary of the Board

For 2016, Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities and Finance, served as Secretary of the Board of Directors. In the absence of the latter, Mr. David Rubin was deputized for that role from July 28 to December 15, 2016.

## 3.2. RESPONSIBILITIES AND FUNCTIONING OF THE BOARD OF DIRECTORS

### 3.2.1. MISSIONS

The missions of the Board of Directors and the preparation and organization of its work are defined in the legislative and regulatory framework governing corporations in France (*sociétés anonymes*), in AREVA's Articles of Association, and in the Rules of Procedure of the Board of Directors <sup>(1)</sup>.

The Board of Directors determines the direction of the company's activities and oversees its implementation. Except for the powers expressly attributed to the General Meetings of Shareholders, and subject to limitations as regards the company's purpose, it may take up any matter concerning the company's operations and, through its deliberations, rules on matters concerning it.

Within the framework of its mission, and without this list being exhaustive, the Board:

- determines the company's and the group's strategic directions after receiving an opinion from the Strategy and Investments Committee;
- designates the officers in charge of managing the company within the framework of this strategy and sets their compensation on a recommendation from the Compensation and Nominating Committee;
- is kept informed of all significant transactions outside the company's official strategy;
- at any time of the year, carries out checks and controls as it deems necessary and has the documents it considers useful to the accomplishment of its mission sent to it;
- defines the company's financial communications policy and ensures the quality of information provided to the Shareholders and to the financial market, in particular through financial statements or in connection with major transactions;

- is regularly informed by the Audit and Ethics Committee of the company's financial position, cash position and commitments; it is also informed in a timely manner of the company's liquidity position and makes decisions as necessary concerning its financing and debt position;
- approves the financial statements, prepares the annual Management Report, convenes Annual General Meetings and sets the order of business for them;
- approves the report of the Chairman of the Board of Directors on governance and internal control and risk management procedures, as stipulated in article L. 226-37 of the French Commercial Code;
- approves the company's annual budget and multi-year plan;
- conducts an annual review of the company's equal opportunity and equal pay policy;
- may authorize the Chief Executive Officer to provide sureties, endorsements and guarantees in the company's name;
- may authorize the Chief Executive Officer to carry out the transactions described in paragraph 3.6. below.

### 3.2.2. DISSOCIATION OF THE DUTIES OF CHAIRMAN OF THE BOARD AND CHIEF EXECUTIVE OFFICER

Under the provisions of article L. 225-51-1 of the French Commercial Code, the Board of Directors opted to dissociate the duties of Chairman of the Board of Directors from those of Chief Executive Officer, with Mr. Philippe Varin performing the duties of Chairman of the Board and Mr. Philippe Knoche performing the duties of Chief Executive Officer.

(1) The Articles of Association and Rules of Procedure are available on the AREVA website, [www.aveva.com](http://www.aveva.com).

The dissociation of these positions is intended to establish a clear separation, between the Chairman of the Board and the Chief Executive Office, of the functions dealing with strategic direction, decision-making and control, and those dealing with operational and executive functions. It is also intended to improve the functioning of the Board through the presence of a person dedicated to chairing it, and the balanced distribution of powers limiting the isolation of a single executive and promoting dialogue among equals.

Furthermore, as a member of the Board of Directors, the Chief Executive Officer participates in the determination of the company's and the group's strategic directions.

The respective powers of the Chairman of the Board of Directors and of the Chief Executive Officer are described in paragraph 3.6. below.

### 3.2.3. MEETINGS

The Board of Directors meets in the interests of the company as often as necessary, but at least six times per year. The directors have the possibility of being represented by another director at meetings of the Board of Directors. Each director may represent only one of his or her colleagues during the same session of the Board.

Meetings of the Board of Directors are chaired by the Chairman, who leads the discussions, or in his absence by the Vice Chairman, or in the absence of the latter by a member of the Board of Directors designated at the beginning of the meeting by a simple majority of the members present.

The directors attending the Board session via video-conference or a telecommunications medium allowing them to be identified and ensuring their effective attendance are deemed to be present for the calculation of quorum and majority. The Secretary of the Board initials the register in place of those directors. This arrangement is not applicable to the approval of the annual financial statements or to the consolidated financial statements, or to the preparation of related reports; to the decision on the dissociation or non-dissociation of the duties of Chairman of the Board of Directors and of Chief Executive Officer; or to the appointment of the Chairman of the Board of Directors, the Chief Executive Officer and the Chief Operating Officer(s).

Moreover, recourse to video-conferencing or telecommunication means may be excluded when the Chairman of the Board of Directors so decides due to the sensitive nature of a subject/subjects on the order of business.

The group's employees may also be invited in consideration of their contribution to the points listed in the order of business for the meeting. The presence of external third parties must be authorized by the Chairman of the Board of Directors.

### 3.2.4. INFORMATION AND TRAINING OF DIRECTORS

The directors receive the order of business of the Board meeting and the items necessary to their reflection at least five calendar days before the meeting, except in an emergency or under exceptional circumstances. They receive a continuous flow of information at all times between sessions of the Board if necessary, and they should be able, if so desired, to meet the principal executives of the company after first informing the Chairman of the Board of Directors and the Chief Executive Officer.

Each director may receive training, if he/she deems it necessary, on specific features of the company, on its businesses and business segments, and on the role of director.

### 3.2.5. RULES APPLICABLE TO CONFLICTS OF INTEREST

The rules to be followed by members of the Board of Directors to prevent conflicts of interest appear in article 4.6 of the Board of Directors' Rules of Procedure, which stipulate in particular that:

- the director shall preserve his or her independence of judgment, decision and action under all circumstances;
- the director shall endeavor to avoid any conflict that may exist between his or her material and non-material interests and those of the company;
- the director shall inform the Board of Directors of any conflict of interest in which he or she could be implicated directly or indirectly;
- in the event of a confirmed or potential conflict of interest, the director concerned shall, upon receipt of the order of business, inform the Chairman of the Board of Directors and if applicable the chairman of the committee concerned, and shall abstain from taking part in the vote on the corresponding deliberation;
- the director, or a permanent representative if the director is a legal entity, may not participate personally in companies or activities in competition with the group without first informing the Board of Directors and receiving its approval;
- a director who considers that he or she has lost the ability to discharge his or her duties as a member of the Board or of a committee must resign.

Additionally, in view of the risks of conflicts of interest identified in connection with the sales of AREVA NP's and AREVA TA's operations, specific mechanisms for preventing conflicts of interest were put in place as regards those two operations:

- in addition to the specific procedure for preventing conflicts of interest set up because the Chairman of the Board of Directors, Mr. Philippe Varin, was also an EDF director until May 12, 2016, and in connection with the negotiations between AREVA and EDF relating to the sale of AREVA NP's operations, Mr. Varin decided to suspend his participation in the work of the EDF Board of Directors following the announcements of the President of the French Republic of June 3, 2015 on the redefinition of the nuclear industry, and to devote himself fully to his duties as Chairman of the Board of Directors of AREVA, able to take part in the discussions and vote on the deliberations of the Board of Directors on subjects likely to present a conflict of interest, subject to the application of the regulated agreements procedure. Mr. Philippe Varin resigned from his term as EDF director on May 12, 2016;
- Mr. Christian Masset, who also sits on the EDF Board of Directors, took all the necessary measures, in accordance with the Board of Directors' Rules of Procedure, to prevent any risk of conflict of interest from arising in connection with subjects dealing with relations between AREVA and EDF, and in particular concerning the sale of AREVA NP;
- the sale of AREVA NP's operations was the subject of an in-depth review by an Ad Hoc Committee, the majority of whose members are independent directors under the meaning of the Afep-Medef Code. This Ad Hoc Committee was created on June 5, 2015;
- the sale of AREVA's interest in AREVA TA was specifically reviewed by a working group formed on December 17, 2015 composed of directors who are not in a conflict of interest situation as regards the different parties involved in that transaction.

The missions and composition of the Ad Hoc Committee and of the AREVA TA Working Group are described in paragraphs 3.5.5. and 3.5.6. of Appendix 1. *Report of the Chairman of the Board of Directors.*

### 3.2.6 BUSINESS ETHICS OF DIRECTORS

The director shall perform his or her duties with independence, integrity, uprightness and professionalism.

The company's Policies and Procedures describe the directors' duties, in particular:

- respect for laws, the Articles of Association and the corporate interest;
- the duty to speak out;
- the strictest respect for the confidentiality of the work of the Board and its committees;
- the application of rules related to multiple office-holding;
- the prevention of conflicts of interest;

- compliance with obligations related to the holding of financial instruments issued by the company and the holding of privileged information.

As part of the program launched in 2015 to strengthen compliance and ethics, the group updated the applicable principles and rules to be followed in connection with the prevention of dereliction of duty and insider trading, notably the legal and regulatory provisions for the declaration of transactions and the definition of periods of abstention from trading on the company's shares, and assembled them in a Code in 2016. The Code was presented to AREVA's Executive Committee on February 15, 2016 and is updated regularly. The group also set up a policy for compliance with insider trading rules and a Code of Ethics.

At the same time, programs to raise awareness of insider trading rules are being conducted with the group's employees.

## 3.3. WORK OF THE BOARD OF DIRECTORS

The Board of Directors' work in 2016 concerned in particular recurring subjects such as examination of the half-year and annual financial statements and the observations of the statutory auditors on those statements, of the management report and the appended social and environmental responsibility report, of the report of the Chairman of the Board of Directors on the Board's work and internal control procedures for 2015, of the report on internal controls in conformance with article 7 of the decree of February 23, 2007 on the securement of funding for nuclear expenses, of the Chief Executive Officer's objectives, and of related party agreements.

The Board of Directors also examined and/or deliberated on:

- the different subjects relating to the group's legal and financial restructuring; the financial trajectories, the bridge loan, the transfer of nuclear fuel cycle operations and bond debt from AREVA SA to New AREVA Holding, the process undertaken with the European Commission, and the AREVA SA and New AREVA Holding capital increases;

- the annual budget for 2017;
- the various asset sales planned: Canberra, AREVA NP, Adwen and AREVA TA;
- the appointment of an ad hoc agent whose mission is to assist the company in completing its restructuring and helping to ensure its success;
- the company's policy of equal opportunity, equal pay and gender diversity.

In addition, the Board of Directors was informed on a very regular basis of the status of the group's performance plan and of the audit launched by AREVA in 2015 on the manufacturing files at le Creusot.

To facilitate the Board of Directors' decision-making, certain subjects were examined by the different committees, according to their area of responsibility. The Board heard the meeting reports and recommendations of those committees.

In 2016, the Board met 19 times with an average attendance rate of 89%.

## 3.4. RULES APPLICABLE TO EVALUATIONS

The Board of Directors' Rules of Procedure stipulate that, at least once a year, the Board of Directors shall devote time on the order of business for a review of its composition, functioning and organization, as well as that of the committees, and to verify that important matters are properly prepared and discussed. In addition, at least once every three years, it undertakes or commissions a formal evaluation of its work. Every year, it informs the Shareholders of the evaluations carried out and any follow-up actions.

A meeting of the Board of Directors is held once a year during which the performance of the Chairman, the Chief Executive Officer and the Chief Operating Officer(s), if applicable, is evaluated. Those parties do not attend the meeting.

On December 12, 2016, the Secretary of the Board of Directors transmitted the evaluation questionnaire drawn up by the Compensation and Nominating Committee dated December 6, 2016. The results were examined by said committee on February 15, 2017.

What arose from this is that certain avenues for improvement proposed by the Board during the evaluation of 2015 were carried out by the Board of Directors in 2016, in particular the creation of dialogue between employee representatives, the Senior Vice President of Human Resources and the Chief Executive Officer prior to meetings of the Board.

Other avenues for improvement, such as the reduction of the duration of the meetings, could not be carried out in view of the treatment of various subjects related to the group's legal and financial restructuring. The Board of Directors plans to implement those avenues for improvement over the course of 2017.

The Board of Directors meeting of February 28, 2017 devoted an item on its order of business to the evaluation of the performance of the Chairman and of the Chief Executive Officer, without their presence.

At that time, the Board hailed the commitment and quality of action of the Chairman of the Board of Directors and of the Chief Executive Officer during a difficult time for the company.

### 3.5. COMMITTEES OF THE BOARD OF DIRECTORS

The Board of Directors may create committees within it and determines their composition and remit.

The role of these committees is to collect appropriate additional information and provide it to the Board of Directors and to facilitate decision-making by making recommendations as necessary. They have no authority as such and perform their duties under the authority of the Board of Directors.

The committees may request independent technical studies on subjects within their purview, subject to the consent of the Chairman of the Board of Directors and subsequent reporting to the Board. The committee must ensure the expertise and independence of the external experts on which it calls.

The composition and functioning of the committees are defined in the legislative and regulatory framework applicable to corporations in France (*sociétés anonymes*), in AREVA's Articles of Association, and in the Rules of Procedure of the Board of Directors.

The Board of Directors created four standing committees on January 8, 2015:

- an Audit and Ethics Committee;
- a Strategy and Investments Committee;
- a Compensation and Nominating Committee;
- an End-of-Lifecycle Obligations Monitoring Committee.

The Board of Directors also created on a temporary basis:

- an Ad Hoc Committee on June 5, 2015 in connection with the establishment of the financing plan and the restructuring to be carried out in the group;
- an AREVA TA Working Group on December 17, 2015 in connection with the transaction to sell all of the shares held in AREVA TA.

Committee members are not entitled to compensation for their duties other than the attendance fees that the Board of Directors may allocate to them.

The Chief Executive Officer and if applicable the Chief Operating Officer(s) attend committee meetings at the request of the committee chairman. This also applies to the Chairman of the Board of Directors when he is not a member of the committee in question.

The terms of committee members coincide with their terms as members of the Board of Directors. He or she may be renewed at the same time as the latter. Exceptionally, the Board of Director may dismiss a committee member or its chairman at any time.

The chairman of each committee is appointed by the Board of Directors on a recommendation from the Compensation and Nominating Committee. If the chairman is unable to attend, the committee's other members designate a chairman of the sitting. The committee chairman designates a secretary.

The members of the committee may be convened by any means (mail, fax, email, etc.), or even verbally. Except for emergencies or under exceptional circumstances, the meeting documents are sent to the committee members at least five calendar days before the date of the meeting. The notice of meeting must include the order of business, which is set by the person convening the committee meeting.

A committee member may not arrange to be represented at the meeting.

#### 3.5.1. AUDIT AND ETHICS COMMITTEE

As of the date of this Reference Document and pursuant to the resignation of Mr. Denis Morin, the Audit and Ethics Committee has four members: Marie-Hélène Sartorius<sup>(1)</sup> (Chairman), Françoise Pieri<sup>(2)</sup>, Pascale Sourisse<sup>(1)</sup> and Alexis Zajdenweber.

The Audit and Ethics Committee follows matters related to the preparation and control of accounting and financial information, in particular the process for preparing financial information; the effectiveness of internal control and risk management systems; the statutory audit of the annual corporate financial statements and the consolidated financial statements by the statutory auditors, and the consistency of accounting methods; the procedure for selecting the statutory auditors and their independence; the correct valuation of mineral resources and reserves; the supervision of the execution of large projects; and the business risk model<sup>(3)</sup>.

To accomplish its mission, the committee hears the Head of the Internal Audit Department and gives its opinion on the department's organization. The committee receives internal audit reports or a periodic summary of those reports. The committee must also hear the statutory auditors, the Chief Financial Officer and financial directors, and the directors of Accounting and Cash Management.

Upon the expiration of the terms of the statutory auditors, the committee examines the bidding process and recommends that the Board of Directors either renew their terms or appoint successors.

The committee examines the list of consolidated companies and, if appropriate, the reasons for which companies are or are not included on it.

The Audit and Ethics Committee establishes an annual schedule of work in fulfillment of its duties. Financial statements must be provided to the committee for review sufficiently in advance (at least three calendar days before their review by the Board of Directors). The examination of the financial statements by the Audit and Ethics Committee must be accompanied by a presentation by the statutory auditors highlighting key findings of the statutory audit (in particular audit adjustments and significant weaknesses in internal controls identified during their work), and the accounting options selected. It must also be accompanied by a presentation by the Chief Financial Officer describing the company's risk exposure and significant off-balance-sheet commitments.

The Audit and Ethics Committee must review ethical aspects related to the company at least twice a year.

In 2016, the Audit and Ethics Committee met 15 times, with an attendance rate of 78%.

It examined subjects under its specific responsibility, in particular the half-year and annual financial statements (and the corresponding press releases); quarterly publications on revenue; the business risk model; the review of the conclusions of the statutory auditors and the Internal Audit Department on internal controls; the quarterly review of major capital projects and large customer projects; the summary of internal audits; the quality subjects at le Creusot; and the annual ethics report.

(1) Independent director.

(2) Director representing the employees.

(3) The accounting and finance expertise of the members of the Audit and Ethics Committee appears in paragraph 3.1. Composition of the Board of Directors.

### 3.5.2. STRATEGY AND INVESTMENTS COMMITTEE

As of the date of this Reference Document, the Strategy and Investments Committee has six members: Philippe Varin (Chairman), Claude Imauven <sup>(1)</sup>, Christian Masset, Odile Matte <sup>(2)</sup>, Daniel Verwaerde and Alexis Zajdenweber.

The Strategy and Investments Committee is tasked with analyzing the main strategic directions foreseeable for the group's development and with assessing the soundness of the most important strategic decisions proposed by the Chief Executive Officer. It ensures application of the company's strategic plan and its implementation at the subsidiary level.

The committee is tasked with examining proposed transactions subject to the prior approval of the Board of Directors <sup>(3)</sup>. It examines, in particular during the annual budget review, a quantified medium-term, three-year plan setting forth in detail the planned capital expenditures and anticipated production costs, in particular for each of the mining sites.

In 2016, the Strategy and Investments Committee met five times, with an attendance rate of 80%.

In particular, it examined the strategic roadmap, the financing plan, the asset disposal plan, the group's financial trajectory and the sale of Adwen.

The Strategy and Investments Committee may meet as a select committee at the initiative of its chairman. The Select Committee's purpose is to examine major commercial proposals subject to the authorization of the Board of Directors.

The Select Committee in charge of major commercial proposals met seven times in 2016, with an attendance rate of 79%.

### 3.5.3. COMPENSATION AND NOMINATING COMMITTEE

As of the date of this report and pursuant to the resignation of Sophie Boissard, the Compensation and Nominating Committee has four members: Claude Imauven <sup>(1)</sup> (Chairman), Jean-Michel Lang <sup>(2)</sup>, Marie H el ene Sartorius <sup>(1)</sup> and Alexis Zajdenweber.

The mission of the Compensation and Nominating Committee is, among others, to recommend individuals to the Board of Directors who may be eligible for appointment as officers of the company; to discuss each director's independent director qualification; to formulate recommendations and proposals to the Board of Directors concerning compensation, pension and insurance benefits, additional retirement benefits, non-cash benefits and other financial benefits for the company's officers, including severance pay if applicable; to examine the system for the distribution of attendance fees among the members of the Board of Directors; and to determine the objectives, methods and outcome of the Board's policy on the representation of men and women, nationalities and diverse skills in its midst.

The company's executive officers participate, if possible, in the committee meeting dedicated to reviewing the compensation policy for key executives who are not company officers.

In 2016, the Compensation and Nominating Committee met three times, with an attendance rate of 75%.

In particular, it examined the independent director qualifications of directors; the distribution of attendance fees between members of the Board of Directors; the company's policy on equal opportunity, equal pay and gender equality; skills management; the kick-off of the annual evaluation procedure of the Board of Directors; the compensation of company officers; the objectives of the Chief Executive Officers; and the cooptation of a new director.

### 3.5.4. END-OF-LIFECYCLE OBLIGATIONS MONITORING COMMITTEE

As of the date of this report, the End-of-Lifecycle Obligations Monitoring Committee has four members: Claude Imauven <sup>(1)</sup> (Chairman), Jean-Michel Lang <sup>(2)</sup>, Daniel Verwaerde and Alexis Zajdenweber.

The committee is responsible for contributing to the monitoring of the portfolio of assets earmarked by AREVA's subsidiaries to cover their future cleanup and dismantling expenses.

The End-of-Lifecycle Obligations Monitoring Committee met five times in 2016, with an attendance rate of 85%.

Among the subjects submitted to the committee for comment in 2016 was the draft Annual Report on Internal Control (end-of-lifecycle obligations section); the draft three-year report for 2013-2015; the change in end-of-lifecycle estimates and liabilities in 2016; asset management; and the coverage ratio at the end of 2016.

### 3.5.5. AD HOC COMMITTEE

As of the date of this report and pursuant to the resignation of Sophie Boissard, the Ad Hoc Committee has four members: Claude Imauven <sup>(1)</sup> (Chairman), Marie-H el ene Sartorius <sup>(1)</sup>, Pascale Sourisse <sup>(1)</sup> and Daniel Verwaerde.

Created on June 5, 2015 in connection with the establishment of the financing plan and restructuring to be carried out within the group, the committee's mission is to examine offers to be made to the company, in particular as concerns their scope and valuation, and the legal and social issues related to the transactions; to examine the terms of the industrial and strategic partnership agreement with EDF; to examine in detail the different components of the financing plan in order to ensure that it meets the needs and challenges of the company; and to formulate advice and recommendations to the Board of Directors.

The Ad Hoc Committee met fifteen times in 2016, with an attendance rate of 85%.

In particular, it examined the group's legal and financial restructuring (financial trajectories, bridge loan, partial asset contribution, descent of the bonds); the process undertaken with the European Commission; the AREVA SA and New AREVA Holding capital increases; and the sale of AREVA NP's operations, and in particular their valuation.

The Ad Hoc Committee was assisted by its own legal and financial advisors.

(1) Independent director.

(2) Director representing the employees.

(3) See 3.6.

## 3.5.6. AREVA TA WORKING GROUP

As of the date of this report, the AREVA TA Working Group has three members: Philippe Varin (Chairman), Claude Imauven <sup>(1)</sup> and Françoise Pieri <sup>(2)</sup>.

The Board of Directors approved the creation of the AREVA TA Working Group on December 17, 2015 to examine in particular the valuation of AREVA TA.

The working group was created in connection with the transaction involving the sale of all of the shares held in AREVA TA, a company specialized in the design, construction, commissioning and operational readiness of compact nuclear reactors for marine propulsion and nuclear research facilities.

In 2016, the AREVA TA Working Group met three times, with an attendance rate of 100%.

## 3.5.7. INDIVIDUAL ATTENDANCE RATE

## 2016 attendance rate (%) by person and by governance body

First and last name	Board members								
	Board of Directors	Strategy and Investments Committee	Compensation and Nominating Committee	Major Commercial Proposals Committee	Audit and Ethics Committee	End-of-Lifecycle Obligations Monitoring Committee	Ad Hoc Committee	AREVA TA Working Group	
Philippe Varin	100	100	NA	100	NA	NA	NA	100	
Sophie Boissard <sup>(1)</sup>	80	NA	0	NA	100	NA	75	NA	
Claude Imauven	95	100	100	86	NA	NA	80	100	
Philippe Knoche	100	NA	NA	NA	NA	NA	NA	NA	
Jean-Michel Lang	89	NA	100	NA	NA	80	NA	NA	
Christian Masset	95	80	NA	NA	NA	NA	NA	NA	
Odile Matte	100	100	NA	NA	NA	NA	NA	NA	
Denis Morin <sup>(2)</sup>	71	NA	NA	NA	9	NA	NA	NA	
Françoise Pieri	79	NA	NA	NA	87	NA	NA	100	
Marie-Hélène Sartorius <sup>(3)</sup>	100	NA	NA	NA	100	NA	100	NA	
Pascale Sourisse	95	NA	NA	NA	73	100	100	NA	
Daniel Verwaerde	58	40	NA	43	NA	60	71	NA	
Alexis Zajdenweber	100	80	100	86	100	100	NA	NA	

(1) Mrs. Sophie Boissard resigned from her term of office as director on November 1, 2016.

(2) Mr. Denis Morin, a director appointed by the General Meeting on a proposal from the French State, resigned from his term of office as director on October 26, 2016.

(3) Mrs. Marie-Hélène Sartorius was coopted by the Board of Directors on October 27, 2016, effective November 1, 2016. The Combined General Meeting of Shareholders ratified this cooptation on February 3, 2017. She is also a member of the Audit and Ethics Committee, of the Compensation and Nominating Committee, and of the Ad Hoc Committee.

## 2016 attendance rate (%) by person and by governance body

First and last name	Permanent Guests								
	Board of Directors	Strategy and Investments Committee	Compensation and Nominating Committee	Major Commercial Proposals Committee	Audit and Ethics Committee	End-of-Lifecycle Obligations Monitoring Committee	Ad Hoc Committee	AREVA TA Working Group	
Christian Bodin	100	100	100	100	100	100	NA	NA	
Pascal Faure	32	20	NA	NA	NA	NA	NA	NA	
Christophe Gégout	41	100	NA	33	100	NA	100	NA	
Laurent Michel (or his representative)	95	100	NA	100	100	100	NA	NA	

(1) Independent director.

(2) Director representing company personnel.

### 3.6. POWERS OF THE CHAIRMAN OF THE BOARD AND OF THE CHIEF EXECUTIVE OFFICER

#### CHAIRMAN OF THE BOARD OF DIRECTORS

The Chairman represents the Board of Directors and, unless exceptional circumstances arise, is the only person with the authority to act or make a statement in the name of the Board of Directors.

In coordination with the company's executive management, the Chairman may take part in defining the group's strategic directions and may represent the group in France and abroad in its relations with public officials and the group's partners.

Meetings of the Board of Directors are chaired by the Chairman, who leads the discussions, or in his absence by the Vice Chairman, or in the absence of the latter by a member of the Board of Directors designated at the beginning of the meeting by a simple majority of the members present.

The Chairman organizes and leads the work of the Board of Directors and ensures the smooth functioning of the corporate bodies in accordance with principles of good governance. He coordinates the work of the Board of Directors with that of its committees.

He ensures that the directors and censors receive timely information, in a clear and appropriate form, needed to perform their missions.

The Chairman provides liaison between the Board of Directors and the company's Shareholders, in concert with executive management.

#### CHIEF EXECUTIVE OFFICER

The Chief Executive Officer is responsible for the company's management and represents the company in its relations with third parties.

Full powers are vested in him to act on behalf of the company in all circumstances, except for powers attributed by law to the Board of Directors and to the Shareholders, and as stipulated in the company's own rules of governance.

The Chief Executive Officer reports on major events in the group at each meeting of the Board of Directors.

Under the terms of article 17-2 of AREVA's Articles of Association, the following transactions of the company and its subsidiaries are subject to the prior authorization of the Board of Directors:

- (a) transactions that could affect the group's strategy and modify its financial structure or scope of business;
- (b) insofar as they concern amounts in excess of 80 million euros:
  - (i) the issuance of securities of direct subsidiaries, regardless of their nature,
  - (ii) exchanges, with or without cash payment, of goods, securities or assets; loans, borrowings, credit transactions and prepayments; acquisitions or disposals, by any means, of all debt instruments, excluding cash management operations in the ordinary course of business,
  - (iii) settlements, agreements or transactions relating to disputes;
- (c) insofar as they concern amounts in excess of 20 million euros:
  - (i) proposed investments concerning the creation of a site or the capacity increase of an existing site,
  - (ii) acquisitions, increases or disposals of equity interests in any company, existing or to be established,
  - (iii) decisions to create an entity to establish an operation in France or abroad, or to withdraw an operation,
  - (iv) acquisitions of real estate.

Exceptionally, and unless the Chairman of the Board of Directors requests otherwise, the transactions referred to under (a), (b) and (c) above are not subject to the prior approval of the Board of Directors when they are carried out between companies of the group;

- (d) commercial proposals meeting the criteria defined in the Board of Directors' Rules of Procedure.

## 4. SYSTEM OF INTERNAL CONTROLS

### 4.1. INTRODUCTION

This section, which describes the group's system of internal controls, is structured according to the "Frame of Reference for Internal Controls" published by the Autorité des marchés financiers (French stock market authority AMF) in July 2010.

The scope of internal controls described below applies to AREVA as parent company and to all of the companies it controls, regardless of their legal form.

#### 4.1.1. AREVA'S COMMITMENTS

AREVA has defined and implements fundamental commitments regarding the conduct of its operations. The environment for internal controls is based on these commitments, among others.

The Code of Ethics is the reflection of the group's culture of compliance and the expression of its commitments, especially as regards sustainable development and human rights. It sets forth the group's Commitments and Expectations with regard to its stakeholders, and the Action Principles and Rules of Conduct which apply to all of the group's executives and employees as well as to the members of the Board of Directors. In the Code of Ethics, which is available on the intranet, the group also reiterates its commitment to fighting corruption.

In 2016, the group's Director of Compliance led the annual report process on compliance with the Code of Ethics and presented the 2015 executive summary of the report to the Audit and Ethics Committee of the Board of Directors.

## 4. System of internal controls

Pursuant to the initiative launched at the end of 2015 by the Chief Executive Officer and with the full support of its governance bodies, the group continued to deploy a program to strengthen compliance and ethics. This initiative, the first phase of which is expected to last 18 months, is the expression of AREVA's determination to rise quickly to the level of the best references in this field. Within this framework, the warning system was strengthened starting at the end of 2015 and an "individual compliance commitment letter" process was instituted for all of the group's executives.

To improve existing systems, the Director of Compliance published a Code of Ethics in 2016 to replace the old Values Charter and a Compliance Policy governing its implementation. He also put in place an anti-corruption compliance policy, a competition legislation and regulation compliance policy, a financial compliance and ethics policy, and an insider trading rules compliance policy.

In addition, the discovery of anomalies at the Creusot site in 2015 and 2016 was factored into the strengthening of the compliance and ethics program and taken into account for the continuous improvement of the internal control system.

## 4.1.2. INTERNAL CONTROL STANDARDS

In the "Frame of Reference for Internal Control" of the Autorité des marchés financiers (AMF), to which the group defers, the internal control system is characterized by:

- an organization with a clear definition of responsibilities, sufficient resources and expertise, and appropriate information systems, procedures, tools and practices;
- the internal dissemination of relevant and reliable information enabling each person to discharge his or her responsibilities;
- a system to identify, analyze and manage risk;
- control activities designed to reduce this risk; and

- continuous monitoring of the internal control system.

The group ensured that the approach taken is consistent with the standards of the AMF. In particular, it verified the consistency between:

- the "Implementing guidelines for the internal control of accounting and financial information published by the issuers" included in the Frame of Reference, and
- the system for self-audit of internal controls within the group (Self Audit Income), which was carried out to ensure that all the standards are met (see Section 4.6, *Continuous oversight of the internal control system*).

## 4.1.3. INTERNAL CONTROL OBJECTIVES

Internal controls contribute to the management of operations. They aim in particular to ensure:

- compliance with laws and regulations;
- implementation of instructions and guidelines set by the governing bodies;
- the smooth functioning of the group's internal processes, in particular those contributing to the preservation of its assets;
- the reliability and quality of the information produced and communicated, with particular emphasis on financial information.

The scope of internal control is not limited to procedures for ensuring the reliability of accounting and financial information.

However, no matter how well designed and implemented, internal control mechanisms are not sufficient by themselves to guarantee with absolute certainty that these objectives are met.

AREVA's internal control system is consistent with the group's commitments regarding the conduct of its operations, particularly in the framework of its Code of Ethics.

## 4.2. ORGANIZATION, GOVERNANCE, RESOURCES, INFORMATION SYSTEMS AND OPERATING PROCEDURES

Internal controls are implemented throughout the group by all employees under the overall responsibility of existing governing bodies.

## 4.2.1. AREVA'S ORGANIZATION

AREVA has a single corporate governance body, the Board of Directors.

In this framework, and as described in Section 3 of this report, the Board of Directors is in charge in particular of defining the group's strategy and validating large capital expenditures and sensitive or significant commercial proposals, drawing in particular on preparatory work carried out by the four standing committees it has created and by the Ad Hoc Committee and the AREVA TA Working Group which it created on a temporary basis (to deal with conflict of interest matters) (see Section 3.5. *Committees of the Board of Directors*).

The Chief Executive Officer is responsible for the company's executive management and represents the company in its relations with third parties. In addition to the

powers conferred on him by law, and subject to the limitations set forth in the Articles of Association or in the Board of Directors' Rules of Procedure, the Chief Executive Officer is responsible for:

- defining the group's performance objectives (financial, commercial, operational, nuclear safety, occupational safety, etc.) and their breakdown by business, and monitoring their achievement;
- allocating the group's resources (human resources, financial resources, etc.);
- defining organizational principles and processes to serve customers and build talent.

Although the methods of control by the Board of Directors and its specialized committees were not modified in 2016, the AREVA group nonetheless changed the methods of internal line management of its operations as the milestones of the Restructuring Plan rolled out by the company were met. The Restructuring Plan is part of a broader framework for the redefinition of the respective roles and responsibilities of French nuclear industry players decided in June 2015.



As of the date this Reference Document was filed, the internal organization on which the Chief Executive Officer relies is structured as described below.

#### a. Internal governance and operational management bodies

For AREVA SA:

- an Executive Management Committee chaired by the Chief Executive Officer, which draws on specialized committees:
  - a Disputes and Litigation Monitoring Committee;
  - a Mergers and Acquisitions Control and Commitment Monitoring Committee (Nuclear and Renewables);
  - a Sales Compliance Committee;
  - a Group Risks Committee.
- an OL3 Steering Committee specifically in charge of project monitoring, steering and control;

For New AREVA Holding (hereinafter called "NewCo"), an Executive Committee (ExCom) chaired by the Chief Executive Officer of AREVA SA and seven specialized committees are in place and have been functioning since July 1, 2016.

The composition of the Executive Committee of NewCo<sup>(1)</sup> was as follows as of the date this Reference Document was filed:

- the Chief Executive Officer;
- the Chief Legal and Financial Officer.
- the Senior Executive Vice President of Human Resources, Communications, Property and Work Environment;
- the Senior Executive Vice President of Customers, Strategy, Innovation and R&D;
- the Senior Executive Vice President of the AREVA Projects Business Unit and Director of Performance;
- the Senior Executive Vice President of the Mining Business Unit;
- the Senior Executive Vice President of the Chemistry/Enrichment Business Unit;
- the Senior Executive Vice President of the Recycling Business Unit;
- the Senior Executive Vice President of the Dismantling and Services Business Unit;
- the Senior Executive Vice President of the Logistics Business Unit;
- the Special Advisor to the Chief Executive Officer.

For the operational management of AREVA NP operations held for sale by AREVA SA, an Executive Committee (ExCom) has also been set up by the President of AREVA NP SAS. This committee has also been functioning since July 1, 2016.

The composition of the Executive Committee of AREVA NP is as follows:

- the President of AREVA NP SAS;
- the Chief Operating Officer;
- the Senior Executive Vice President of the Components Business Unit;
- the Senior Executive Vice President of the Fuel Business Unit;
- the Senior Executive Vice President of Sales, Regional Platforms, and Instrumentation and Control;
- the Senior Executive Vice President of the Installed Base Business Unit;
- the Senior Executive Vice President of the Technical and Engineering Business Unit;
- the Senior Executive Vice President of the Large Projects Business Unit;
- the Senior Executive Vice President of Operational Excellence.

#### b. Corporate departments

The main corporate departments, which carry out oversight missions relating to control and compliance with the group's rules, are:

- the Finance/ Legal Department;
- the HR/ Communications/ Property/ Work Environment Department;
- the Risk/ Internal Audit Department;
- the Customers/Strategy/Innovation and R&D Department;
- the Compliance Department;
- the Protection Department;
- the Safety, Health, Security and Environment Department;
- the Performance Department.

#### c. Policies and procedures

Lastly, a set of policies and procedures ensure the proper functioning of the group's governance at every level of the organization.

#### 4.2.2. DEFINITION OF RESPONSIBILITIES AND AUTHORITY

The group has a frame of reference which clearly defines powers and duties. It is based on:

- formal written and duly signed organizational notes describing missions and responsibilities at the level of the group, in particular the operational departments and the functional departments;
- formal written delegations of authority in the procedure "Delegation of Authority – Thresholds and Decision Channels", which defines internal rules for authorization and decision-making for the leading operational processes; and
- delegations of authority and signature authority throughout the group to conduct business as appropriate at each level in a manner which is consistent with applicable laws and regulations.

The definition of the organization and delegations of authority complies with the principle of the separation of duties. In particular, governance and internal control principles applicable to delegations of authority set financial limits by type of transaction, for which information must be provided to or authorization received from the competent bodies.

#### 4.2.3. HUMAN RESOURCES MANAGEMENT POLICY

Against the backdrop of an economically and financially difficult environment, the human resources policy had three priorities in 2015 and in 2016:

- negotiate and implement the human resources aspects of the group's performance plan (voluntary departure plan, reduction of labor expenses, organizational transformation);
- continue to promote and manage internal mobility while ensuring that key skills are retained;
- develop executive and manager leadership skills, a driver for the commitment and mobilization of the managerial body.

(1) NewCo is the temporary name of the entity which combines all of the operations of AREVA related to the nuclear fuel cycle, whose legal name is New AREVA Holding.

#### 4.2.4. INFORMATION SYSTEMS

The mission of the Information Systems and Services Department (DSSI) is to ensure the availability, confidentiality and integrity of the group's information systems. To accomplish this, it is organized to meet the following objectives:

- orient the information system towards services to the group's businesses, in alignment with the organization of the group's processes;
- standardize, streamline and consolidate the technical and functional infrastructure to ensure its performance and reliability, taking into account economic, geographic and security-related considerations.

#### 4.2.5. OPERATING PROCEDURES

##### 4.2.5.1. General internal control procedures

The group's internal control procedures consist of rules, directives and operating procedures defined by the governing bodies.

Supplementing this, the subsidiaries and businesses have translated their internal control systems into charters and policies.

The charters establish rules of governance and principles for internal controls, as follows:

- the Nuclear Safety Charter spells out the group's commitments in the field of nuclear safety and radiation protection to ensure that requirements are met throughout the facility operating period;
- the Audit Charter describes the purpose, missions, roles and responsibilities and applicable procedures of the group's internal audit;
- the Network Security Charter defines the basic principles of the AREVAnet computer communication network and the rules to be followed to access various services.

Policies define the operating principles and procedures that are a step above specific business procedures. The group has established the following policies in particular:

- the procurement policy and guide to ethics in procurement, which together set rules, objectives and best practices in procurement and business ethics;
- the payment security policy defines the group's policy for secure payment methods and means to be used to limit the risk of fraud;
- the personnel protection policy is designed to give all group employees equal protection, whether they are traveling on business or live in France or abroad;
- the occupational safety and environmental policies establish rules of conduct for continuing risk reduction;
- the human resources policy aims to boost the company's collective performance by developing each individual's skills and talents.

Consistent with the principle of subsidiarity and to ensure the assimilation of these instructions, the operational departments adapt the procedures to their specific circumstances prior to implementation within their entities.

##### 4.2.5.2. Accounting and financial reporting procedures

###### Overall organization

The reporting and processing of information is now organized into three operational levels – management entities (elementary level of information production), business units (performance analysis mesh) and subgroups (management mesh, notably NewCo and New NP) – in order to gradually bring roles and responsibilities within the group into alignment with the restructuring plan in progress in the French nuclear industry.

Instructions for consolidation are issued by the group's Financial Management Control and Accounting Department for all half-year and annual financial statements. These instructions include:

- the schedule for preparing accounting and financial information for reporting purposes;
- the process for validating this information;
- items requiring particular attention, such as complex issues, changes in the legal environment and new internal procedures; and;
- the coordinators for consolidation (at the corporate level) responsible for approving consolidation treatments for a portfolio of entities; they also perform crosscutting analyses (corresponding to the notes to the consolidated financial statements) for the entire group.

The group's Legal and Finance Department modeled the group's principal financial processes in place and provides all players using those processes (corporate departments, subgroups and business units) with a comprehensive, up-to-date, shared documentary base enabling processes to be documented by linking them with procedures in force within the group.

The modelled processes are available on a dedicated intranet space and are updated regularly to reflect changes in the organization.

###### ***Implementation and control of accounting principles***

The reporting entities' financial statements are prepared in accordance with the group's accounting and financial principles. These rules apply to all entities included in the group's consolidation scope. They include:

- a glossary that defines the main headings of the financial statements and the group's performance indicators;
- an annotated chart of accounts; and
- applicable procedures issued by the Management and Accounting Control Department.

The principles are supplemented by procedures and instructions issued and reviewed on a regular basis by the other units of the Finance Department (Financial Operations and Cash Management Department, Financial Communications Department, Tax Department), by the subgroups (NewCo and New NP), and by the business units, and include procedures and instructions dealing specifically with internal controls and fraud.

The "standards and procedures" function of the Management Control and Accounting Department defines and distributes information relating to implementation of the management control and accounting standards, procedures, principles and rules. It also monitors changes in regulations to ensure that the financial statements are prepared in accordance with IFRS rules adopted by the European Union.

#### 4.2.6. SOFTWARE

In addition to office automation software used by employees, the group has special software customized for the conduct of its operations.

A wide variety of tools are used, including facility control systems, integrated management systems, methods and scorecards, and they contribute to the operational control of each business.

The group has a single, secure reporting and consolidation tool shared throughout the group under the authority of the Finance Department.

In addition, organizational notes and standards and procedures applicable to the entire group are distributed using a dedicated software application.

AREVA set up a tool for all SAP core systems in the group (called the AREVA Segregation of Tasks & Roles Optimization project) to maintain the level of internal

controls and streamline access to the management information system. The main purpose of this tool is to secure the access management process by ensuring that user roles are defined according to best practices for the separation of duties and by automating their management with the SAP Governance, Risk and Compliance suite (SAP GRC).

#### 4.2.7. INTERNAL CONTROL STEERING AND PRACTICES

Internal control relies on all of these elements as well as on the practices of all employees, which are themselves based on the group's commitments (Code of Ethics, compliance with the principles of sustainable development, etc.). "Best practices" are identified to facilitate their dissemination and sharing so as to ensure effective continuous improvement in matters of internal controls.

The internal control function jointly coordinated by the Internal Audit Department and the Finance Department within the Internal Control Committee relies on a

network of internal control coordinators appointed in each of the business units, whose main objectives are:

- to ensure the distribution of information concerning decisions made and their application by the entities ("top-down"); and
- to roll up specific points requiring attention from the entities to the committee ("bottom-up").

The Risk and Internal Audit Department is in charge of monitoring and updating the performance of the internal control system for the group's governing bodies, particularly through the self-audit exercise. In connection with this mission, it provided support to operational management, the functional departments and the shared service centers to strengthen existing systems by means of preventive and corrective actions.

The person responsible for internal accounting and financial controls is tasked more specifically with issues related to internal accounting and financial controls, and works closely with the Risk and Internal Audit Department.

### 4.3. DISSEMINATION OF INFORMATION

Bottom-up and top-down information channels have been established to communicate relevant and reliable information in a timely manner.

- Bottom-up information:
  - accounting and finance information is reported and processed following specific processes and using shared tools to check and record the data (*i.e.* a single, secure software program for reporting and consolidation shared by the entire group and supervised by the Finance Department),
  - the achievement of performance objectives by the business units and functional departments and the execution of the transformation plans through progress on related action plans are followed up on a monthly basis through the Monthly Business Reviews and on a quarterly basis through the Quarterly Business Reviews, particularly by the ExComs of the two new subgroups, NewCo and New NP;

- Top-down information:
  - the group's relevant departments and entities are informed of resolutions by the corporate decision-making bodies,
  - the group monitors laws and regulations on nuclear safety, occupational safety, health, the environment, accounting and taxation, and disseminates this information throughout the group as appropriate. Applicable organizational memos, rules, standards and procedures are rolled out under an existing standard for the organization and procedures, which is now applied in the two subgroups (NewCo and New NP).

Communications with stakeholders are framed in plans designed to ensure and uphold the quality of the information provided.

### 4.4. MANAGING RISK AND SETTING OBJECTIVES

#### 4.4.1. RISK IDENTIFICATION AND MANAGEMENT

The group drew up a business risk model when it was established to take into account the potential impact of events on the achievement of the group's strategic and operational objectives. AREVA's Risk and Internal Audit Department, working with the risk managers of the business units (which themselves have a network of risk managers in their operating entities), carries out an annual update.

In 2016, the update was reviewed by the Risk Committee and approved by the ExComs of both subgroups (NewCo and New NP). The business risk model was presented to the Audit and Ethics Committee of the Board of Directors.

In particular:

- the operational and functional management teams have approved the assessment of risk in their operations. For example, all of the group's entities collected, analyzed and measured the risk factors of their respective operations. They also prepared mitigation plans and management procedures to minimize the risk and have designated the people in charge and the schedule for completion;

- the members of the ExComs of the subgroups (NewCo and New NP) identified and formalized the list of the group's major risks and designated a "referring" member for each of them. More specifically, this member is in charge of verifying the existence of an appropriate action plan and reporting on its progress to the Risk Committee, the Executive Committees and the company's governing bodies;
- based on this work, the main risk factors identified are described in the Reference Document in the section on risk management and insurance (see Section 4. *Risk factors*). Matters pertaining to nuclear safety and industrial safety, which are an absolute priority for the group, are discussed in that section;
- in addition, in 2016, which saw significant changes in the group's consolidation scope and organization involving a number of entities, all of the management and control bodies were attentive during this first period of transition to strict compliance with applicable rules and to the proper functioning of all of the processes that go into making the internal control system robust.

In addition, the Safety, Health, Security and Environment Department is tasked with supervising industrial risk management and, on a practical level, working with the

#### 4. System of internal controls

relevant business units to ensure the implementation and effectiveness of action plans that aim to reduce these risks. In 2016, the industrial risks related to climate change were identified in the framework of the group's risk assessment process. That assessment is discussed in paragraph 4.8.3 of Section 4. *Risk factors* of this Reference Document.

In 2016, the group's major capital spending and commercial projects were regularly presented to the Audit and Ethics Committee by the managers in charge of them and by the Finance Department, providing an opportunity to discuss changes in the risks associated with those projects with the control bodies.

##### 4.4.2. SETTING OBJECTIVES

In 2016, the process of setting objectives for the group was framed by the 2015-2017 Transformation Plan currently in progress.

#### 4.5. CONTROL ACTIVITIES

The functional departments, acting on behalf of the group's management bodies, deploy their policies and ensure their correct implementation. In particular, the Management and Accounting Control Department defines and ensures the application of management control rules, documents the accounting and financial management processes, and ensures compliance with rules on delegations of authority pertaining to financial commitments.

Each operational and functional level implements appropriate control activities to regularly evaluate the level of achievement of established objectives. In particular, the budget updates and reporting documents are used to regularly and progressively compare actual results and the extent to which objectives have been met with those defined when the budgets were approved.

By definition, each organization is responsible for its own internal controls. These controls rely on the mobilization of human, material and financial resources, the organization of those resources, the deployment of specific objectives within the organization, and the implementation of controls for prevention or detection.

Preventive controls are carried out according to specific procedures, whether manual or computerized, involving approvals at appropriate levels of the

organization, among other things. Detection controls consist of after-the-fact verifications connected with specific supervision of the work performed and analysis of variances or anomalies. Information systems, performance indicators, etc. are used to facilitate this supervision.

In addition, audit and expert bodies are charged with controlling the most significant issues in relation to the specific goals of the group and of the subgroups.

In particular, as regards accounting and financial information:

- each entity has set up a system of controls before transactions are recorded;
- controls are carried out at the different stages of the consolidation process:
  - either automatically by the consolidation software (control of debit/credit balances, data traceability, data integrity, access control), or
  - manually by the consolidation department, financial controllers and business analysts;
- the group's Tax Department performs tax reviews of the group's main companies.

#### 4.6. CONTINUOUS OVERSIGHT OF THE INTERNAL CONTROL SYSTEM

In 2016, AREVA continued to take action to optimize its internal control systems. These actions were conducted under the supervision of the Chief Executive Officer and of the ExComs, and with the oversight of the Board of Directors through the Audit and Ethics Committee.

The group's Business Ethics Advisor deployed the annual compliance letter process, which applied to all executives of the subsidiaries, the business units' senior executive vice presidents, the regional directors, and the directors of the group's corporate functions.

AREVA's Risk and Internal Audit Department intervenes everywhere in the group and in any area relevant for internal controls. This department is under the responsibility of its director and, under the supervisory and functional authority of the Audit and Ethics Committee, carried out its activities completely independently, in compliance with the Audit Charter and the international standards of the profession.

In 2016, the missions were conducted in accordance with the annual audit plan approved by the Chief Executive Officer and examined by the Audit and Ethics Committee. This department is responsible among other things for reporting to the management bodies on its assessment of compliance and the effectiveness of the internal control systems deployed throughout the group. In particular, this assessment takes into account the risks identified using the full range of the group's

tools (business risk model, internal control self-audit tools, interviews conducted by the Audit Department with the General Inspectorate, the group's principal top managers and the statutory auditors, etc.). The recommendations resulting from these missions give rise to performance improvement plans, which are monitored in concert with the managers involved.

Lastly, as is the case each year, the Risk and Internal Audit Director presented his internal controls review report to the Chief Executive Officer and to the Audit and Ethics Committee.

In addition to audits carried out under the audit plan, the group's entities perform a self-audit of their internal controls every year following a standard questionnaire (the "Self-Audit Income"), duly approved by their operational management, which has complied since 2007 with the "Implementing guidelines for internal controls of accounting and financial information" of the frame of reference published by the AMF. The questionnaire, reviewed by the joint statutory auditors, was deployed in 2016 across the entire consolidation scope of the group, representing 92 entities in some 20 countries. By entity, it covered 200 control items organized into 14 business cycles, and urged management to commit to action plans to address the weaknesses identified.

The entities' responses to this self-audit questionnaire are reviewed by the Risk Internal Audit Department and shared with the network of internal control coordinators and the statutory auditors. This review and its sharing mechanism contribute to the oversight of the overall system; the results are presented to the appropriate levels of the organization (ExComs of the two subgroups, business units and functional departments in particular). The main elements are summarized in

the Annual Report by the Risk and Internal Audit Director on the review of internal controls.

This report does not contain a section on assessment, consistent with common practice and the recommendations of the Autorité des marchés financiers.

Chairman of the Board of Directors

## 5. BUSINESS ADDRESSES OF THE MEMBERS OF THE BOARD OF DIRECTORS

### Mr. Philippe VARIN

*Chairman of the Board of Directors*  
AREVA Tower – 1 place Jean Millier  
92084 Paris-La Défense Cedex, France

### Mr. Philippe KNOCHE

*Chief Executive Officer*  
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### Mr. Daniel VERWAERDE

*Chairman of the Commissariat à l'énergie atomique et aux énergies alternatives*  
CEA/Saclay  
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### Mr. Claude IMAUVEN

*Chief Operating Officer*  
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### Mr. Christian MASSET

*Secretary General*  
Ministry of Foreign Affairs and International Development  
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### Mrs. Pascale SOURISSE

*Senior Executive Vice President, International Development*  
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### Mrs. Marie-Hélène SARTORIUS

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### DIRECTOR REPRESENTING THE FRENCH STATE

#### Mr. Alexis ZAJDENWEBER

*Director of Energy Shareholdings*  
Agence des participations de l'État  
Ministry of Economy and Finance  
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**MEMBERS OF THE BOARD ELECTED BY COMPANY PERSONNEL****Mr. Jean-Michel LANG**

AREVA NC  
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**Mrs. Françoise PIERI**

AREVA NC  
Pierrelatte Establishment  
DSI/LOG  
BP 175  
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**Mrs. Odile MATTE**

AREVA TA  
Aix-en-Provence AREVA TA  
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France

**OTHER PARTICIPANTS ASSISTING THE BOARD****Mr. Laurent MICHEL**

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Government Commissioner  
Ministry of Ecology, Sustainable Development and Energy  
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**Mr. Christian BODIN**

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*Head of the Control Mission*  
Energy Mission  
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**Mrs. Béatrice MATHIEU**

*Representative of the Works Council to the Board of Directors*  
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**Mr. Pascal FAURE (Censor)**

*Director General of Enterprises*  
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General Directorate of Competitiveness and Energy (DGE)  
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**The CEA, represented by Mrs. Christophe GÉGOUT (Censor)**

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1.	STATUTORY AUDITORS' REPORT PREPARED IN ACCORDANCE WITH ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE ( <i>CODE DE COMMERCE</i> ) AND DEALING WITH THE REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS OF AREVA SA	333
2.	STATUTORY AUDITORS' REPORT ON RELATED PARTY AGREEMENTS AND COMMITMENTS	335

This is a free translation into English of a report issued in French and is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

## 1. STATUTORY AUDITORS' REPORT PREPARED IN ACCORDANCE WITH ARTICLE L. 225-235 OF THE FRENCH COMMERCIAL CODE (*CODE DE COMMERCE*) AND DEALING WITH THE REPORT OF THE CHAIRMAN OF THE BOARD OF DIRECTORS OF AREVA SA

To the Shareholders,

In our capacity as Statutory Auditors of AREVA SA and in accordance with article L. 225-235 of the French Commercial Code, we hereby present our report dealing with the report prepared by the Chairman of your company in accordance with article L. 225-37 of the French Commercial Code for the financial year ending 31/12/2016.

The Chairman is responsible for preparing and submitting for the approval of the Board of Directors a report describing the internal control and risk management procedures implemented by the company and disclosing other information as required by article L. 225-37 of the French Commercial Code dealing in particular with corporate governance.

Our own responsibility is to:

- communicate to you any observations we may have as to the information contained in the Chairman's report and relating to the company's internal control and risk management procedures in the area of the preparation and processing of financial and accounting information; and
- attest that the report includes the other disclosures required by article L. 225-37 of the French Commercial Code. It should be noted that we are not responsible for verifying the fair presentation of those other disclosures.

We have performed our work in accordance with the professional standards applicable in France.

## INFORMATION RELATING TO THE COMPANY'S INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES IN THE AREA OF THE PREPARATION AND PROCESSING OF FINANCIAL AND ACCOUNTING INFORMATION

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Our professional standards require the application of procedures designed to assess the fair presentation of the information contained in the Chairman's report and relating to the company's internal control and risk management procedures in the area of the preparation and processing of financial and accounting information.

Those procedures involve in particular:

- obtaining an understanding of the underlying internal control and risk management procedures in the area of the preparation and processing of financial and accounting information presented in the Chairman's report, and of the related documentation;
- obtaining an understanding of the work performed as a basis for preparing that information and the existing documentation;
- determining if any major internal control weaknesses in the area of the preparation and processing of financial and accounting information identified by us during the course of our engagement have been appropriately disclosed in the Chairman's report.

On the basis of the procedures performed, we have nothing to report on the information relating to the company's internal control and risk management procedures in the area of the preparation and processing of financial and accounting information contained in the report of the Chairman of the Board of Directors prepared in accordance with article L. 225-37 of the French Commercial Code.

## OTHER DISCLOSURES

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We hereby attest that the report of the Chairman of the Board of Directors includes the other disclosures required by article L. 225-37 of the French Commercial Code.

Drawn up in Courbevoie and Paris-La Défense, on March 31, 2017

The Statutory Auditors

French original signed by

MAZARS

Cédric Haaser

Jean-Louis Simon

ERNST & YOUNG Audit

Aymeric de La Morandière

Jean Bouquot



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## 2. STATUTORY AUDITORS' REPORT ON RELATED PARTY AGREEMENTS AND COMMITMENTS

To the Shareholders,

In our capacity as statutory auditors of your company, we hereby report on certain related party agreements and commitments.

We are required to inform you, on the basis of the information provided to us, of the terms and conditions as well as the grounds justifying the benefit to the company of those agreements and commitments indicated to us, or that we may have identified in the performance of our engagement. We are not required to comment as to whether they are beneficial or appropriate or to ascertain the existence of any such agreements and commitments. It is your responsibility, in accordance with article R. 225-31 31 of the French Commercial Code (*Code de commerce*), to evaluate the benefits resulting from these agreements and commitments prior to their approval.

In addition, we are required, where applicable, to inform you in accordance with article R. 225-31 of the French Commercial Code (*Code de commerce*) concerning the implementation, during the year, of the agreements and commitments already approved by the General Meeting of Shareholders.

We performed those procedures which we considered necessary to comply with professional guidance issued by the national auditing body (*Compagnie Nationale des Commissaires aux Comptes*) relating to this type of engagement. These procedures consisted in verifying that the information provided to us was consistent with the documentation from which it was extracted.

### AGREEMENTS AND COMMITMENTS SUBMITTED FOR APPROVAL BY THE GENERAL MEETING OF SHAREHOLDERS

#### Agreements and commitments authorized during the year

In accordance with article L. 225-40 of the French Commercial Code (*Code de commerce*), we have been advised of certain related party agreements and commitments which received prior authorization from your Board of Directors.

#### 1. With the French Atomic Energy and Alternative Energies Commission (Commissariat à l'énergie atomique et aux énergies alternatives, "CEA"), a 54.37% shareholder of your company

##### Person concerned

Mr. Daniel Verwaerde (director of your company and Chairman of CEA).

##### Nature, purpose and conditions

At its meeting on 28 April 2016, your Board of Directors authorized the signature of amendment no. 1 to the bilateral agreement entered into with CEA (reflecting the provisions of article 2.3 of the Tripartite Memorandum of Understanding). This amendment was signed by your company and CEA on 20 May 2016.

As mentioned in the "Agreements and commitments already approved by the General Meeting of Shareholders" section of this report, on 20 July 2015 your company, AREVA TA and CEA signed a tripartite memorandum of understanding

for the final settlement of the situation of the "Réacteur Jules-Horowitz" (RJH) project on the basis of their shared vision of what is still to be done, the schedule upon completion and the related resources needed to finalize the project for the construction of this reactor with the aim of loading the first core in October 2019 (the "Tripartite Memorandum of Understanding"). The signature of this Tripartite Memorandum of Understanding was authorized by the Board of Directors voting at its meeting held on 29 April 2015 and was approved by the General Meeting of Shareholders on 21 May 2015.

In the Tripartite Memorandum of Understanding, your company confirmed its participation in the funding of the RJH Project by making a commitment to pay an additional financial contribution, supplementing the existing arrangement under the Bilateral Agreement for the Funding of the RJH Project dated 22 December 2006 between CEA and your company. The purpose of this bilateral agreement was to specify the parties' general and financial commitments for the research and development and implementation of the RJH Project, as well as the special terms and conditions of your company's contribution to this Project (the "Bilateral Agreement").

##### **Financial terms and conditions**

The additional contribution provided for under this amendment must be added to your company's financial contribution of €50m excluding taxes (based on 2005 economic conditions), the subject of the Bilateral Agreement, and must be paid by your company according to the following schedule:

Date	Amount due (€m excluding taxes based on 2013 economic conditions)
1 June 2016	14.0
1 June 2017	7.5
1 June 2018	7.5

This amount of €29m excluding taxes based on 2013 economic conditions is to be converted for this purpose to current economic conditions according to the indexation formula set out in the consortium agreement relating to the RJH Project. The first amount has been paid in accordance with the schedule.

##### **Grounds justifying the benefit of the agreement for the company**

Your Board of Directors justified this agreement as follows: amendment no. 1 reflects the provisions of article 2.3 of the Tripartite Memorandum of Understanding which is of particular benefit for AREVA in that it translates the agreement reached with CEA concerning the assessment of the nature and scope of the parties' respective contractual commitments for the finalization of the RJH Project.

#### 2. With EDF, a 2.24% shareholder of your company

##### Persons concerned

Mr. Christian Masset (director of your company and of EDF) and Mr. Alexis Zajdenweber (representative of the State and director of your company and of EDF).

## 2. Statutory auditors' report on related party agreements and commitments

### A) MEMORANDUM OF UNDERSTANDING WITH EDF ON THE SALE OF YOUR SUBSIDIARY AREVA NP

#### Nature, purpose and conditions

At its meeting on 28 July 2016, your Board of Directors authorized the signature of a memorandum of understanding formalizing the progress of the discussions with EDF and confirming the sale of the operations of AREVA NP (with the exception of certain contracts, including "OL3") for the indicative price of 2.5 billion euros (value of 100% of equity). The aim of the two groups was to sign binding agreements before the end of November 2016. Your company and EDF signed this memorandum of understanding on 28 July 2016.

This memorandum of understanding takes into account the choice of Option B, presented at the Market Update on 15 June 2016, making it possible to keep certain contracts (including the OL3 contract) within AREVA NP in the consolidated scope of your company, with the necessary resources and in compliance with contractual obligations. AREVA NP's other operations, namely industrial activities relating to the design and supply of nuclear reactors and fuel equipment and assemblies, will be transferred to a subsidiary, provisionally named "New NP", which is fully owned by AREVA NP and is to be sold to EDF and strategic investors.

This memorandum of understanding has replaced the framework agreement with EDF referred to in the "Agreements and commitments already approved by the General Meeting of Shareholders" section of this report, authorized by the Board of Directors on 29 July 2015 and signed the next day, which expired on 31 March 2016.

#### Grounds justifying the benefit of the agreement for the company

Your Board of Directors justified this agreement as follows: this memorandum of understanding with EDF constitutes an essential element of the company's strategic roadmap and a major milestone in its legal and financial restructuring.

### B) AGREEMENT FOR THE SALE OF NEW NP TO EDF

#### Nature, purpose and conditions

At its meeting on 10 November 2016, your Board of Directors authorized the signature of the agreement fixing the terms of the sale of shares giving EDF exclusive control of New NP, a fully owned subsidiary of AREVA NP, which will group together the industrial operations relating to the design and supply of nuclear reactors, fuel assemblies and services at the AREVA group's installed base.

The sale agreement was signed by your company and EDF on 15 November 2016.

The sale price for 100% of New NP's equity is 2.5 billion euros, excluding any price additions and adjustments, and without taking over the financial debt as at the date of performance of the transaction.

#### Grounds justifying the benefit of the agreement for the company

Your Board of Directors justified this agreement as follows: this agreement constitutes an important milestone in the group's legal and financial restructuring and in the refocusing of AREVA on activities relating to the mastery of the fuel cycle.

### C) GUARANTEE GIVEN BY YOUR COMPANY TO EDF IN RESPECT OF AREVA NP'S PERFORMANCE OF ITS OBLIGATIONS AND COMMITMENTS UNDER THE SALE AGREEMENT

#### Nature, purpose and conditions

At its meeting on 10 November 2016, having reviewed the commitments and obligations agreed by AREVA NP within the scope of the sale agreement, your Board of Directors authorized your company to undertake that AREVA NP will comply with said commitments and obligations.

#### Grounds justifying the benefit of the agreement for the company

Your Board of Directors justified this agreement as follows: this agreement constitutes an important milestone in the group's legal and financial restructuring and in the refocusing of AREVA on activities relating to the mastery of the fuel cycle.

### 3. With AREVA TA (Technicatome S.A.), a subsidiary of your company

#### Person concerned

Ms. Odile Matte (director of your company and of AREVA TA).

### A) FORGIVENESS OF DEBT AGREEMENT

#### Nature, purpose and conditions

#### Summary of the financial support arrangement

In letters dated 26 November 2014 and 2 July 2015, your company undertook to provide its subsidiary with support, within the limit of €200m, should the latter not have the ability itself to withstand significant additional financial losses (exceeding a fixed threshold of €50m) relating to the projects in progress as at the date of these letters. These letters were authorized by your Board of Directors before being signed.

As mentioned in the "Agreements and commitments already approved by the General Meeting of Shareholders" section of this report, your company granted two forgivenesses of debt in respect of the losses made on the RJH project:

- an initial forgiveness of debt was authorized by your Board of Directors on 23 July 2015 and realized on 28 July 2015 in the amount of €49m, in respect of the losses made on the RJH project in 2013 and 2014. The agreement included a better fortunes clause to the advantage of your company. This forgiveness of debt was followed by a capital increase for the same amount, fully subscribed by your company and carried out on 7 December 2016;
- a second forgiveness of debt was authorized by your Board of Directors at its meeting on 18 December 2015 and realized on 18 December 2015 in the amount of €17,175k in respect of the losses incurred on the RJH project in financial year 2015. The agreement included a better fortunes clause to the advantage of your company. This forgiveness of debt was not followed by a capital increase.

At its meeting on 15 December 2016, your Board of Directors authorized the signature of the forgiveness of debt agreement entered into in December 2016 between AREVA TA and your company, for the amount of €14m (without any better fortunes clause). The forgiveness of debt agreement was signed by your company and AREVA TA on 20 December 2016. The forgiveness of debt was performed according to the financial support arrangement described above.

#### Grounds justifying the benefit of the agreement for the company

Your Board of Directors justified this agreement as follows: this forgiveness of debt agreement is entered into in accordance with the letter dated 26 November 2014 and the amendment letter dated 2 July 2015 putting in place the arrangement for the financial support provided by your company to its subsidiary.

## 2. Statutory auditors' report on related party agreements and commitments

**B) TERMINATION OF THE FINANCIAL SUPPORT ARRANGEMENT BETWEEN YOUR COMPANY AND AREVA TA****Nature, purpose and conditions**

At its meeting on 15 December 2016, subject to definitive realization of the sale of AREVA TA by your company, your Board of Directors authorized the early termination of the financial support arrangement that your company had granted to its subsidiary AREVA TA by letters signed between the two companies dated 26 November 2014 and 2 July 2015, as from 1 January 2017.

The letter terminating the financial support arrangement was signed by your company and AREVA TA on 16 December 2016.

**Grounds justifying the benefit of the agreement for the company**

Your Board of Directors justified this agreement as follows: this agreement is justified by AREVA TA's forthcoming exit from the AREVA group according to the terms negotiated between your company and the buyers.

**C) YOUR COMPANY'S ASSIGNMENT OF A RECEIVABLE TO AREVA TA****Nature, purpose and conditions**

At its meeting on 15 December 2016, your Board of Directors authorized the signature of the deed of assignment of a receivable held by your company from O1dB Italia in the amount of €626,187.75 as at 31 October 2016 between your company and AREVA TA for the token price of one euro (€1).

The deed of assignment of the receivable was signed by your company and AREVA TA on 16 December 2016.

O1dB Italia, acquired by AREVA TA in 2011, is an Italian company fully owned by AREVA TA, without any activity, and has been in voluntary liquidation since 2011. Within the scope of the AREVA group's centralized cash management agreement, your company has a current account in O1dB Italia's books amounting to €626,187.75 as at 31 October 2016.

In view of the low probability of O1dB Italia recovering receivables from its customers, this receivable was fully depreciated in November 2016.

**Grounds justifying the benefit of the agreement for the company**

Your Board of Directors justified this agreement as follows: this agreement is justified by AREVA TA's forthcoming exit from the AREVA group according to the terms negotiated between your company and the buyers.

**4. With the French State, a 28.83% shareholder of your company, and the French Atomic Energy and Alternative Energies Commission (Commissariat à l'énergie atomique et aux énergies alternatives), a 54.37% shareholder of your company****Persons concerned**

Mr. Alexis Zajdenweber (representative of the State) and Mr. Daniel Verwaerde (director of your company and Chairman of CEA).

**Nature, purpose and conditions**

At its meeting on 6 December 2016, your Board of Directors authorized the signature of the agreement fixing the terms of the sale by your company of all of its shares in AREVA TA (corresponding to 83.56% of the capital before prior operations), a company specialized in the design, manufacture, commissioning and maintenance of compact nuclear reactors for naval propulsion and nuclear research installations, to a consortium of buyers composed of the Agence des Participations de l'État (APE, 50.32% of the capital), the Commissariat à l'énergie atomique et aux énergies alternatives (CEA, 20.32% of the capital) and DCNS (20.32% of the capital) for a price based on a maximum valuation of €559m for 100% of the equity.

The sale agreement was signed on 15 December 2016.

**Grounds justifying the benefit of the agreement for the company**

Your Board of Directors justified this agreement as follows: this sale is part of the transformation plan adopted by AREVA in order to refocus on nuclear cycle activities.

**Agreements and commitments authorized after closing**

We have been advised of the following related party agreement, which received prior authorization from your Board of Directors after closing.

**With the French State, a 28.83% shareholder of your company****Person concerned**

Mr. Alexis Zajdenweber (representative of the State).

**Nature, purpose and conditions**

Further to the decision of the European Commission on 10 January 2017, the State granted your company a shareholder current account advance for an amount of €1,999,999,998.

The key characteristics of this advance are as follows:

- drawdown dates: €1,100,000,000 may be drawn as from 16 March 2017 and €899,999,998 may be drawn as from 16 June 2017 on the condition that the group's cash situation is below €500,000,000 at the date of this second drawdown;
- repayment: One-year EURIBOR plus 450 basis points;
- due date: either (i) the capital increase subscribed by the State in the company concerned or (ii) 30 June 2018, whichever date is earlier.

At its meeting on 3 February 2017, your Board of Directors authorized entry into an agreement for a shareholder current account advance with the State, signed the same day.

**Grounds justifying the benefit of the agreement for the company**

Your Board of Directors justified this agreement as follows: this agreement is justified by the need to secure the financing of the group's general needs as well as the repayment of the financial bank debt until the increase of capital is performed.

## 2. Statutory auditors' report on related party agreements and commitments

### AGREEMENTS AND COMMITMENTS ALREADY APPROVED BY THE GENERAL MEETING OF SHAREHOLDERS

In accordance with article R. 225-30 of the French Commercial Code (*Code de commerce*), we have been advised that the implementation of the following agreements and commitments, which were approved by the General Meeting of Shareholders in prior years, continued during the year.

#### 1. With EDF, a 2.24% shareholder of your company

##### Persons concerned

Mr. Philippe Varin (EDF director), Mr. Christian Masset (EDF director) and Mr. Alexis Zajdenweber (representative of the State and EDF director).

##### Nature, purpose and conditions

At its meeting on 29 July 2015, your Board of Directors authorized the entering into of a non-binding agreement between your company and EDF which summarizes and formalizes the progress of the discussions and the understanding of the steps making it possible to establish a partnership concerning, firstly, a plan to transfer at least 75% of the capital of the AREVA NP entity to EDF and, secondly, a project to set up a joint entity dedicated to the design, project management and sales and marketing of new reactors. This framework agreement was signed on 30 July 2015.

This framework agreement expired on 31 March 2016 and was replaced by the Memorandum of Understanding dated 28 July 2016 presented in the "Agreements and commitments submitted for approval by the General Meeting of Shareholders" section of this report.

#### 2. With AREVA TA (Technicatome S.A.), an 83.56%-owned subsidiary of AREVA, and the French Atomic Energy and Alternative Energies Commission (*Commissariat à l'énergie atomique et aux énergies alternatives*), a 54.37% shareholder of your company

##### Persons concerned

Concerning the ratification of the agreement signed on 26 February 2015: Mr. Daniel Verwaerde (director of your company and Chairman of CEA).

Concerning the prior authorization of the signature of the Tripartite Memorandum of Understanding: Mr. Daniel Verwaerde (director of your company and Managing Director of CEA) and Ms. Odile Matte (director of your company and of AREVA TA).

##### Nature, purpose and conditions

On 29 April 2015, the Board of Directors ratified the agreement signed on 26 February 2015 and authorized the signature of the Tripartite Memorandum of Understanding for the definitive settlement of the RJH project situation. The Memorandum of Understanding was definitively signed on 20 July 2015.

In accordance with article L. 225-42 of the French Commercial Code (*Code de commerce*), the Combined Ordinary and Extraordinary Meeting of Shareholders of 21 May 2015 ratified the agreement signed between the Managing Director of CEA and the CEO of your company and approved, in accordance with article L. 225-38 of the French Commercial Code (*Code de commerce*), the Tripartite Memorandum of Understanding entered into between CEA, your company and AREVA TA. CEA did not take part in the voting.

On 26 February 2015, the Managing Director of CEA and the CEO of your company signed an agreement for the drafting and implementation of the conditions for the final settlement of the situation of the "Réacteur Jules-Horowitz" (RJH) project (total cost overrun for CEA and your company estimated at €469m, based on 2013 economic conditions), on the basis of their current shared vision of what is still to be done, the schedule upon completion and the related resources needed to finalize

the project for the construction of this reactor with the aim of loading the first core in October 2019.

These contractual, financial and project governance-related conditions were to be reflected in the drafting of a Tripartite Memorandum of Understanding (between CEA, your company and AREVA TA), based on reciprocal concessions satisfying the guidelines defined between the executive managements of the parties.

In accordance with the authorization dated 26 February 2015, the teams of CEA, your company and AREVA TA reached agreement on the drafting of a Tripartite Memorandum of Understanding for the definitive settlement of the RJH project situation, including elements relating to the financing of the project, the conditions of the payment of the project's cost overruns by AREVA TA or CEA in addition to the situation recorded at the close of the accounts at 31 December 2012 and the establishment of a management method intended to minimize any potential dispute on liabilities, with a shared governance reinforced by an objective-cost project management approach. This agreement, which the parties wished to be 'freestanding', cancelled and superseded the Agreement of September 2010 and the Memorandum of Understanding of March 2011 in defining the contractual, financial and project governance-related conditions of the RJH Project until the end of the performance of AREVA TA's contracts for engineering and as supplier of the Reactor Block (FRN BR). All or part of its provisions will be transposed where necessary into the engineering and FRN BR contracts by means of amendments.

The Tripartite Memorandum of Understanding is an important step for your company and CEA. It reflects the agreement reached with CEA as to the assessment of the nature and scope of the respective contractual commitments of the prime contractor, engineering team, and Reactor Block supplier to finalize the Project.

The agreement of 26 February 2015 led your company to recognize an additional provision of €207m euros in the accounts as at 31 December 2014, in order to take into account the terms of the aforementioned agreement.

#### 3. With SET (Société d'Enrichissement du Tricastin), an 88%-owned subsidiary of AREVA NC, itself a fully-owned subsidiary of AREVA SA

##### Persons concerned

Mr. Bernard Bigot, Mr. Philippe Pinson and CEA, represented by Mr. Christophe Gégout, members of your company's Supervisory Board until the change of governance on 8 January 2015 and directors of AREVA NC.

##### Nature, purpose and conditions: subordination agreement

On 13 June 2014, the Société d'Enrichissement du Tricastin (SET), which owns and operates the Georges Besse II enrichment plant, entered into, for the purpose of funding the Niagara project, bank financing by means of a facility agreement with a banking pool for a total amount of €650,000,000.

Within the framework of this financing, a subordination agreement, authorized by your company's Supervisory Board on 26 February 2014, was also entered into between your company and others, including AREVA NC, on 13 June 2014 (the "Subordination Agreement"). The purpose of this Subordination Agreement is notably to subordinate the rights of your company, AREVA NC and SET Holding with regard to SET in respect of any shareholder financing, to the rights of SET's lending banks until the amounts owed to the latter have been fully repaid.

In order to allow the implementation of the group's reorganization, it appeared necessary for New AREVA Holding to be a party to the subordination agreement in order to anticipate the change of guarantor further to your company's loss of control over New AREVA Holding.

Therefore, it was agreed to enter into a new subordination agreement between, notably, your company, New AREVA Holding and AREVA NC, which cancels and supersedes the Subordination Agreement.

## 2. Statutory auditors' report on related party agreements and commitments

On 7 June 2016, all of the shares of AREVA NC held by your company and lent to the directors of AREVA NC (except for salaried directors and representatives of the State) were returned to your company, which now holds 100% of the capital of AREVA NC. Similarly, your company owns 100% of the capital of New AREVA Holding.

As a result, neither the end of the Subordination Agreement, nor the New Subordination Agreement, needed to be authorized in respect of regulated agreements at your Board of Directors' meeting on 27 October 2016, as they benefit from the exemption applicable to agreements entered into between two companies when one of the companies, directly or indirectly, holds all of the capital of the other, as provided in article L. 225-39 of the French Commercial Code (*Code de commerce*).

#### 4. With AREVA TA (Technicatome S.A.), an 83.56%-owned subsidiary of AREVA

##### A) FINANCIAL SUPPORT ARRANGEMENT BETWEEN YOUR COMPANY AND AREVA TA

###### Person concerned

CEA, represented by Mr. Christophe Gégout, a member of your company's Supervisory Board (until the change of governance on 8 January 2015) and director of AREVA TA.

###### Nature, purpose and conditions

At its meeting on 26 November 2014, your company's Supervisory Board unanimously authorized the signature of a letter formalizing your company's commitment to support its subsidiary AREVA TA should the latter not have the ability itself to withstand significant financial losses.

As majority shareholder of AREVA TA, your company wished to specify the conditions of its support to the latter.

In a letter dated 26 November 2014, your company stated that, in the event that AREVA TA suffers significant financial losses (exceeding €50m) over and above the losses already provided for relating to the projects in which it is currently engaged, your company's support would then take the form of a shareholder current account contribution, followed by a forgiveness of debt for an amount corresponding to the losses recorded on projects to the extent of the percentage of your company's direct and indirect interest in AREVA TA (namely 83.56%), within the limit of €200m. The agreement formalizing the aforementioned forgiveness of debt would include a better fortunes clause concerning the projects generating the aforementioned losses, better fortunes meaning a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

This agreement was approved by the Combined Ordinary and Extraordinary Meeting of Shareholders on 21 May 2015.

As mentioned in the "Agreements and commitments submitted for approval by the General Meeting of Shareholders" section of this report, at its meeting on 15 December 2016 your Board of Directors authorized the termination of this financial support arrangement, subject to the definitive performance of the sale of AREVA TA by your company.

##### B) AGREEMENTS ON FORGIVENESS OF DEBT TO THE ADVANTAGE OF AREVA TA

###### Persons concerned

Ms. Odile Matte and Mr. Philippe Knoche (representative of your company on the Board of Directors of AREVA TA), members of the Board of Directors of your company and of AREVA TA.

###### Nature, purpose and conditions

In the interest of the group, notably given the strategic nature of the activity of its subsidiary AREVA TA, in its letter dated 26 November 2014, your company undertook to provide its subsidiary with support, within the limit of €200m, in the event that the latter does not have the ability itself to withstand significant additional financial losses (above a fixed threshold of €50m) on the projects in progress. This commitment was to be implemented via a shareholder current account contribution, followed by a forgiveness of debt for an amount corresponding to the losses recorded on projects to the extent of the percentage of your company's direct and indirect interest in AREVA TA (namely 83.56%), it being specified that the agreement formalizing the forgiveness of debt should include a better fortunes clause concerning the projects generating the aforementioned losses.

Subsequently, as your company's current financial situation constrains it to limit the use of its equity, it wished to limit the financial impact of the support arrangement on its equity. By amendment letter dated 2 July 2015, it was therefore agreed to extend the implementation of the support arrangement over time, as the financing of the RJH project progressed, and to not systematically make each forgiveness of debt granted to the subsidiary conditional on an undertaking by the latter to submit to its General Meeting of Shareholders an increase of capital for the same amount, in the two years following the grant of the forgiveness of debt.

This amendment letter was authorized by your Board of Directors on 2 July 2015.

Under the terms of these letters, the conditions of application of the financial support arrangement for financial year 2015 were as follows:

- in July 2015, further to the authorization of its Board of Directors on 2 July 2015, your company made an initial shareholder current account contribution, followed by a forgiveness of debt on 28 July 2015 for an amount of €49m corresponding to the amount of the loss recognized on the contract in respect of financial years 2013 and 2014, to the extent of the percentage of your company's direct and indirect interest in AREVA TA. This forgiveness of debt should be followed by an increase in AREVA TA's capital to the advantage of AREVA SA for the same amount, no later than 31 December 2017;
- in December 2015, further to the authorization of your Board of Directors on 17 December, AREVA SA made a further shareholder current account contribution followed by a forgiveness of debt on 18 December 2015 for an amount of €17,175k corresponding to the loss recognized on the RJH project in respect of financial year 2015 to the extent of the percentage of your company's direct and indirect interest in AREVA TA. This forgiveness will not be followed by a capital increase to the advantage of your company.

In accordance with the conditions of the afore-mentioned letters, the debt forgiveness agreements include a better fortunes clause concerning the projects generating the losses. Better fortunes means a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

#### 5. With AREVA NC (a fully-owned subsidiary of your company)

###### Persons concerned

Mr. Luc Oursel (a member of the Executive Board of your company and Chairman of AREVA NC until 3 December 2014) and Mr. Philippe Knoche (CEO of your company and of AREVA NC).

Mr. Bernard Bigot, Mr. Philippe Pinson and CEA represented by Mr. Christophe Gégout, members of the Supervisory Board of your company until the change of governance on 8 January 2015 and directors of AREVA NC.

## 2. Statutory auditors' report on related party agreements and commitments

### **Nature, purpose and conditions: agency agreement**

On 8 July 2004, the Supervisory Board authorized the signature of an agency agreement under which AREVA NC gave AREVA authority to manage or organize and control, in the name and on behalf of AREVA NC, assets earmarked to cover dismantling and radioactive waste management costs. This agreement has an indefinite term with three months' notice required for termination by either party. It did not give rise to any payment in 2016.

This agreement was approved by the Ordinary General Meeting of Shareholders on 12 May 2005.

On 7 June 2016, all the shares of AREVA NC that were held by your company and lent to the directors of AREVA NC (with the exception of salaried directors and representatives of the State) were returned to your company which now holds 100% of the capital of AREVA NC.

### **6. With Mr. Philippe Knoche, member of the Board of Directors**

#### **Nature, purpose and conditions**

On 29 April 2015, upon proposal by the Appointments and Compensation Committee, your Board of Directors decided to terminate the commitments made by your company corresponding to indemnities or benefits owed or liable to be owed to Mr. Philippe Knoche, CEO, as a result of his duties being terminated or changed, under the following conditions:

Mr. Philippe Knoche may receive a termination benefit for a maximum amount fixed at twice the amount of the last fixed portion of his remuneration, on an annual basis, as of the date on which his duties terminate.

If Mr. Philippe Knoche (i) wishes to receive his retirement benefits shortly after the end of his term of office, regardless of the reasons therefor, even if forced, or (ii) is moved to another position within the group, he shall not claim any termination benefit.

The above-mentioned termination benefit shall only be paid in the event of removal of Mr. Philippe Knoche from office, unless for just cause, notably in the event of a change in control or strategy.

Courbevoie and Paris-La Défense, March 31, 2017

French original signed by

The Statutory Auditors

The termination benefit shall be subject to the following performance conditions:

- if the average of the two previous financial years corresponds to the achievement of 60% or more of the quantitative and qualitative objectives, the termination benefit will be paid automatically;
- if the average of the two previous financial years corresponds to the achievement of less than 60% of the quantitative and qualitative objectives, your Board of Directors will assess the performance of Mr. Philippe Knoche with regard to the circumstances that affected the company's operation in the year ended.

Your Board of Directors may decide to grant Mr. Philippe Knoche compensation as consideration for a non-competition clause. The amount of such compensation shall be charged against the termination payment made, if applicable, to Mr. Philippe Knoche under the above terms and conditions. If no termination payment is made, the amount of compensation due in consideration of a non-competition clause shall be fixed by your Board of Directors in accordance with customary practice

Mr. Philippe Knoche will benefit from:

- the unemployment insurance provided for by the MEDEF under the social security guarantee covering company managers and executives (*Garantie Sociale des Chefs et Dirigeants d'Entreprise (GSC)*), the contributions to which shall be borne 65% by the Company and 35% by Mr. Philippe Knoche;
- the supplementary pension scheme applicable to executive employees of the company.

The Combined Ordinary and Extraordinary Shareholders' Meeting of 21 May 2015 approved the commitments made by your company corresponding to the indemnities or benefits owed or liable to be owed to Mr. Philippe Knoche, CEO, as a result of his duties being terminated or changed.

Within the context of the annual review of the regulated agreements and commitments, your Board of Directors decided at its meeting on 28 February 2017 to maintain these agreements.

MAZARS

Cédric Haaser

Jean-Louis Simon

ERNST & YOUNG Audit

Aymeric de La Morandière

Jean Bouquot

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Ever since its creation, AREVA has given impetus to a proactive sustainable development initiative by making strong commitments in matters of social, environmental and societal responsibility. These commitments are deployed and periodically updated through the policies that the group implements in a number of areas – human resources, diversity, nuclear safety, health, occupational safety and the environment – as well as through the Code of Ethics. These different policies and codes help organize the company's operations in compliance with human rights and in the interest of environmental protection and the laws that govern them. AREVA's efforts target continuous performance improvement in every field, particularly nuclear and occupational safety, and take into consideration the expectations of stakeholders directly or indirectly concerned by the group's operations.

AREVA participates in the United Nations Global Compact and reaffirms its commitment for its operations under COP 21:

- reduce industrial emissions of carbon dioxide (CO<sub>2</sub>) in AREVA's nuclear fuel cycle facilities by 50% by 2020 compared to 2004;
- reduce the total energy used in all of AREVA's facilities by at least 80% by 2020 compared to 2004;
- offer its customers the possibility of reducing their CO<sub>2</sub> emissions by building new nuclear reactors, improving their availability, and extending the operating period of existing reactors.

AREVA is also continuing its proactive continuous improvement initiative in the mining sector based on the best international practices for corporate social responsibility, in particular through the International Council on Mining and Metals (ICMM).

## 1. HUMAN RESOURCES INFORMATION

Labor information concerning employment, work organization, labor relations, training, equality of treatment, promotion and compliance with the stipulations of the fundamental agreements of the International Labor Organization are presented in Section 17. *Employees*.

**1.1. OCCUPATIONAL HEALTH AND SAFETY**

The 2014-2016 occupational health and safety policy aims for continuous improvement of occupational health and safety and reinforcement of prevention actions. Our constant goal is to strive for zero lost time injuries and zero impacts from our operations on the health and safety of our employees, subcontractor personnel and the local communities near our sites. AREVA's commitments are to:

- ensure appropriate monitoring of occupational health for all employees by defining and applying international medical standards for medical surveillance of occupational hazards, by strengthening governance, by giving increased attention to the quality of working life, especially as concerns the prevention of occupational stress, by deploying the group's occupational health service in France, and by including specific issues associated with expatriation in the medical follow-up of employees;
- in the field of occupational safety, prevent and manage all industrial risks associated with our operations for employees and subcontractor personnel.

As the term of this triennial policy has ended it will be adjusted in 2017.

The functioning of the group's Occupational Health Service has reached maturity. The first lessons learned have been harvested, in particular by adjusting the supervisory grid. These decisions were made within the framework of the governance of the Health Service (National Commission for Follow-up and Control and Standing National Committee on Occupational Health).

The status of medical resources continues to be an area of attention in view of the shortage of occupational physicians in France. The group's service played a key role by lessening the difficulties encountered at certain sites.

In 2016, AREVA continued the work initiated in 2012 on safety culture.

For the fourth consecutive year, the month of June was Safety Month. During this period, all of the group's sites worldwide organized one-day workshops specific to their risks and operations. By raising awareness and giving opportunities for discussion, these workshops are helping to strengthen the priority that the group gives to occupational safety among its partners and employees.

In 2016, the initiative concerning difficult working conditions was broadened with the addition of six more factors, for a total of ten difficult working conditions eligible for access to training and flexible work hours for the employees concerned. This initiative is the subject of a concerted multidisciplinary process among the group's prevention specialists, lawyers and human resources departments, as well as dedicated consensus-building with our labor partners, senior management, corporate departments and business units.

A number of joint working groups have been set up to work with the company's labor partners (Health and Safety of Working Conditions Committee [CHSCT]). Among other things, the subjects reviewed include employee exposure to certain risks and the management of personal protective equipment. These working groups seek to identify and share best practices in this field. The results of this work are incorporated into the group's guidelines and procedures, deepening our safety culture and helping to improve both working conditions and occupational risk prevention.

The group's safety performance is better than the average for the nuclear industry (frequency rate [FR] of 1.82 for AREVA, 2.6 for EDF and 3.4 for the CEA) (source: Goupe d'Échanges des Préventeurs Interentreprises, GEPI).

The group will roll out its new proactive triennial health, safety and radiation protection policy in 2017 to further reduce its lost-time injuries by 2020. The stated goal is to reduce the lost-time injury rate for AREVA employees from 1.84 to a sustainable 1. The prevention of occupational stress is integral to this initiative.

AREVA regrettably reported one fatal occupational accident in 2016, compared with three in 2015. The accident occurred when a pedestrian was hit by a mining vehicle in Niger. The victim was an AREVA employee. The accident was reviewed in detail locally over a six-month period, with support from the group's corporate offices (Mining Department, Occupational Safety Department, etc.). Two separate working groups were formed locally and conducted their reviews and investigations separately. The two reviews were combined to report on the root causes of the accident to the group and devise a suitable action plan to prevent the recurrence of this type of event.

**OCCUPATIONAL HEALTH AND SAFETY DATA**

<b>Occupational safety data for AREVA employees</b>	<b>2016</b>	<b>2015</b>
Accident frequency rate with lost time (excluding commuting accidents)	1.84	1.44
Accident severity rate (accidents reported during the year, excluding commuting accidents)	0.05	0.04
Number of fatal accidents	1	3

The risks associated with radiation and AREVA's corresponding proactive radiation protection policy are outlined in Section 4.3.1. on nuclear risk. The average radiation exposure of AREVA employees over 12 consecutive months remained very low, at 0.83 mSv in mid-2016, around the same level as the maximum dose limit for the general public.

Consistent with the group's objective, no AREVA employee received an individual dose of more than 20 mSv over 12 consecutive months. In mid-2016, the maximum recorded individual dose over 12 consecutive months was 16.33 mSv, with 88.3% of AREVA's employees having received a dose of 0 to 2 mSv and 57.5% having received a dose of less than the recording level set by regulation, i.e. less than 0.1 mSv. By way of comparison, the average annual exposure to naturally occurring radiation in France is approximately 2.4 mSv (source: IRSN).



Radiation protection and occupational disease* data	2016	2015
Average employee dose from radiation exposure over 12 consecutive months (mSv)	0.83	0.89
Total individual external dose to AREVA employees over 12 consecutive months (man-mSv)	11,763	14,621
Total individual internal dose to AREVA employees over 12 consecutive months (man-mSv)	3,752	4,894
Average subcontractor dose from radiation exposure over 12 consecutive months (mSv)	0.42	0.39
Occupational disease	14	NA

\* Due to the time needed to get the results of passive dosimetry analyses (also called benchmark dosimetry) and the half-year schedule for rolling up these data in the Group's reporting software, the annual results are always expressed from July 1 of year -2 to June 30 of year -1.

The group received a limited number of claims for occupational diseases concerning various disorders in 2016, in particular for musculoskeletal disorders.

## 2. ENVIRONMENTAL INFORMATION

### 2.1. GENERAL ENVIRONMENTAL POLICY

#### 2.1.1. AREVA'S ENVIRONMENTAL POLICY

The 2013-2016 environmental policy aims for the reinforcement of environmental risk prevention, whether risks are chronic or accidental, and to take into account the erosion of biodiversity erosion. Protection of the environment as a community asset is integral to AREVA's Code of Ethics.

The six major commitments of the group's environmental policy are organized along three main lines:

#### **Performance in managing environmental challenges**

1. Develop and maintain a shared culture of environmental risk prevention;
2. Improve facility design by taking their entire lifecycle into account;

#### **Preventing and managing accident-related environmental hazards**

3. Strengthen the prevention and management of accidental technological risks;
4. Prevent risks related to facility aging and accidental spills;

#### **Preventing and managing chronic health and environmental hazards**

5. Strengthen the prevention and management of chronic health hazards;
6. Control the environmental footprint of activities to prevent damage to biodiversity.

The quantification of environmental objectives is adjusted based on ongoing risk mapping efforts, stakeholder expectations, best internal and external practices, environmental reporting, an external benchmark, and dialogue with the operating entities. The environmental policy applies to all of the group's entities in France and abroad. The operating entities implement the policy through action plans.

A new policy for the 2017-2020 period incorporating all safety and environmental goals was approved by the ExCom in December 2016.

#### 2.1.2. ORGANIZATION SET UP FOR ENVIRONMENTAL RISK PREVENTION AND CONTROL

The corporate Health, Safety and Environment Department (HSE Department) spearheads a number of areas on behalf of Senior Management:

- the safety of the group's nuclear facilities (INB, ICPE, mines) and of related activities (design, operation, dismantling, transportation, services) carried out for the group or for its customers;
- radiation protection in the group's facilities and for all of the group's service operations;
- the occupational health and safety of all of the employees of the group and of its subcontractors;
- industrial and environmental risk prevention in the group's facilities (INB, ICPE, mines), and more generally the management of sustainable development actions;
- the management of critical events, emergencies and crisis situations.

The HSE Department draws on specific organizations within the business units, the operating entities and the regions to carry out its duties. The role of this network of experts is to participate actively in lobbying activities and regulatory monitoring, and to provide assistance to line managers for the implementation of their HSE performance plans.

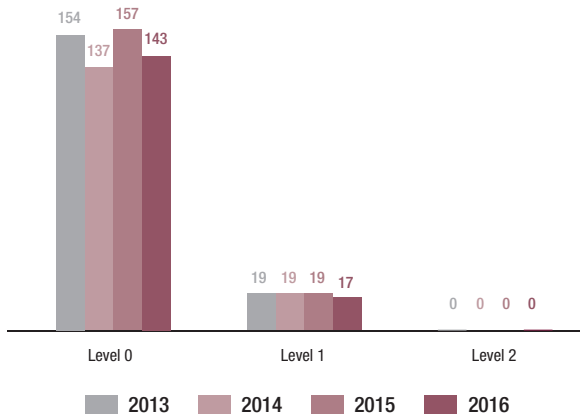
On executive management's behalf, a General Inspectorate composed of a corps of inspectors who are independent of the chain of command is in charge of auditing the correct assumption of responsibilities, detecting early signs of potential deterioration, and recommending the necessary improvements. It puts out an annual report on the status of safety in the group's nuclear facilities and operations.

The lessons learned from events in the nuclear safety, radiation protection, health, occupational safety, environment and transportation fields are available in the AHEAD IT tool (AREVA Happened Events Advanced Database), enabling experience to be shared. This tool can be accessed by all of the operating entities.

## 2. Environmental information

Through its specialists and their networks, the department disseminates information related to accomplishments, best practices and events in order to prevent risk and promote performance improvement.

**NUMBER OF EVENTS IN THE GROUP IN 2016 RANKED ON THE INES<sup>(1)</sup> SCALE, EITHER IN THE NUCLEAR ENTITIES (OWNER-OPERATORS, CONTRACT OPERATORS, SERVICE PROVIDERS) OR DURING THE SHIPMENT OF RADIOACTIVE MATERIALS**



Source: AREVA.

### Health, Safety and Environment training

AREVA's Safety Excellence program, a professional development program for managers with operational delegation of authority, was established in 2012 and has gradually been expanded. The program is based in particular on assessments of skills in nuclear safety, radiation protection, materials transportation, materials safeguards, industrial safety, protection of nature and the environment, and occupational health and safety, and on a body of mandatory training programs. It is intended for site directors; duty officers; facility managers; health, safety and environment managers (HSE); and project managers at AREVA's industrial sites.

For site directors, the program includes a module devoted to HSE management. Twelve site directors and production managers with delegation of authority took this module in 2016 in connection with new duties or to maintain their skills. A total of approximately 130 site directors have taken the program since its establishment.

A Health, Safety and Environment training program is offered to facility managers; it consists of two modules and work in small groups on operating practices. Starting in 2014, the program was made mandatory for new facility managers. Forty-two facility managers took the program in 2016.

In addition to the training required by regulation and training programs on risk and safety culture given at the operator and site level, the group has defined and offers training programs on nuclear safety, human and organizational factors (HOF), significant event analysis, and occupational safety for target groups.

### Employee information

AREVA communicates regularly with its employees on HSE subjects to give them information on policies, applicable benchmark documents, the sharing of best practices from operating experience, and risk prevention actions. This information is communicated via email and on the AREVA intranet, and through regular network information meetings.

### Information on AREVA's commitments in favor of the circular economy

A defining feature of AREVA is its development of a pioneering, competitive position in the circular economy through its fuel cycle operations. Its industrial tools in the back end of the cycle enable it to recycle energy recovered from the plutonium contained in used nuclear fuel into fresh MOX fuel. Some 96% of the content of "used" nuclear fuel is recoverable. These materials are extracted at the AREVA NC la Hague site and used in the MOX fabrication process (mixed oxide fuel) at the MELOX plant site to resupply reactors. Such recycling limits our consumption of natural uranium.

Industrial know-how on this scale is unique in the world. It significantly reduces environmental impacts across the entire uranium lifecycle, in particular during the mining stage, which has the biggest impact in terms of footprint.

In addition, the group has always aligned its internal practices with these issues in order to very significantly and proactively reduce its environmental footprint across the entire nuclear fuel cycle.

For example, from the early days of its establishment, AREVA has built an internal system of environmental performance indicators to measure the results produced by changes in individual behavior, the optimization of existing facilities, or major technological leaps.

This sense of responsibility was further encouraged for five years by an internal market for offsets to carbon-emitting activities, with the operating entities financially encouraged to pursue eco-design efforts in favor of cleaner technology solutions.

From the start, AREVA ensured that the results of this initiative were indisputable by coming up with auditable performance indicators. For example, AREVA's "non-financial reporting system" has been audited each year since 2004 by the statutory auditors, and the results are published in the Group's annual report.

At the end of 2014, a ten-year assessment indicated a 66% reduction in greenhouse gas emissions at constant revenue, an 89% reduction in energy consumption, a 91% reduction in water consumption, and a 48% reduction in unrecycled waste. Some of the programs showcasing waste recovery and reuse include:

- waste recycling from the metal segment of the zirconium operations into raw materials used in the production of nuclear-grade zirconium sponge;
- recycling in offsite foundries of chips produced by the manufacturing of large forged and cast parts at AREVA NP's Creusot site and their reintroduction into the head end of the process;
- recovery at the AREVA NC Malvési site of potassium diuranate produced by the uranium ore conversion operations of the AREVA NC Pierrelatte site.

(1) International Nuclear Event Scale.

AREVA continues its efforts in this area. A new phase of the circular economy has begun with major operators in the nuclear industry, in particular to recycle a maximum amount of certain resources from dismantling, such as steel.

### 2.1.3. AMOUNT OF PROVISIONS AND GUARANTEES FOR ENVIRONMENTAL HAZARDS

#### Provisions and guarantees related to the group's end-of-lifecycle obligations and environmental hazards

Provisions totaling 7.614 billion euros had been set aside as of December 31, 2016 for environmental hazards, including the dismantling and rehabilitation of

mining sites and facilities, nuclear facility dismantling, radioactive waste retrieval and packaging, final waste disposal, routine cleanup, and pollution control and reclamation of industrial sites and mines. Nuclear facility dismantling and waste retrieval and packaging accounted for, 7.342 billion euros of this amount, 7.215 billion euros of which are borne by AREVA (Section 20.2. *Notes to the consolidated financial statements for the year ended December 31, 2016*, Note 13. *End-of-lifecycle operations* of this Reference Document).

## 2.2. ENVIRONMENTAL RISK PREVENTION AND MANAGEMENT

### 2.2.1. BIODIVERSITY PROTECTION AND DEVELOPMENT

AREVA pays close attention to monitoring and preserving biodiversity. The protection of plant and animal life begins in the design phase and continues throughout the facility operating period and into site rehabilitation. Special care is devoted to native species and to how species introduced during reclamation adapt to the local biotope (habitat for plant and animal life).

As early as 2006, AREVA began an in-depth review of interactions between its operations and biodiversity, supplemented with an "AREVA and biodiversity" report. The conclusion was that, as for all industrial activities, the group's sites:

- use the natural environment;
- benefit from all of the ecosystemic services offered by biodiversity (resources, climate regulation, regulation of effluents, etc.);
- contribute as a consequence of their activities to biodiversity erosion (waste production, greenhouse gas emissions, use of resources, dividing up of existing ecosystems).

AREVA integrated this theme into its environmental policy with the goal of avoiding, reducing and if necessary offsetting the impacts of its operations on biodiversity. Comprehensive mapping showed that the main impacts on biodiversity from the group's facilities came from the mining operations and from the operations of some sites with significant environmental aspects. After work involving international biodiversity experts, AREVA developed a tool to assess interactions between the group's operations and biodiversity. Usable by each site, the tool offers a means for raising employee awareness, methods for assessing the impacts on biodiversity, and a guide for setting up action plans.

In addition, to gain a better grasp of local biodiversity challenges, targeted ecological inventories were taken at the major industrial sites. The most important of these concerned the Tricastin site. The inventories provide a clear picture of existing biodiversity at the site and were used to create maps of the ecological issues associated with the preservation of remarkable species.

More generally, the group strives to continually reduce the environmental footprint of its facilities and more specifically to take simultaneous action on the five mechanisms known to erode biodiversity. The main actions undertaken involve combatting climate change and the proliferation of invasive species, managing risks related to

changes in land use and to the potential impacts of releases and other industrial pollution, and working towards the sustainable use of natural resources.

### 2.2.2. SOIL MANAGEMENT

AREVA's environmental policy for the 2013-2016 period carries on from the policies of previous years, whose objectives are to reduce and manage all of our environmental liabilities. In particular, it stresses greater efforts to prevent the risks of accidents, chronic risks and risks related to facility aging. These risks can in fact lead in some cases to the creation of environmental liabilities.

On February 6, 2014, AREVA NC filed a license application with the French ministry in charge of nuclear safety for the dismantling of INB 105 at the Tricastin site. ASN and its technical expert IRSN are reviewing the application. At the same time, a similar application was filed for INB 93 (Eurodif gaseous diffusion uranium enrichment plant), also to proceed with its dismantling. ASN and its technical expert IRSN are reviewing both applications.

At former French mining sites, the campaign to inventory mine tailings and to search for the presence of radon in and around homes is continuing on schedule. As of the end of 2015, a total of 71 residential houses had been identified in the immediate vicinity of places where mine tailings had been reused, along with another 530 residences further away from the mine tailings. Accordingly, 588 radon kits were sent to the owners of the houses in order to take measurements during the winter months, when radon accumulates more easily in homes due to poor ventilation.

Following the completion of cleanup and dismantling work at the SICN site in Annecy in 2013, prefectural permits for monitoring and public service were issued to the site on July 1, 2014. Currently, the site hosts a mechanical machining company which conducts its operations in the remaining rooms, a warehousing and maintenance workshop where the former uranium foundry was located, and the biomass boiler built by IDEX in the southwestern part of the site, which has provided heating for a number of individual houses and municipalities since the beginning of the year. At the Veurey site, SICN has filed applications to decommission the two regulated nuclear facilities; the application for institution of public easements of March 2014 is still under review by the nuclear safety authority ASN. Actions aimed at the complete reindustrialization of the site continue.

Operations to clean up the Miramas site were finished on October 31, 2015. Operating units such as the washing station and the unit to remove explosives contamination are winding down, and the site is in the final clean-up phase. The corresponding work completion reports were sent to the prefecture for review and approval. The site is now working with local partners to examine its sale and reindustrialization. No operations were conducted at the site in 2016, except for the winding down of the UDT and the dismantling of the related building, which are subject to a legal proceeding.

### 2.2.3. CONSIDERATION OF ENVIRONMENTAL STRESS AND CHRONIC HAZARDS

A nuclear facility's environmental impact study is updated at each stage of its lifecycle, i.e. upon its creation, modification, shutdown and dismantling. Such studies seek to characterize the potential health effects and environmental impacts of stresses and releases from the facility in question.

They include chemical hazards assessments which focus on the neighboring population that might be chronically exposed to facility releases. They are carried out based on normal facility operating scenarios, both in France and abroad, and factor in different potential exposure paths to the neighboring populations in approaches that are as realistic as possible. They are repeated at each material modification of the facilities, based on the latest available scientific knowledge.

Environmental impact studies using risk assessment methods are also used to prevent environmental hazards (protection of plant and animal life). These studies are performed for each new facility and for each notable change in existing facilities. For the latter, environmental monitoring regulations also include specific measures to assess their impact on the environment, such as monitoring of radiological and/or chemical markers in different environmental matrices, supplemented as necessary by measures for eco-monitoring of plant and animal life. The Tricastin site, for instance, added ecological monitoring measures to its environmental monitoring program specific to local ecological issues (periodic inventories and standardized ecological indices).

## 2.3. ENVIRONMENTAL PERFORMANCE

### 2.3.1. SUSTAINABLE USE OF RESOURCES, LAND AND RAW MATERIALS

#### Sustainable use of resources

To minimize its environmental footprint, the group acts to reduce withdrawals from the natural environment and its consumption of materials and energy, and continually searches for opportunities to recycle waste.

In the projects, AREVA's eco-design approach contributed to the early identification of the environmental impacts of major projects and thus to optimization efforts, in particular as concerns projects in the Mining, Chemistry/Enrichment and Recycling Business Units, with support from the group's engineering companies.

Concrete examples of projects contributing to the sustainable use of resources by limiting the consumption of raw materials are presented in the following sections on energy management at AREVA, on the reduction of water usage and on management of the group's waste.

Concerning the asbestos risk, the group's asbestos directive was revised in 2014 to factor in regulatory changes and operating experience from the sites, and was deployed in 2015. Since September 2008, the carcinogenic, mutagenic and reprotoxic substances directive (CMR) has applied to all sites where the Group is the principal operator. Of the two sections in the directive, one deals with managing workstation risk, while the other addresses environmental risk management. The objectives of the directive include identifying and eliminating all class 1A and 1B CMRs if it is technically and economically feasible to do so, and ensuring the traceability of employee exposure through measurement and follow-up.

Prevention of Legionnaires' disease is also a priority for the entities involved, particularly as concerns domestic hot water systems.

Each site manages the prevention of more specific noise, olfactory, light and visual pollution locally as a function of local issues (such as whether or not there are residences close to the sites) and constraints, and regulatory requirements.

### 2.2.4. TECHNOLOGICAL AND CHEMICAL HAZARDS

The French law of July 30, 2003 on the prevention of risks of technological and natural origin and on compensation for damages, together with its implementing regulations, introduced a new tool for controlling urban development around the Group's three "high threshold" Seveso sites in France: the defluorination facility at the AREVA NC Tricastin site, the conversion facilities of AREVA NC Malvési and Tricastin, and the AREVA NP Jarrie site. Called the Technological Risk Prevention Plan (TRPP), the tool is used to reduce risks, deal with existing situations, plan for the future and stimulate dialogue with stakeholders, including local governments.

In accordance with AREVA's second environmental policy goal, the focus is on the prevention and management of environmental hazards, particularly operational risks, based on periodic updates to the hazards analyses for the industrial sites (see Section 4.4.2.1. *Seveso regulations*).

#### Land use

AREVA's industrial and mining operations use land. While the land use of its main industrial operations remains practically unchanged throughout the Group, the land use of its mining operations depends directly on the mining technologies employed: an underground mine requires little land compared with an open-pit mine, which requires a larger land area. Roads and related supply systems to the facilities may also influence land use. AREVA is aware of these issues and tries to minimize them.

In addition, it is important to include the operating cycle in land management efforts. Rehabilitation at the end of operations will condition the return to a state of equilibrium. In France, where mining operations ceased nearly 15 years ago, AREVA manages about 250 former mining sites representing some 14,000 hectares of land. Former mines are reclaimed and replanted to limit the residual impacts and integrate the sites into the natural landscape while restoring habitat for different species, in harmony with the natural environment and in agreement with the local stakeholders. An inventory of these sites shows that nearly half of the land occupied and managed

by AREVA is considered remarkable from an ecological point of view by its ranking as a Natura 2000 area or other (e.g. natural area of ecological interest, ZNIEFF).

**Use of raw materials**

Controlling the consumption of raw materials is one of our objectives in waste recovery, which includes materials recovery and energy recovery. Some of the Group's waste is recovered internally or externally and is then recycled into the process, limiting raw materials consumption. For example:

- 96% of the content of used nuclear fuel is recoverable. These materials are extracted at the AREVA NC la Hague site and used in the MOX fabrication process (mixed oxide fuel) at the MELOX plant site to resupply reactors. Such recycling limits our consumption of natural uranium;
- the chips produced by the manufacturing of large forgings and castings at the AREVA NP Creusot site are recycled externally to foundries and recycled into the process;
- the potassium diuranate generated by the AREVA NC Pierrelatte site from the conversion of uranium ore is recycled at the AREVA NC Malvési site.

**2.3.2. ENERGY MANAGEMENT AND ENERGY EFFICIENCY**

The group's total energy consumption came to 2,682 GWh in 2016, compared with 2,828 GWh in 2015, a decrease of 5.2%.

All of the group's sites continued their efforts to improve energy efficiency through targeted audits, particularly as concerns the production and distribution of compressed air, and through the systematic valuation of energy savings investments by drawing on the regulatory system of Energy Savings Certificates (ESC).

AREVA had four sites with ISO 50001 certification in 2016: AREVA NP Uginé; AREVA Advanced Nuclear Fuels in Lingen and Karlstein, Germany; and the Katco site of AREVA Mines.

All of the group's legal entities in France carried out an energy audit in 2015 as provided in the European directive no. 2012/27/EU on energy efficiency and defined in French law no. 2013-629.

**2.3.3. WATER USAGE**

The group used a total of 13 million m<sup>3</sup> of water in 2016, compared with 12.5 million m<sup>3</sup> in 2015.

**2.3.4. WASTE**

**Conventional waste**

The gross production of conventional waste totaled 40,544 metric tons in 2016, as follows:

- 14,001 metric tons of hazardous waste, including 2,882 metric tons from exceptional operations;
- 26,543 metric tons of non-hazardous waste, including 9,213 metric tons from exceptional operations.

Programs are being implemented in all of the Group's facilities to reduce final waste quantities, and specifically to:

- minimize and control waste generation at the source;
- promote sorting by providing bins for selective waste collection or by creating in-house sorting centers;
- select suitable methods for materials recycling and waste reuse; and
- improve the processing and packaging of non-reusable waste.

**PCBs and PCTs**

In accordance with the European Council Directive 96/59/EC of September 16, 1966, AREVA's sites in France have eliminated equipment containing more than 500 ppm of polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs). A second elimination plan was established under decree no. 2013-301 of April 10, 2013. That plan now concerns equipment containing 50 to 500 ppm of PCBs or PCTs. The sites must gradually phase out this equipment according to a schedule set by regulation based on the manufacturing date of the equipment. The new plan concerns approximately 80 equipment items.

**Radioactive waste**

Radioactive waste is produced mainly during operations, dismantling and cleanup of nuclear facilities. It is characterized based on its radiological activity (very low-level, low-level, medium-level or high-level) and by the half-life of the radioelements it contains (very short-lived, short-lived or long-lived waste). Each type of waste requires a specific management method, as shown in the table below:

	<b>Very short-lived (half-life &lt; 100 days)</b>	<b>Short-lived (half-life ≤ 31 years)</b>	<b>Long-lived (half-life &gt; 31 years)</b>
Very low-level waste (VLLW)	Management through radioactive decay at the production site	Centre de l'Aube near-surface disposal facility for VLLW	
Low-level waste (LLW)		Centre de l'Aube near-surface disposal facility for LLW and MLW	Research carried out under French law of June 28, 2006 (near-surface disposal at 15-200 meters)
Medium-level waste (MLW)	followed by conventional disposal		
High-level waste (HLW)			Research carried out under the French law of June 28, 2006 (disposal in a deep geological repository, 500 meters)

AREVA establishes radioactive waste management methods in compliance with the principles of the French Environmental Code and Euratom directive no. 2011/70/Euratom of July 19, 2011:

- protect public health, safety and the environment;
- prevent and limit the burden to be borne by future generations;
- reduce the quantity and toxicity of radioactive waste, in particular by using appropriate processing and packaging methods;
- organize waste shipments and limit them in distance and volume;
- provide information to the public on the effects on the environment and public health of waste production and management operations, subject to confidentiality rules provided in the law, and on the measures taken to prevent or offset harmful effects.

Each waste management method is thus defined as part of a graduated approach to the risks and impacts as regards the costs (human, financial, environmental, etc.) and the benefits expected from the use of a management solution.

For implementation of waste management methods, AREVA draws on:

- the operating entities of the different production sites likely to generate radioactive waste;
- the Dismantling and Waste Contracting Department, which is tasked with steering the Group's overall performance plan and defining strategies to be deployed by the operating entities.

The principles guiding the use of management methods at AREVA's different sites, in compliance with safety, cost, schedule and quality objectives and commitments, are:

- waste reduction at the source, with the goal of "zero waste" in design and operations; waste likely to be radioactive is separated from conventional waste based in particular on a policy of "zoning" the facilities, which is continually optimized to minimize radioactive waste quantities;
- radiological characterization and assessment of activity to define optimum packaging;
- volume reduction using cuttings, assembling and compaction processes;
- with packaging, waste is immobilized in a container suited to its radioactivity level and half-life, in some cases using material to hold it in place (such as cement) or after processing. When processing is necessary, the goal is to convert the initial waste into a waste form with characteristics more appropriate for final disposal, in particular by maximizing containment performance. Drying, incineration, vitrification and melting are examples of processing. Furthermore, processing reduces waste volumes.

A quality program including quality control is carried out throughout processing operations. Best available technologies (BAT) are used for processing and are chosen based on multicriteria analyses that factor in the industrial, environmental, health and radiological impacts.

The sustainable radioactive waste management solutions used by AREVA follow the guidelines of the National Radioactive Waste and Materials Management Plan (PNGMDR). AREVA is heavily involved in developing the PNGMDR resulting from the implementation of the program law of June 28, 2006 on the sustainable management of radioactive materials and waste. The principal purpose of this triennial plan developed under the aegis of the Ministry of the Environment, Energy and the Sea, together with the nuclear safety authority ASN, is to regularly assess the radioactive substances management policy in France, to evaluate new requirements

and to determine the objectives to be achieved. AREVA is represented through its Dismantling and Waste Contracting Department, which steers and coordinates cross-business programs and studies related to the development, implementation and follow-up of the plan.

### Dissemination and communication of information

Information on the flows and volumes of waste stored at AREVA's nuclear facilities (especially volumes) is communicated to the competent authorities in the form of annual reports. In addition, AREVA is a major participant in updates to the National Inventory published every three years by Andra. The 2015 edition shows radioactive waste in France as of December 31, 2013 at sites operated by AREVA, among others, along with forecasts on waste quantities expected by 2020, 2030 and the end of the facilities' lifecycle.

The inventory also presents storage capacities, in particular for long-lived medium- and high-level waste, along with their fill status.

This information is available on the Andra website, <http://andra.fr>. The inventories (volumes, activity levels, principal radioelements) at the end of 2013, 2014 and 2015 are now available as open data at the website <http://inventaire.andra.fr>.

### 2.3.5. RELEASES

#### Control of releases and environmental monitoring

AREVA devotes considerable resources to limiting and monitoring releases and to environmental monitoring, upstream from monitoring performed by the French authorities.

The resources deployed take into account regulatory reporting requirements, including in particular declarations for the European Pollutant Emission Register (EPER), reduction of greenhouse gas emissions under the National Quota Allocation Plan, and renewal of release permits for the nuclear facilities. The amended "INB Order" of February 7, 2012 and ASN's "Environmental Decision" no. 2013-DC-360 lay down general rules related to reporting releases from regulated nuclear facilities and for environmental monitoring.

Regarding radioactive releases, AREVA is strongly committed to the standardization program for measurements of effluent radioactivity established in 2007 by the M60-3 Committee of the Bureau de normalisation des équipements nucléaires (BNEC, the French nuclear equipment standards organization) and has designated a representative from each major nuclear site to participate in this effort.

Concerning the monitoring of environmental radioactivity, it has been possible since February 2010 for any member of the public to go to the website managed by IRSN ([www.mesure-radioactivite.fr](http://www.mesure-radioactivite.fr)) to see all of the environmental radioactivity measurements carried out by the operators in the vicinity of their sites as part of the prescribed environmental monitoring. Each site has acquired the tools needed to manage and submit the data. The group's six laboratories – AREVA NC la Hague, AREVA NC Pierrelatte, Eurodif Production, NP Romans, SEPA Bessines and AREVA NC Malvési – were issued licenses by the French nuclear safety authority ASN for the analyses that they must carry out. These licenses are periodically renewed as laboratory comparison tests organized by IRSN are carried out, based on a table of analyses defined by the national environmental radioactivity measurement network RNM in the order of June 3, 2015 implementing ASN's decision no. 2015-DC-0500 of February 26, 2015, which itself modifies ASN's decision no. 2008-DC-0099 of April 28, 2008 on the organization of the national environmental radioactivity measurement network and sets the terms for laboratory licensing.

AREVA performs some 100,000 measurements and analyses annually on samples taken at 1,000 locations to monitor environmental radioactivity around its sites.

### Releases in water

Nitrogen and uranium releases are directly related to the activity levels and types of products processed in the group's facilities.

AREVA NC la Hague accounts for most of the group's nitrogen releases (about 550 metric tons per year). These releases are directly related to the site's production level (use of nitric acid in the process). They have declined since the new plants have come onstream with deployment at the end of the 1990s of effluent management aimed at recycling the acid. They have been relatively constant since then.

Uranium releases in aquatic media from the group's sites, taken together, have been stable for several years. The changes observed are mainly due to legacy mining sites, now shut down, with residual uranium releases varying as a function of rain levels.

### Atmospheric releases

The group's operations release some gases which contribute to global warming, depletion of the ozone layer and atmospheric pollution. These are primarily:

- direct emissions of greenhouse gases (GHG) associated with the burning of fossil fuels (CO<sub>2</sub>) and with nitrogenous releases (N<sub>2</sub>O) from operations related to the treatment of uranium oxide;
- indirect emissions of greenhouse gases associated with the use of electricity and thermal power; and
- gaseous releases such as volatile organic compounds (VOC), acid-forming gases and ozone-depleting gases.

### Greenhouse gas releases

Since its establishment, the group has led a strongly proactive strategy for reducing its direct emissions of greenhouse gases. The aim of the current environmental strategy is to maintain a high level of performance in terms of environmental footprint.

Among the new actions taken in 2016 are the change in the method of shipping UF<sub>4</sub> from the AREVA NC Malvési site to the AREVA NC Tricastin site (by rail).

For direct greenhouse gas emissions, a total of 396,755 metric tons of CO<sub>2</sub> equivalent was released compared to 526,865 metric tons of CO<sub>2</sub> equivalent in 2015. The decrease is related to the June 2016 startup of Comurhex II.

Carbon production to identify greenhouse gases related to scope 3 has not been assessed recently.

### Radioactive releases

Radioactive releases have fallen sharply in the past 30 years, reflecting the continuous improvement initiatives deployed by the group's entities. For example, the radiological impacts of the la Hague site have been divided by five to seven in the past 30 years, and the impacts on the reference group have been stable for several years now at around 10 µSv/year, down from approximately 70 µSv in 1985. These efforts paved the way for compliance with more stringent regulatory standards in the European Union, as transposed into French law, which currently set the maximum added effective dose to the public at 1 mSv per year, compared to an average of 2.9 mSv per year for exposure to naturally occurring radiation in France (source: IRSN, 2016) and 1 mSv to 10 mSv per year in the rest of the world.

Nevertheless, AREVA is continuing its studies on the feasibility of further reducing radioactive releases from the la Hague plant, particularly within the framework of the plant's release permit. These actions are also consistent with the ALARA initiative ("as low as reasonably achievable") and with the use of best available technology (BAT) to the extent technically and economically reasonable, taking into account the characteristics of the facility, its geographic location and local environmental conditions.

The environmental reports published by the group's French nuclear sites since 1995 and the annual safety reports made available to the public in application of article L. 125-15 of the Environmental Code list radioactive releases and their trends. Measurements of these releases are subject to cross-checks and unannounced inspections by the French nuclear safety authority ASN.

The radiological impacts of the nuclear sites on the most exposed members of adjacent populations (reference groups) are estimated each year. These impacts are expressed as the added effective dose in millisieverts per year (mSv/yr.), an indicator of health effects. The radiological impacts are calculated based on actual gaseous and liquid radioactive releases measured during the year and account for the different possible exposure pathways to the populations in question.

The radiological impact assessment model of la Hague factors in the various types of radiation (alpha, beta and gamma), the two potential exposure pathways (external exposure and internal exposure by ingestion or inhalation), and the specific behavior of each radionuclide in the human body. It is the result of collaborative efforts with French and international experts and associations under the umbrella of the Groupe Radioécologie Nord-Cotentin (GRNC, the Nord-Cotentin radioecology group). Following the recommendations of the GRNC, the site performs a sensitivity analysis each year. Radiological impacts are calculated for five nearby towns, where radiological monitoring stations are located. If the impacts on one of the towns are greater than on the reference populations, this is made public. Independent experts conducted epidemiological studies to assess the direct health effects of radioactive releases on exposed members of the public. All of the studies conducted over the past 20 years have concluded that the site has a very low impact, with the added effective dose for one year being equivalent to about one day of exposure to naturally occurring radioactivity in the Nord-Cotentin region of France.

The group has set a goal of optimizing its management of radiological impacts and standardizing its radiological impact assessment models at all sites with radioactive releases, taking into account special local circumstances related to the life style and eating habits of the population. The order of magnitude of the impacts from the group's nuclear facilities is very low, at equal to or less than 0.01 mSv<sup>(1)</sup>.

In France, AREVA provides all of the necessary information to the Local Information Commissions (CLI) set up by the government in the vicinity of major energy facilities to foster dialogue with local populations.

The group also takes measures to limit as much as possible the impacts of added external radiation at the site boundary to 1 mSv/yr. This corresponds to an extreme theoretical scenario in which an individual stays at the site boundary for an entire year without interruption, i.e. 8,760 hours. More realistic exposure scenarios are taken into consideration when acceptable solutions on an economic and social level cannot be found. To ensure the continuity of the program to reduce the dose at the site boundary, the sites have bolstered dosimetry-based monitoring systems when necessary.

(1) To be compared with the average of about 2.4 mSv per year for naturally occurring exposure in France.

**Climate change**

Adapting to the consequences of climate change is reflected in the safety assessments of the facilities carried out periodically. Assumptions are regularly reviewed to factor in the latest scientific knowledge concerning global warming and the impacts on water resources and on extreme climate phenomena.

These assessments are used to adapt facility designs if necessary and to establish significant margins of safety in relation to foreseen natural events and an appropriate emergency management organization (detection of extreme weather phenomena, protection of the facilities).

In 2016, several unusual weather events occurred, including heavy rains on several occasions at the group's sites in southeastern France. AREVA suffered no damage or other impacts, demonstrating the robustness of its facilities in the face of this type of event.

**2.4. ENVIRONMENTAL PERFORMANCE IMPROVEMENT**

	2016	2015	2014
<b>Consumption</b>			
Quantity of energy consumed (MWh)	2,682,363	2,828,046	3,046,986
of which for AREVA NC	1,398,455	1,558,251	
Quantity of water tapped (m <sup>3</sup> )	13,039,127	12,495,078	12,190,745
of which for AREVA NC	3,882,992	4,081,233	
<b>Conventional waste</b>			
Total tonnage of conventional waste (normal and exceptional operations)	40,544	41,857	42,979
of which for AREVA NC	16,292	16,600	
Quantity of hazardous waste (MT) related to normal operations	11,119	9,908	8,586
Quantity of non-hazardous waste (MT) related to normal operations	17,330	18,788	19,856
<b>Releases</b>			
Direct greenhouse gases (MT CO <sub>2</sub> e)	✓ <sup>(1)</sup> 396,755	526,865	444,629
of which for AREVA NC	175,547	301,530	
Indirect Scope 2 greenhouse gases	233,320		
Volatile organic compounds (MT VOC)	1,115	1,103	952
of which for AREVA NC	49	85	

(1) Indicator subject to reasonable assurance.

**3. SOCIETAL INFORMATION**
**3.1. LOCAL ECONOMIC AND LABOR IMPACTS OF OPERATIONS**
**CONTRIBUTING TO LOCAL ECONOMIC DEVELOPMENT**

AREVA continues to be committed to local involvement through programs aimed at contributing to the attractiveness and economic development of the communities in which its sites are based.

In 2016, as part of its competitiveness plan and commitments to revitalization under its Voluntary Departure Plan in France, AREVA committed to helping communities affected by the economic changes it is undergoing through a revitalization plan and programs designed to promote the emergence of new businesses and the creation of new jobs.

A master agreement between the French State and AREVA to implement the revitalization program in France was signed on October 4, 2016 for a legal period of 36 months. The master agreement will be applied through five local agreements in the regions and departments of Ile-de-France, the Manche, Saône-et-Loire and Aude, and at the Tricastin-Marcoule platform (Drôme, Gard and Vaucluse Departments). The ultimate goal of the revitalization action plan is to create a thousand jobs in the areas impacted near affected AREVA sites.

In accordance with the Company's social and environmental values, AREVA will draw on its knowledge of the impacted communities to initiate actions suited to the specific features of each employment area. This will be done synergistically and consistent with the development dynamics specific to each community.



As part of its revitalization plan, AREVA intends to support projects led by small and medium businesses in the manufacturing and industrial services sector, particularly in the nuclear industry, and will give particular importance to the sustainability of the

operations generated by those projects. Revitalization actions will also concern the funding of projects of particular interest for each of the communities concerned in the areas of training, employment support and the social and solidarity economy.

### 3.2. STAKEHOLDER RELATIONS

The group creates and coordinates organizations for dialogue and consensus building near AREVA sites in each of the countries in which it is based. They are integral to an approach aimed at long-term dialogue with our local and internal stakeholders.

Consensus building activities near the French sites have been in place for several decades and are institutionalized in legislation which serves as a legal foundation for the missions and contributions of local information organizations, i.e. the Local Information Commissions (*Commissions locales d'information*, CLI) for the nuclear sites and the Site Monitoring Commissions (*Commissions de suivi des sites*, CSS) for former mining sites and Seveso sites. These commissions are bodies for dialogue and consensus building between the operator and local stakeholders. The commissions comprise a number of collegial bodies: local elected officials and communities, government representatives, resident associations, environmental protection associations, industrial companies, employee representatives and competent individuals (physicians, experts, etc.). AREVA maintains regular relations with these commissions. In 2016, for example, it participated in information seminars for CLI members on medium- and high-level radioactive waste and on environmental radioactivity monitored, and it attended the national CLI conference. The group is also a member of multiparty forums, i.e. the Senior Committee for Transparency and Information on Nuclear Safety (HCTISN) and the National Radioactive Waste and Materials Management Plan (PNGMDR).

A number of bodies have been created within AREVA Mines to structure stakeholder relations. In Mongolia, for example, Local Cooperation Committees were established voluntarily and met with elected officials and representatives of the local communities to present the mining project during the exploration phase and to discuss the related challenges with stakeholders. In Niger, a Bilateral Orientation Board (CBO) brings together local elected officials, relevant government agencies and civil society to help strengthen local governance of community development projects in the best interests of the public. These bodies define local development policy, select projects based on local priorities, issue recommendations for the projects and help fund them. In Canada, the Athabasca Working Group (AWG) brings together six North

Saskatchewan communities and representatives of the mining companies (AREVA Resources Canada Inc. and Cameco Corporation) for dialogue on employment, training, environmental protection and financial support for the communities. These meetings are summarized in an annual report published by the AWG.

#### AREVA CORPORATE FOUNDATION

The AREVA Corporate Foundation was created in 2007 to support philanthropic and public-interest projects in three fields:

- health: the fight against AIDS and malaria, access to healthcare, and the acquisition of medical equipment;
- education: the prevention of illiteracy, literacy training, access to education and support for scholarship students;
- culture: cultural outreach for members of the public who would not otherwise benefit.

The Foundation supports targeted, concrete programs carried out near the group's facilities in France and overseas. These are long-term programs benefitting disadvantaged people, especially children. It also fosters employee commitment by developing projects specifically for them: calls for internal projects, volunteering opportunities, leave for humanitarian activities, and mentoring of young scholarship students.

In 2016, for its last year of existence, the AREVA Corporate Foundation funded 40 projects in France, India, Nigeria, Mongolia and Turkey.

With a five-year budget of 7.5 million euros, the Foundation has a multiyear program with major national and international partners such as Institut Pasteur, the François-Xavier Bagnoud association, Secours populaire français, the Mécénat Chirurgie Cardiaque association, the National Agency for the Fight against Illiteracy, the Coup de Pouce association and the Quai Branly Museum.

### 3.3. SUBCONTRACTING AND SUPPLIERS

To offer the best product and service quality to its customers, AREVA combines its know-how with the expertise of its subcontractors. The Group's industrial policy distinguishes between "core business" activities carried out internally and those that may be outsourced and subcontracted.

Subcontracting is a factor in value creation for AREVA's nuclear operations. The group assembles the best skills and practices, exceptional and specialized resources, and process owners to optimize the performance of its facilities or broaden its offering of products and services.

Since 2012, AREVA has been engaged in work to strengthen the management of health, safety, environmental and sustainable development requirements for subcontracted activities.

The group's standards for purchasing and the use of subcontracting include:

- an industrial policy;
- a purchasing policy;
- an intragroup purchasing policy;
- a supply chain purchasing management system procedure;
- a supplier management system specification;
- a procedure for prior risk analysis of subcontracted activities (hazards table);
- a procedure for including protected interests in expressions of requirements;
- a procedure for subcontractor supervision.

The process of listing, evaluating and following up suppliers and subcontractors is based on a principle of proportionality to the challenges.

AREVA's contracts are thus divided into three categories as a function of the risk level and based on prior risk analysis called "hazards analysis". The analysis is filled in for any contract involving intervention at a site and requirements concerning protected interests, before the technical specifier drafts the requirements.

The level of the activity's risk determines the list of suppliers invited to bid and the measures to be taken for contract follow-up and operational supervision to ensure the control of subcontractor health, safety, environment and sustainable development requirements.

AREVA also strengthened the best-offer principle in its bid selection process in accordance with the roll-out of the social specifications. Criteria for covering risk prevention aspects and labor aspects were introduced in the bid evaluation process.

In practice, technical bids determined to meet the express of requirements undergo a quantified assessment based on a relative weight of 40% or more depending on the technical criteria and 10% based on risk prevention and working conditions criteria.

The criteria adopted for risk prevention and working conditions are:

- the accident frequency rate for years n-1 and n-2;
- assessments of supplier services for years n-1 and n-2;
- the ratio of training to payroll for years n-1 and n-2;
- the industrial scheme proposes with the volume and level of subcontracting planned.

In addition, in view of the reorganization of the group and the function, which will have an impact on subcontracting, AREVA began strengthening its communications to its suppliers and service providers back in 2015. In addition to local Supplier Days organized by the operating entities, the Supply Chain Department organized a Supplier Convention with the sponsorship of senior management. The convention was held on December 10, 2015 at AREVA Tower. It gathered together a hundred of the group's suppliers as well as members of the ExCom, senior executive vice presidents of the Business units and Supply Chain representatives.

### 3.4. FAIR PRACTICES

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Actions to prevent corruption and support human rights are described in Appendix 6 of AREVA's 2016 Reference Document.

## 4. CROSS-REFERENCE TABLE FOR DATA REQUIRED UNDER ARTICLE R. 225-105-1 OF THE FRENCH COMMERCIAL CODE IN MATTERS OF SOCIAL, SOCIETAL AND ENVIRONMENTAL RESPONSIBILITY

Article R. 225-105-1 of the French Commercial Code	Section of the 2016 Reference Document
<b>Human resources information</b>	<b>Section 17</b>
<b>Employment</b>	<b>Section 17.1.</b>
Total workforce and distribution by gender, age and geographical area	Section 17.1.1.
Staffing and layoffs	Section 17.1.2.
Compensation and trends	Section 17.1.3.
<b>Organization of work</b>	<b>Section 17.2.</b>
Organization of working hours	Section 17.2.1.
Absenteeism	Section 17.2.2.
<b>Labor relations</b>	<b>Section 17.3.</b>
Organization of social dialogue, in particular procedures for information, consultation and negotiation with personnel	Section 17.3.1.
Status of collective bargaining agreements	Section 17.3.2.
<b>Health and safety</b>	<b>Appendix 3 Section 1.1.</b>
Health and occupational safety conditions	Section 1.1.
Status of agreements on health and occupational safety signed with labor unions or employee representatives	Section 17.4.2.
Frequency and severity rates of occupational injuries and accounting of occupational diseases	Section 1.1.
<b>Training</b>	<b>Section 17.5.</b>
Training policies	Section 17.5.1.
Total hours of training	Section 17.5.2.
<b>Equal treatment</b>	<b>Section 17.6.</b>
Measures in favor of gender equality	Section 17.6.1.
Measures in favor of employment and integration of persons with disabilities	Section 17.6.2.
The fight against discrimination	Section 17.6.3.
<b>Promotion and compliance with the stipulations of fundamental agreements of the International Labor Organization concerning:</b>	Section 17.7.
Respect for the freedom of association and the right to collective bargaining	Section 17.7.1.
Elimination of discrimination related to employment and occupation	Section 17.7.2.
Elimination of forced or compulsory labor	Section 17.7.3.
Effective abolition of child labor	Section 17.7.4.
<b>Environmental information</b>	<b>Appendix 3</b>
<b>General environmental policy</b>	<b>Section 2.1.</b>
Company organization for addressing environmental issues and environmental assessment or certification initiatives as applicable	Section 2.1.2.
Employee training and information concerning environmental protection	Section 2.1.2.
Resources devoted to preventing pollution and environmental risk	Section 2.1.2.
Amount of provisions and guarantees for environmental risk, unless this information could seriously prejudice the Company in an ongoing dispute	Section 2.1.3.
Information on AREVA's commitments in favor of the circular economy	Section 2.1.2.

**Article R 225-105-1 of the French Commercial Code**
**Pollution control and waste management**

Prevention, reduction or mitigation of releases in the air, water and ground seriously impacting the environment	Section 2.2.
Measures to minimize, recycle and dispose of waste	Section 2.3.4.
Consideration of noise pollution and any other form of pollution specific to an activity	Section 2.2.3.

**Sustainable use of resources**
**Section 2.3.**

Water consumption and supply based on local conditions	Section 2.3.3.
Energy consumption and measures to improve energy efficiency and the use of renewable energies	Section 2.3.2.
Consumption of raw materials and measures to improve the effectiveness of their use	Section 2.3.1.
Land use	Section 2.3.1.

**Climate change**

Greenhouse gas releases	Section 2.3.5.
Consideration of the impacts of climate change	Section 2.3.5.

**Biodiversity preservation**
**Section 2.2.1.**

Measures to preserve or increase biodiversity	Section 2.2.1.
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**Societal information**
**Appendix 3**
**Local, economic and labor impacts of the business**
**Section 3.1.**

<ul style="list-style-type: none"> <li>• in terms of employment and regional development</li> <li>• on the local or neighboring population</li> </ul>	<p>Section 3.1.</p> <p>Section 3.1.</p>
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**Stakeholder relations**
**Section 3.2.**

Conditions for dialogue with stakeholders	Section 3.2.
Partnership and philanthropic programs	Section 3.2.

**Subcontracting and suppliers**
**Section 3.3.**

Inclusion of social and environmental aspects in the purchasing policy	Section 3.3.
Importance of subcontracting and social and environmental responsibility in relations with suppliers and subcontractors	Section 3.3.

**Fair practices**
**Section 3.4.**

Actions taken to prevent corruption	Appendix 6.
Measures in favor of consumer health and safety	Appendix 6.
Other actions taken in favor of human rights	Appendix 6.

<b>1. REPORTING METHODOLOGY</b>	<b>355</b>	<b>2. INDEPENDENT VERIFICATION OF CONSOLIDATED SOCIAL, ENVIRONMENTAL AND SOCIETAL DATA IN THE MANAGEMENT REPORT</b>	<b>356</b>
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## 1. REPORTING METHODOLOGY

The indicators published in Section 17 and in Appendix 3 of this report are used to measure the leading social, environmental and societal impacts and challenges related to AREVA's operations.

These indicators were developed by a group of experts representing the group's different businesses and departments, and reflect the regulatory framework of article R. 225-105-1 of the French Commercial Code and international standards such as the GRI version 3 <sup>(1)</sup> and the WBSCD <sup>(2)</sup>.

### SCOPE AND CONSOLIDATION

**Reporting period:** The reporting period is the calendar year (January 1 to December 31).

**Scope of reporting:** The scope of reporting covers all of the group's worldwide operations. By "group", we mean AREVA, its subsidiaries and all of the operational and functional entities present at December 31, 2016 and in which AREVA's interest is 50% or more. Some minority-owned subsidiaries are included on an exceptional basis, along with the majority-owned subsidiaries, to reflect the group's operational involvement; this is the case for example for Cominak in Niger. Units whose sale was in progress and irreversible in 2016 were not included in the scope of reporting. Newly acquired entities are not consolidated in the year of their acquisition to ensure that systems for collecting the data can be set up and data reliability ensured.

Office buildings with a total surface area of less than 1,000 m<sup>2</sup> must as a minimum report indicators in the fields of occupational safety, health, employment and dosimetry (if applicable) and, if possible, in the other fields of the reporting protocol if the issue is a major one.

**Consolidation rules:** For "Environment, Health and Safety" data, the full consolidation method is used (data from majority-owned subsidiaries are 100% consolidated). The consolidation method selected for data pertaining to human

resources is aligned with the method used for financial consolidation. Thus, data for subsidiaries in which AREVA has a minority interest are reported in proportion to AREVA's interest. For projects conducted at customer locations, social data (occupational safety, health, workforce, dosimetry) and governance data (ISO 14001 certification) are consolidated at the group level. For AREVA capital spending projects (e.g. Comurhex II and Georges Besse II), all of the environmental, health, safety and social data are consolidated at the group level.

**Changes in consolidated group:** The main changes in the consolidated group were as follows in 2016:

- Deconsolidated:
  - Nuclear Measurements Business Unit,
  - Bioenergy Business Unit,
  - Wind Energy Business Unit,
  - Solar Energy Business Unit,
  - Hydrogen and Energy Storage Business Unit.

(1) Global Reporting Initiative ([www.globalreporting.org](http://www.globalreporting.org)).

(2) The Greenhouse Gas Protocol was developed by the World Business Council for Sustainable Development (WBCSD) [[www.wbcsd.org](http://www.wbcsd.org)] and the World Resources Institute (WRI).

## METHODOLOGY

**Reference base:** The measurement methods used for environmental, social and safety indicators and the related reporting procedures are documented in a measurement and reporting procedure entitled "AREVA sustainable development and continuous improvement". This protocol, which is updated each year, is provided to anyone, at any level, involved in developing and reporting data.

**Tools used:** Dedicated software – STAR for environmental indicators, AHEAD for safety, and POLYPHEME for social data – are used to report the indicators presented in Section 17 and in Appendix 3.

**Internal controls:** The data reported by the sites are subject to checks of consistency by site managers and HSE managers of the Business Units.

**Independent verification:** The group had an independent third-party organization verify its key environmental, social and societal performance indicators. The scope of this verification was defined for the 42 categories of information identified in the implementing decree for article 225 of the Grenelle II law. In accordance with these regulations, the verifications concern the consolidated social, environmental and societal data presented in Section 6 of the Management Report. The data are presented in Section 17 and in Appendix 3 of this Reference Document. The independent third-party report is presented below in this Appendix 4.

## ADDITIONAL INFORMATION ON SELECTED INDICATORS

**Dosimetry:** The performance indicators for dosimetry are collected every 6 months and concern a reference period of 12 consecutive months, with a 6-month lag for data acquisition. For the annual campaign of January 2017, the data concern the period from July 2015 to June 2016. The average internal and external dose calculation includes all monitored personnel, including personnel that received a non-detectable dose or no dose at all. For reasons of confidentiality, the independent third-party organization did not review internal dosimetry data. For this indicator, the

review is limited to the sum of external individual doses resulting from occupational exposure to radiation by the group's employees.

**Direct greenhouse gas emissions:** The following gases were taken into account: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and halogen compounds (CFC, HCFC, HFC, PFC and SF<sub>6</sub>). The figures disclosed in this report do not include indirect greenhouse gas emissions related to purchases of electricity, heating or cooling.

## 2. INDEPENDENT VERIFICATION OF CONSOLIDATED SOCIAL, ENVIRONMENTAL AND SOCIETAL DATA IN THE MANAGEMENT REPORT

This is a free translation into English of the original report issued in the French language and it is provided solely for the convenience of English speaking users. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

To the Shareholders,

In our quality as an independent verifier accredited by COFRAC<sup>(1)</sup> under number 3-1050, and as a member of the network of one of the statutory auditors of AREVA, we hereby present our report on the consolidated social, environmental and societal information established for the year ended December 31, 2016, presented in the Management Report, hereinafter referred to as "CSR Information", pursuant to the provisions of article L. 225-102-1 of the French Commercial Code (*Code de commerce*).

## RESPONSIBILITY OF THE COMPANY

It is the responsibility of the Board of Directors to establish a management report including CSR Information referred to in the article R. 225-105 of the French Commercial Code (*Code de commerce*), in accordance with the protocols used by the company's internal social and environmental reporting protocols (the "Criteria"), a summary of which is provided in Appendix 4 of the Reference Document.

(1) Scope of accreditation available at [www.cofrac.fr](http://www.cofrac.fr).

## INDEPENDENCE AND QUALITY CONTROL

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Our independence is defined by regulatory requirements, the Code of Ethics of our profession and the provisions of article L. 822-11 of the French Commercial Code (*Code de commerce*). In addition, we have implemented a quality control system, including documented policies and procedures to ensure compliance with ethical standards, professional standards and applicable laws and regulations.

## RESPONSIBILITY OF THE INDEPENDENT VERIFIER

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It is our role, based on our work:

- to attest whether the required CSR Information is present in the management report or, in the case of its omission, that an appropriate explanation has been provided, in accordance with the third paragraph of R. 225-105 of the French Commercial Code (*Code de commerce*) (Attestation of presence of CSR Information);
- to express a limited assurance on whether the CSR Information is fairly presented, in all material aspects, in accordance with the Criteria (Opinion on fairness of CSR Information).

Our verification work was undertaken by a team of five people between September 2016 and February 2017 for an estimated duration of fifteen weeks.

We conducted the work described below in accordance with the professional standards applicable in France and with the order of May 13, 2013 determining the conditions under which an independent verifier performs its mission and, concerning the opinion on fairness, in accordance with the international standard ISAE 3000<sup>(1)</sup>.

### 2.1. ATTESTATION OF PRESENCE OF CSR INFORMATION

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#### NATURE AND SCOPE OF WORK

We obtained an understanding of the company's CSR issues, based on interviews with the management of relevant departments, a presentation of the company's strategy on sustainable development based on the social and environmental consequences linked to the activities of the company and its societal commitments, as well as, where appropriate, resulting actions or programmes.

We compared the information presented in the management report with the list as provided for in article R. 225-105-1 of the French Commercial Code (*Code de commerce*).

In the absence of certain consolidated information, we verified that the explanations were provided in accordance with the provisions of article R. 225-105-1, paragraph 3, of the French Commercial Code (*Code de commerce*).

We verified that the information covers the consolidation scope, namely the entity and its subsidiaries under the meaning of article L.233-1, and the companies which it controls under the meaning of article L.233-3 of that same code, with the limitations specified in the methodological note presented in Appendix 4 of the Reference Document.

## CONCLUSION

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Based on this work, we confirm the presence in the Management Report of the required CSR information, with the exception of figures related to training in France that would be available in April 2017 as reported in the Reference Document.

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(1) ISAE 3000 – Assurance engagements other than audits or reviews of historical information

## 2.2. LIMITED ASSURANCE ON CSR INFORMATION

### NATURE AND SCOPE OF WORK

We undertook interviews with about twenty people responsible for the preparation of CSR Information in the different departments charged with information gathering and responsible for internal control processes and risk management to:

- assess the appropriateness of the Criteria as regards their relevance, completeness, neutrality, clarity and reliability, taking into consideration, where applicable, the good practices in the sector;
- verify the implementation of the process for the collection, compilation, treatment and control of the CSR Information for its completeness and consistency, as well as obtain an understanding of internal control and risk management procedures related to the preparation of the CSR Information.

We determined the nature and extent of our tests and inspections based on the nature and importance of the CSR Information, in relation to the company's characteristics, its orientations in terms of sustainable development and sectorial best practices.

For the CSR information which we considered the most important <sup>(1)</sup>:

- at the level of the consolidating entity, we consulted documentary sources and conducted interviews to corroborate the qualitative information (organization, policies, actions, etc.), we implemented analytical procedures on the quantitative information and verified, on a test basis, the calculations and data compilation, and we verified their coherence and consistency with the other information contained in the management report;

- at the level of a representative selection of sites and entities which we chose <sup>(2)</sup> based on their activity, their contribution to the consolidated indicators, their location and a risk analysis, we undertook interviews to verify the correct application of the procedures and undertook detailed tests based on samples, consisting of verifying the calculations and linking them with the information in supporting documentation. The sample thus selected represents an average of 17% of the workforce and from 36% to 55% of the quantitative environmental information presented <sup>(3)</sup>, considered as representative characteristics of the social and environmental components.

For the other consolidated CSR Information, we assessed their consistency in relation to our knowledge of the company.

Finally, we assessed the relevance of the explanations given in the event of the partial or total absence of certain information.

We consider that the sample methods and the size of the samples that we considered, by exercising our professional judgment, allow us to express a limited assurance on the CSR Information; an assurance of a higher level would have required more extensive verification work. Due to the necessary use of sampling techniques and other limitations inherent in the functioning of any information and internal control system, the risk of non-detection of a significant anomaly in the CSR Information cannot be entirely eliminated.

## CONCLUSION

Based on our work, we have not identified any significant misstatement that causes us to believe that the CSR Information, taken together, has not been presented sincerely, in compliance with the Criteria.

## 2.3. REASONABLE ASSURANCE ON A SELECTION OF CSR INFORMATION

### NATURE AND SCOPE OF WORK

Concerning scope 1 greenhouse gas emissions, we conducted work similar to that described in paragraph 2 above for the CSR Information considered the most important, but in a more in-depth manner, in particular as concerns the number of tests.

We consider that this work allows us to express a reasonable assurance on this information.

(1) **Social information:** employment (total headcount and breakdown, hiring and terminations), work accidents, notably their frequency and their severity, as well as occupational diseases, diversity and equality of treatment and opportunities (measures undertaken for gender equality, employment, inclusion of disabled people, anti-discrimination policies and actions).

**Environmental and societal information:** general environmental policy (number of sites ISO 14001 certified), preventative measures, reduction of and compensation for discharges into the air (VOC emissions), recycling and waste management (tons on conventional waste), sustainable use of resources and climate change (energy consumption, water consumption, direct greenhouse gas emissions), importance of subcontracting and the consideration on environmental and social issues in purchasing policies and relations with suppliers and subcontractors.

(2) AREVA NC la Hague, AREVA NC Pierrelatte, la Société d'enrichissement du Tricastin (SET) and SOCATRI (France), AREVA Resources Canada (ARC – Canada), COMINAK (Nigeria).

(3) Coverage for environmental information: Energy -55%, Waste -36%, Greenhouse gas emissions (scope 1) -41%, Water consumption -48%.



## **CONCLUSION**

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In our opinion, scope 1 greenhouse gas emissions identified with the sign  $\sqrt{\quad}$  in Section 6 of the Management Report are presented, in all material respects, in accordance with the Standards.

Paris-La Défense, March 9, 2017

Independent Verifier  
ERNST & YOUNG et Associés

Christophe Schmeitzky  
Partner  
Sustainable Development

Bruno Perrin  
Partner

## ORDER OF BUSINESS

- Approval of the corporate financial statements of the financial year ended December 31, 2016 (**1<sup>st</sup> resolution**);
- Approval of the consolidated financial statements of the financial year ended December 31, 2016 (**2<sup>nd</sup> resolution**);
- Appropriation of the results of the financial year ended December 31, 2016 (**3<sup>rd</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to amendment 1 to the bilateral agreement between AREVA SA and the CEA dated May 20, 2016 (**4<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the memorandum of understanding with EDF concerning the sale of AREVA NP's operations dated July 28, 2016 (**5<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the contract to sell New NP to EDF dated November 15, 2016 (**6<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the guarantee given by AREVA SA to EDF dated November 15, 2016 (**7<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the sale by AREVA SA of its shares of AREVA TA dated December 15, 2016 (**8<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the end of the financial support mechanism of AREVA SA in favor of its subsidiary AREVA TA dated December 16, 2016 (**9<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the end of the financial support mechanism of AREVA SA in favor of its subsidiary AREVA TA dated December 16, 2016 (**10<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code concerning the debt write-off by AREVA SA in favor of its subsidiary AREVA TA dated December 20, 2016 (**11<sup>th</sup> resolution**);
- Approval of an agreement subject to the provisions of articles L. 225-38 *et seq.* of the French Commercial Code relating to the advance from the current account between the French State and AREVA SA dated February 3, 2017 (**12<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Varin as Chairman of the Board of Directors (**13<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Knoche as Chief Executive Officer (**14<sup>th</sup> resolution**);
- Approval of the principles and criteria for the determination, distribution and allocation of fixed, variable and exceptional components of total compensation and benefits of any kind attributable to the Chairman of the Board of Directors (**15<sup>th</sup> resolution**);
- Approval of the principles and criteria for the determination, distribution and allocation of fixed, variable and exceptional components of total compensation and benefits of any kind attributable to the Chief Executive Officer (**16<sup>th</sup> resolution**);
- Appointment of a new director – Mrs. Marie-Solange Tissier (**17<sup>th</sup> resolution**);
- Appointment of a new director – Mrs. Florence Touitou-Durand (**18<sup>th</sup> resolution**);
- Authorization to be given to the Board of Directors to conclude transactions involving the company's shares (**19<sup>th</sup> resolution**);
- Powers for legal formalities (**20<sup>th</sup> resolution**).

# PROPOSED RESOLUTIONS FOR THE ORDINARY ANNUAL MEETING OF SHAREHOLDERS OF MAY 18, 2017

## FIRST RESOLUTION

### **Approval of the corporate financial statements of the financial year ended December 31, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the Board of Directors' management report and the report on the annual financial statements of the statutory auditors, approve the corporate financial statements of the financial year ended December 31, 2016, as presented to them, showing net profit in the amount of 69,709,047.23 euros, as well as the transactions reflected in those financial statements or summarized in those reports.

Pursuant to the provisions of article 223 *quater* of the French Tax Code, the Shareholders approve the expenses and charges recognized by the company and mentioned in article 39-4 of said Code in the total amount of 28,631 euros, which reduced the loss carry-over proportionately in view of the tax loss.

## SECOND RESOLUTION

### **Approval of the consolidated financial statements of the financial year ended December 31, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the Board of Directors' management report and the report on the annual financial statements of the statutory auditors, approve the consolidated financial statements of the financial year ended December 31, 2016, as presented to them, showing a net loss attributable to owners of the group in the amount of 665 million euros, as well as the transactions reflected in those financial statements or summarized in those reports.

## THIRD RESOLUTION

### **Appropriation of the result of the financial year ended December 31, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, decide to appropriate the full amount of the net profit of the financial year ended December 31, 2016, amounting to 69,709,047.23 euros, to "Retained earnings", which will be brought from the amount of (2,968,735,104.28) euros (after taking into account the capital reduction which occurred on February 3, 2017 by charging the "Retained earnings" account) to the amount of (2,899,026,057.05) euros.

The Shareholders note that, in accordance with the law, there has been no dividend distribution for the three previous financial years.

## FOURTH RESOLUTION

### **Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to amendment 1 to the bilateral agreement between AREVA SA and the CEA dated May 20, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve amendment no. 1 to the bilateral agreement signed between AREVA SA and the CEA on December 22, 2006, authorized by the Board of Directors on April 28, 2016 and signed on May 20, 2016.

## FIFTH RESOLUTION

### **Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the memorandum of understanding with EDF concerning the sale of AREVA NP's operations dated July 28, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the memorandum of understanding signed between AREVA SA and EDF concerning the sale of AREVA NP's operations, authorized by the Board of Directors on July 28, 2016 and signed the same day.

## SIXTH RESOLUTION

### **Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the contract to sell New NP to EDF dated November 15, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the New NP share purchase agreement signed between AREVA SA and EDF, authorized by the Board of Directors on November 10, 2016 and signed on November 15, 2016.

## SEVENTH RESOLUTION

### **Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the guarantee given by AREVA SA to EDF dated November 15, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the guarantee given by AREVA SA to EDF as regards the execution by AREVA NP of its obligations and commitments under the share purchase agreement approved in the framework of the previous resolution, authorized by the Board of Directors on November 10, 2016 and signed on November 15, 2016.

## EIGHTH RESOLUTION

### **Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the sale by AREVA SA of the shares of AREVA TA dated December 15, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the contract to sell AREVA SA's shares in AREVA TA to a consortium of buyers composed of the French State, the CEA and DCNS, authorized by the Board of Directors on December 6, 2016 and signed on December 15, 2016.

**NINTH RESOLUTION****Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the end of financial support mechanism of AREVA SA in favor of its subsidiary AREVA TA dated December 16, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the agreement terminating the financial support mechanism of AREVA SA in favor of its subsidiary AREVA TA, subject to the condition precedent of the sale of AREVA TA, authorized by the Board of Directors on December 15, 2016 and signed on December 16, 2016.

**TENTH RESOLUTION****Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the assignment of a receivable held by AREVA SA from the 01dB Italia company in favor of its subsidiary AREVA TA dated December 16, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the assignment of the receivable held by AREVA SA on 01dB Italia in favor of its subsidiary AREVA TA in the symbolic amount of one euro, authorized by the Board of Directors on December 15, 2016 and signed on December 16, 2016.

**ELEVENTH RESOLUTION****Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the debt forgiveness of AREVA SA in favor of its subsidiary AREVA TA dated December 20, 2016**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the debt forgiveness agreement authorized by the Board of Directors on December 15, 2016 and granted on December 20, 2016 by AREVA SA in favor of its subsidiary AREVA TA in the amount of 14 million euros.

**TWELFTH RESOLUTION****Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code relating to the advance from the current account between the French State and AREVA SA dated February 3, 2017**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the report of the Board of Directors and the special report of the statutory auditors on regulated agreements and commitments mentioned in article L. 225-38 of the French Commercial Code, approve the agreement for an advance from the current account signed between the French State and AREVA SA in the amount of 1,999,999,998 euros, authorized by the Board of Directors on February 3, 2017 and signed the same day.

**THIRTEENTH RESOLUTION****Advisory opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Varin as Chairman of the Board of Directors**

The Shareholders, consulted in accordance with the recommendation of paragraph 26 of the revised Afep-Medef Code of Corporate Governance of November 2016, which constitutes the code of reference of the company pursuant to article L. 225-37 of the French Commercial Code, deliberating under the conditions for quorum and majority required for ordinary general meetings, issue a favorable opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Varin as Chairman of the Board of Directors, as they appear in Section 15 of the 2016 Reference Document, paragraph 15.1.2.1., and in the report of the Board of Directors.

**FOURTEENTH RESOLUTION****Advisory opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Knoche as Chief Executive Officer**

The Shareholders, consulted in accordance with the recommendation of paragraph 26 of the revised Afep-Medef Code of Corporate Governance of November 2016, which constitutes the code of reference of the company pursuant to article L. 225-37 of the French Commercial Code, deliberating under the conditions for quorum and majority required for ordinary general meetings, issue a favorable opinion on the items of compensation due or allocated for financial year 2016 to Mr. Philippe Knoche, Chief Executive Officer, as they appear in Section 15 of the 2016 Reference Document, paragraph 15.1.1., and in the report of the Board of Directors.

**FIFTEENTH RESOLUTION****Approval of the principles and criteria for the determination, distribution and allocation of fixed, variable and exceptional components of total compensation and benefits of any kind attributable to the Chairman of the Board of Directors**

The Shareholders, consulted pursuant to article L. 225-37-2 of the French Commercial Code, deliberating under the conditions of quorum and majority required for ordinary general meetings, having perused the report of the Board of Directors on the items of the compensation policy of the Chairman of the Board of Directors, approve the principles and criteria of the determination, distribution and allocation of fixed, variable and exceptional items composing the total compensation and the benefits of any kind attributable to the Chairman of the Board of Directors, as listed in the above-mentioned report.

**SIXTEENTH RESOLUTION****Approval of the principles and criteria for the determination, distribution and allocation of fixed, variable and exceptional components of total compensation and benefits of any kind attributable to the Chief Executive Officer**

The Shareholders, consulted pursuant to article L. 225-37-2 of the French Commercial Code, deliberating under the conditions of quorum and majority required for ordinary general meetings, having perused the report of the Board of Directors on the items of the compensation policy of the Chief Executive Officer, approve the principles and criteria of the determination, distribution and allocation of fixed, variable and exceptional items composing the total compensation and the benefits of any kind attributable to the Chief Executive Officer, as listed in the above-mentioned report.

**SEVENTEENTH RESOLUTION****Appointment of a new director – Mrs. Marie-Solange Tissier**

The Shareholders, deliberating under the conditions of quorum and majority of ordinary general meetings, appoint Mrs. Marie-Solange Tissier as director recommended by the French State, for a duration of four years, i.e. until the end of the general meeting convened to approve the financial statements for the financial year ending December 31, 2020.

**EIGHTEENTH RESOLUTION****Appointment of a new director – Mrs. Florence Touitou-Durand**

The Shareholders, deliberating under the conditions of quorum and majority of ordinary general meetings, appoint Mrs. Florence Touitou-Durand as director recommended by the French State, for a duration of four years, i.e. until the end of the general meeting convened to approve the financial statements for the financial year ending December 31, 2020.

**NINETEENTH RESOLUTION****Authorization to be given to the Board of Directors to trade in the company's shares**

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, having perused the report of the Board of Directors and in accordance with the provisions of articles L. 225-209 *et seq.* of the French Commercial Code, of the European Commission Regulation no. 596/2014 on market abuse dated April 16, 2014, and of the General Regulations of the Autorité des marchés financiers:

1. authorize the Board of Directors, with the power to sub-delegate authority as provided by law, to buy or cause to buy, in one or more transactions and at the times that it shall set, ordinary shares of the company within the limit of a number of shares representing up to 10% of the total number of shares forming the share capital on the date that these purchases are made, or 5% of the total number of shares forming the share capital if the shares are acquired by the company to be held and subsequently transferred in payment or in exchange in connection with an external growth transaction. The number of shares that the company shall hold at any time may not exceed 10% of the shares composing the company's capital on the date considered. In the event of a public offer on the shares of the company, the company's execution of the program to buy back its own shares will be carried out in compliance with article 231–40 of the General Regulations of the Autorité des marchés financiers, and during the pre-offer or public offer initiated by the company if that offer comprises in whole or in part the delivery of the company's securities, in compliance with applicable legal and regulatory provisions, and in particular the provisions of article 231–41 of the General Regulations of the Autorité des marchés financiers;
2. decide that the acquisition, sale or transfer of these ordinary shares may be carried out, in one or more transactions, by any means, on market or off market, including the acquisition or sale of blocks, takeover bid, the use of derivatives or the establishment of option strategies, in particular to:
  - o grant or sell them to employees, officers of the company and/or related companies or that will become related as provided by applicable regulations, in particular in the framework of stock option purchase plans of the company, in accordance with the provisions of articles L. 225-177 *et seq.* of the French

Commercial Code, or any similar plan of free share grant transactions, as provided in articles L. 225-197-1 *et seq.* of the French Commercial Code, or implementation of any employee savings plan as provided by law, in particular articles L. 3332-1 *et seq.* of the French Labor Code, or

- o provide liquidity and liquidity services for the company's share by an investment services provider acting independently under a liquidity contract which complies with the Code of Ethics recognized by the Autorité des marchés financiers, in compliance with the market practice accepted by that authority, or
  - o hold them or deliver them later (for exchange, payment or other) in the framework of possible external growth transactions, within the limit of 5% of the company's capital, or
  - o deliver them in connection with the hedging of securities giving the right to the allocation of shares of the company when exercising the rights attached to securities giving the right to the allocation of the company's shares by redemption, conversion, exchange, presentation of a warrant or in any other manner, or
  - o implement any market practice that is accepted or may be accepted by the market authorities, it being understood that the buyback program is also intended to enable the company to work towards any other end authorized under the law or applicable regulations or that may become so;
3. decide that the maximum purchase price per share is set at 10 euros excluding acquisition costs.

The maximum number of shares which the company may acquire by virtue of this authorization may not exceed 10% of the number of shares composing the company's share capital. In accordance with the provisions of article L. 225-209 of the French Commercial Code, the number of shares used to calculate the 10% limit corresponds to the number of shares purchased after deduction of the number of shares sold during the authorization period, in particular when the shares are bought back in favor of the share's liquidity under conditions defined by applicable regulations.

Without taking into account the shares already held, that 10% limit of the share capital corresponded to 38,320,485 shares of the company at February 3, 2017 with a par value of 0.25 euros per share. The total amount that the company could devote to the buyback of its own shares may not exceed 383,204,850 shares (excluding expenses), it being understood that in the event of a transaction on the company's capital, this amount will be adjusted accordingly;

4. give full authority to the Board of Directors in the event of trading in the company's share capital, in particular modification of the par value of the share, capital increase by incorporation of reserves followed by the issuance and free grant of equity securities, or a stock split or a reverse split of securities, to adjust the above-mentioned maximum purchase price accordingly;
5. grant full authority to the Board of Directors, with the power to sub-delegate as provided by law, to decide on and implement this authority, to carry out the buyback program as provided by law and according to the terms of this resolution, to place all orders on the stock market, to sign all documents, to conclude all agreements for the keeping of registers of share purchases and sales, to accomplish all formalities and make all statements, in particular with the Autorité des marchés financiers and, more generally, to do all that is necessary.

This authority is granted for a period of eighteen (18) months as from the date of this General Meeting. It invalidates as from this day any previous delegation of authority having the same purpose.

**TWENTIETH RESOLUTION*****Powers to carry out formalities***

The Shareholders, deliberating under the conditions of quorum and majority required for ordinary Shareholders' Meetings, grants full authority to the bearer of the original, a copy or an excerpt of the minutes of this General Meeting for the purpose of accomplishing all publication, filing and other necessary formalities, and generally to do all things necessary.

<b>1. PREAMBLE</b>	<b>365</b>	<b>3. RULES OF CONDUCT IN FORCE AT AREVA</b>	<b>367</b>
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## 1. PREAMBLE

AREVA wishes to be an exemplary group in terms of Ethics and Compliance.

This code describes the ethical rules to which the AREVA group submits in all circumstances, whether as a result of external obligations (laws and regulations) or by its own decision. They apply to the group's employees and with any necessary modifications to its suppliers and partners.

Furthermore, the two entities of the AREVA group - New AREVA and AREVA NP - have each defined within the framework of their respective business plans the values that shall be respected by every employee.

Among these values, integrity governs AREVA's practices and decisions in all circumstances. The group conducts its activities in strict compliance with Human Rights, as defined in the Universal Declaration of Human Rights approved by the United Nations. It scrupulously observes the laws and regulations of the countries in which it operates, its own internal rules and the rights of its employees.

Accountability, fairness and openness to dialogue characterize AREVA's conduct. The group endeavors to provide accurate and relevant information enabling objective assessment of its performance in terms of environmental, economic, social and societal responsibility.

## 2. AREVA'S COMMITMENTS

### AREVA AND ITS STAKEHOLDERS

#### With regard to the countries in which the group operates

AREVA scrupulously observes the current laws and regulations in the countries in which it operates.

#### With regard to customers

To satisfy and anticipate the requirements of its customers, the group is constantly receptive to them and endeavors to fully honor its commitments towards them. AREVA respects their culture and protects their image and interests. AREVA protects the confidentiality of the data or know-how to which its customers and partners grant access, within the legal and regulatory framework, as if it were its own.

#### With regard to employees

AREVA's personnel is constituted without discrimination, be it of race, color, religion, age, gender, sexual orientation, political opinions, national ancestry or social origin. AREVA respects the privacy of its employees and remains neutral with regard to political opinions and philosophical or religious beliefs. Reciprocally, any indoctrination in the workplace is banned. AREVA is attached to dialogue between management and staff and conducts it in a fair and upright manner.

AREVA offers its employees training plans aimed at maintaining their level of expertise in all areas required by their jobs.

#### With regard to shareholders

AREVA respects the principles of corporate governance, particularly aiming to guarantee shareholders optimal growth and return on their investment. It is especially careful to treat them equally and provide them with accurate and relevant financial information.

#### With regard to suppliers and subcontractors

Within a competitive framework, AREVA sets out to forge sustainable partner relationships with its suppliers and subcontractors with a view to providing services of the highest standards to its customers. From the procurement inquiry stage, AREVA undertakes to maintain loyal, fair and objective relations marked by mutual respect with all its suppliers, subcontractors and partners.

AREVA protects the image of its suppliers and their confidential data as if it were its own.

In their role of supplier, the subsidiaries are treated with the same fairness and respect as other suppliers, within the limitations set by AREVA's established industrial policies.

#### With regard to the public

For AREVA, protecting the environment as a common good encompasses all aspects of human well-being in its interactions with nature. Its environmental policy and risk control programs are underpinned by this principle and aim to reduce the environmental footprint of its activities and protect biodiversity in regions where the group is engaged in industrial or mining activities. The preservation of natural resources through raw material recycling, also demonstrates AREVA's respect for the planet. AREVA asserts its willingness to engage with and take part in public debate. It takes care to explain honestly its strategic and technological choices and to inform decision-makers and citizens of its operations and their conduct. It observes ethical conduct in the use of its means of information and communication.

#### Other commitments

AREVA has signed the United Nations Global Compact, complies with the Guiding Principles of the OECD for multinationals and supports the Extractive Industries Transparency Initiative (EITE).

### AREVA'S EXPECTATIONS

#### With regard to employees

All group employees conduct their activities in compliance with Human Rights, as defined in the Universal Declaration of Human Rights adopted by the UN.

Employees are honest and comply with applicable laws and regulations in the countries in which they work, and with AREVA's Code of Ethics and the group's compliance policies and procedures. They manage AREVA's resources with the same rigor as if they were their own. The same is attitude expected of temporary workers.

AREVA's employees are motivated by commitment to the customer. They demonstrate professional conscientiousness, competence and rigor. The operations they carry out or outsource are completely traceable.

Employees are mindful of the excellence of AREVA's products and services. They transfer knowledge that is useful to operations. Previous experience is systematically put to good use.

#### With regard to suppliers and subcontractors

AREVA endeavors to ensure that its regular suppliers directly related to its core activities, its subcontractors, financial partners, consultants and selling intermediaries (distributors, agents, etc.) subscribe to this Code of Ethics. Their own regular suppliers or subcontractors, as well as the group's industrial partners, are urged to subscribe to it, at least with regard to their activities directly relating to AREVA's core activities.

AREVA reserves the right to verify that the practices of its suppliers and subcontractors comply with AREVA's Code of Ethics at all times, and throughout the goods and services supply chain.



### 3. RULES OF CONDUCT IN FORCE AT AREVA

The following rules of conduct are binding on all AREVA employees and on its suppliers and subcontractors. Where appropriate, they are clarified by compliance policies and procedures.

#### PROTECTION OF LIFE AND PROPERTY

Employees shall immediately notify their hierarchy of any irregularity they observe with regard to the protection of life and property.

#### People, health, safety and the environment

The group conducts its activities in strict compliance with human dignity, proscribing inter alia any form of harassment and any violation of human rights or the rights of the child.

AREVA takes care to ensure that the activities carried out on its sites comply with current rules and group policies relating to health, safety and the environment.

Any breach of these obligations must be reported to the relevant level - and to the Compliance Department where appropriate - which shall forthwith take measures to verify the reality of the offending practices, conduct the necessary audits and immediately put an end to such misconduct if it is proven.

#### Reputation and brand image

AREVA's reputation is one of its main assets. Its employees must take good care on a daily basis not to do or say anything that could harm AREVA's reputation, image or credibility. In national and international relations, due respect prohibits any denigration and ostentatious, uncivil or offhand conduct towards others.

#### Intangible heritage

Employees shall take care to protect the group's confidential data, whether or not marked as such, against any intrusion, theft, loss, damage, misappropriation, disclosure, reproduction, forgery, use for personal, unlawful or occult purposes, particularly on the Internet and the Intranet.

This involves protecting technical and management data, customer, prospective customer and supplier files, software, passwords, documentation and drawings, methods and know-how, trade secrets, techniques and adjustments, intellectual and industrial property, forecasts, contracts and agreement, cost and selling prices not in catalogues, strategic or commercial aims, research and development material, financial and corporate information, the names and contact details of specialists and experts.

#### CONFLICTS OF INTEREST

All employees shall demonstrate loyalty and declare forthwith and in writing any conflicts of interests to their superiors, with a copy for the Compliance Department. This concerns any situation in the course of their duties in which their personal interests or that of their relatives could interfere with the interests of the AREVA group. This principally concerns relations with suppliers, customers, identified competitors and any organization or person having or seeking to have dealings with AREVA.

Employees shall take care not to deliberately put themselves in a situation of conflict of interest and shall not participate in any analysis, meetings or decisions concerning matters subject to a conflict of interest. In particular, a spouse, child or relative of

a group employee may only be hired or commissioned if the employee's superior agrees, and the same rules apply to the said person on objective criteria, in order to avoid any ambiguity or suspicion of favoritism. The group employee concerned cannot take part in the process of selecting his or her friend or relative. Equally, a spouse, child or relative of a group employee cannot be placed under the latter's direct or indirect line authority.

Conflicts of interest notified to management are analyzed on a case-by-case basis by the two higher levels of management, which settle the conflict in accordance with current laws and regulations. The following situations that could be the source of potential conflicts of interest (a non-exhaustive list) must be reported:

- a company officer or one of his or her relatives has personal interests in customer or supplier companies - including consultants, financial partners and others - or group competitors;
- a member of staff or one of his or her relatives is a director or corporate officer of an independent firm having dealings with the group;
- a member of staff or one of his or her relatives is a consultant, or holds a management position or is a member of the sales or purchasing department of another company having or seeking to have dealings with the group;
- a member of staff or one of his or her relatives puts premises, equipment or personal property at the disposal of the group for a consideration.

#### COMPETITION

AREVA and its employees shall not directly or indirectly distort the free play of competition in any commercial transactions. They shall also refrain from any unfair conduct towards competitors, and from participating in illegal arrangements. AREVA and its employees shall comply with French, European and international competition law and the law of all countries in which the group operates. Any information relating to third parties, in particular AREVA's competitors, must be collected and used in strict compliance with applicable law.

#### EXPORT CONTROLS

With regard to nuclear activities, the group only supplies goods, services and technologies to States and companies in such States that are in compliance with current international provisions governing non-proliferation and with IAEA safeguards and export controls. It undertakes not to work under any other conditions. It satisfies national requirements governing the exports of countries in which it is established.

#### CORRUPTION, GIFTS AND UNDUE ADVANTAGES

##### General attitudes

Integrity governs group's employees' relations with public services and with its customers, suppliers and partners. AREVA bans corruption in all its forms, be it public or private, active or passive. AREVA undertakes not to directly or indirectly make, offer, promise or solicit a payment or service, gift or leisure activity in excess of what is legally allowed, to any politicians, state or private-sector officials, with a view to illegally winning or retaining a contract or competitive advantage. The anti-corruption organization in place is described in a group policy.

Any observed cases of active or passive corruption, any solicitation of a third party tending towards such corruption, shall immediately be reported to management and the Compliance Officer, who shall forthwith take the measures needed to ascertain the reality of such cases, inter alia by carrying out the appropriate audits, and immediately put an end to such misconduct, if it is proven. Employees must avoid any situation in which they, even momentarily, find themselves in debt to a third party, or any merely ambiguous situation and any equivocal allusion of that nature.

### Payments

All group entities and managers must be able in all circumstances to substantiate the real source and use of any sum.

No payments may be made or received if their purpose has not been fully and accurately described in their supporting contractual documents and accounting records.

No payment techniques which conceal, or aim to conceal, the identity of a payer or payee are permitted.

### Selling intermediaries

All contracts with selling intermediaries must be duly approved in advance, in accordance with the group's procedure.

### Political party funding

No group company funds or provides services to a political party, a public servant or candidate to such a post. However, in OECD member countries where such corporate contributions are legal, contributions to election campaigns may be made in accordance with current legislation in the State concerned. Such contributions are subject to the written consent of the corporate officer of the subsidiary concerned, who shall make a point of limiting such consent to a minimum. The sums and their recipients must be disclosed in the executive summary enclosed with the annual letter of compliance drafted by the subsidiary's designated company representative.

### Gifts

AREVA recognizes that occasional gifts of modest value accepted or given can sometimes legitimately contribute to good business relations. However, both in the public and the private sector, gifts or invitations are made or received by employees in strict compliance with the law and regulations and in an entirely transparent manner. They must never influence decision-making, nor can they be perceived as having any such influence on the donor and beneficiaries.

In this respect, employees must demonstrate sound judgment and a keen sense of responsibility.

Should an employee need to accept or make a gift or invitation of some value to abide by local customs or for protocol or other reasons, he or she must refer to the appropriate management level (n+1), which will promptly take the appropriate steps in accordance with current laws and regulations, and send a copy to the Compliance department.

Internally, gifts and any other intercompany selling expenses between business units or subsidiaries are banned.

### CORPORATE SPONSORSHIP, DONATIONS, HUMANITARIAN AID

The group's sponsorship policy and its action program are defined at the group level, which takes into consideration among other things the involvement of employees in such programs.

### Spirit

AREVA's interventions reflect its values. They are characterized by the lack of a quid pro quo, be it of an administrative or commercial nature.

### Arrangements

The group only intervenes as a partner, with no responsibility as prime contractor or operator, and only backs projects or programs that are led by their initiators, after accomplishing all the requisite legal and administrative formalities and obtaining the necessary permissions and guarantees.

AREVA's corporate sponsorship excludes any gift to a State or regional administration or any natural persons, and any cash payments.

### INSIDER DEALING

The hierarchy and the personnel are made aware of all questions of professional confidentiality and are informed of their duty of discretion vis-a-vis their relatives; they are warned of any insider dealing that could ensue and must adhere to the policy in force in the group governing the treatment of inside information.

In compliance with the law, company officers undertake to acquire or sell shares directly or indirectly in listed or unlisted subsidiaries solely in accordance with group policy governing the protection of inside information, and undertake to inform the company's governing bodies thereof without delay.

### PRIMACY OF AREVA'S CODE OF ETHICS AND ETHICAL ALERTS

If any blatant incident or breach of a statutory or regulatory obligation or violation of this code of ethics or compliance policies is observed, an immediate alert is a reflex and a duty. There are no hierarchical barriers to the free circulation of information required to ensure the smooth running of AREVA, nor any requisite rank for anyone alerting their superiors forthwith.

If an employee has any ethical concerns and does not know who to contact, he or she can always contact the compliance officer for his or her region or where appropriate refer to the group's Chief Compliance Officer. AREVA guarantees confidentiality and immunity for whistleblowers of good faith.

Anyone receiving an order manifestly contrary to AREVA's Code of Ethics or its compliance policies and procedures may legitimately disobey, must immediately refer the matter to group management to duly record the fact, and cannot be reprimanded on that account if the facts are proven.

### SANCTIONS

A deliberate violation of the group's Code of Ethics or compliance policies and procedures may lead to disciplinary action or even a judicial sanction.

## 4. THE TEN PRINCIPLES OF THE U.N. GLOBAL COMPACT

The Global Compact's principles in the areas of human rights, labor and the environment enjoy universal consensus derived from:

- the Universal Declaration of Human Rights;
- the International Labor Organization's Declaration on Fundamental Principles and Rights at Work;
- the Rio Declaration on Environment and Development.

The ten principles are:

### HUMAN RIGHTS

#### Principle 1

Businesses are asked to support and respect the protection of international human rights; and

#### Principle 2

make sure their own corporations are not complicit in human rights abuses.

### LABOR

#### Principle 3

Businesses are asked to uphold the freedom of association and the effective recognition of the right to collective bargaining;

#### Principle 4

the elimination of all forms of forced and compulsory labor;

#### Principle 5

the effective abolition of child labor; and

#### Principle 6

the elimination of discrimination in respect of employment and occupation.

### ENVIRONMENT

#### Principle 7

Businesses are asked to support a precautionary approach to environmental challenges;

#### Principle 8

undertake initiatives to promote greater environmental responsibility; and

#### Principle 9

encourage the development and diffusion of environmentally friendly technologies.

### ANTI-CORRUPTION

#### Principle 10

Businesses should work against all forms of corruption, including extortion and bribery.

Headings of the Board of Directors' Management Report	Sections of the 2016 Reference Document
<b>1 Situation and activities of the company and its subsidiaries</b>	
1.1 Overview	Section 9.1.
1.2 Situation and activities of the company and its subsidiaries by business segment during the year	Section 9.2.
1.3 Research and Development activities	Section 11.1.1.
1.4 Key non-financial performance indicators related to the company's specific activities	Appendix 3, Section 2.4.
1.5 Foreseeable developments and future prospects	Section 12.
1.6 Significant events between the date of closing and the date of preparation of the management report	Section 9.3.
1.7 Description of major risks and uncertainties confronting the company	Sections 4.1./4.2./4.3./4.4./4.5. and 4.7.
1.8 Company exposure to price, credit, liquidity and cash management risk	Section 4.6.
1.9 Information on accounts payable to suppliers	Section 20.6.
1.10 Acquisitions during the year of a significant interest in or control of companies whose head office is on French territory	Section 25.1.
1.11 Representative and branch offices	Section 7.2.
<b>2 Presentation of the annual financial statements</b>	<b>Sections 20.1 to 20.4.</b>
<b>3 Information on the share capital</b>	
3.1 Share capital and treasury shares	Section 21.1.
3.2 Allocation of capital	Section 18.1.
<b>4 Information on directors and officers</b>	
4.1 List of offices and functions exercised in any company by each of the directors and officers	Section 14.1.
4.2 Status of directors and officers: appointment, renewal, notification of cooptation	Appendix 1, Section 3.1.
4.3 Compensation and advantages of any kind paid during the reporting period and criteria applied to their calculation or the circumstances under which they were established	Section 15.1.
4.4 Detail of commitments of any kind made by the company towards its directors and officers, and in particular any item of compensation, payments or benefits due or likely to be due as a result of the assumption, cessation or change of and in these functions or thereafter. Description of methods for determining said commitments as well as their amounts if they appear in the agreements	Section 15.2.
4.5 Stock options allowing subscription or acquisition of shares for no consideration	Section 15.2.
<b>5 Miscellaneous information</b>	
5.1 Resolutions submitted to the Annual General Meeting of Shareholders	Appendix 5
5.2 Injunctions and fines for anti-competitive practices	Sections 20.2., Note 34/20.8.
5.3 Agreements referred to in article L. 225-102 paragraph 13 of the French Commercial Code	Section 21.3
5.4 Review of agreements authorized during previous financial years with continuing effect in the last financial year	Section 21.4
<b>6 Social, societal and environmental information</b>	
6.1 Human resources information	Sections 17.1./17.2. and 17.3.
6.2 Health and safety	Section 17.4/17.5/17.6 and 17.7, Appendix 3, Section 1
6.3 Environmental information	Appendix 3, Section 2.
6.4 Societal information	Appendix 3, Sections 3. and 4.
6.5 Reporting methodology and report of the Statutory Auditors on certain social, environmental and societal information	Appendix 4
<b>7 Documents to be appended to the Management Report</b>	
7.1 Five-year financial summary	Section 20.5.
7.2 Summary of delegations of competence and authority in effect given to the Executive Board by the Shareholders concerning capital increases	Section 21.1.8.
7.3 Report of the Board of Directors on the compensation officers	Section 15.1.2.6.

## 1. TECHNICAL GLOSSARY

### > Actinide

Chemical element whose nucleus contains from 89 to 103 protons. In ascending order: actinium, thorium, protactinium, uranium and transuranics (more than 93 protons). Neptunium, americium and curium are often called minor actinides.

### > Activation

Process by which a stable atomic nucleus is transformed into a radioactive nucleus. The transformation mainly takes place when an atomic nucleus bombarded by a neutron flux captures a neutron.

### > Air treatment system

Generally used to reduce emissions of pollutants to the atmosphere (CO, dust, NOx, SOx, HCl, dioxins, etc.).

May also be used to maintain an atmosphere that is favorable to machinery placed in a corrosive environment, such as offshore wind turbines, where the humidity and salinity of the air can cause rapid deterioration of the equipment.

### > ALARA (“as low as reasonably achievable”)

Concept used to keep public and personnel exposure to ionizing radiation as low as reasonably achievable, taking into account social and economic factors.

### > Alloy

Metallic compound consisting of a mixture of several metals.

### > Americium

Artificial element included in transuranics. It has several isotopes, all of which are radioactive. It is formed in nuclear reactors by neutron capture on the uranium and plutonium, followed by radioactive decay.

### > Anaerobic

Characteristic of a medium defined by the absence of oxygen. Anaerobic fermentation is the biological degradation of organic matter by microorganisms in the absence of oxygen.

### > ANDRA (*Agence nationale pour la gestion des déchets radioactifs*)

An *établissement public à caractère industriel et commercial* (EPIC, public industrial and commercial agency) created by French law on December 30, 1991 in charge of long-term radioactive waste management and disposal operations.

It has three areas of responsibility:

- an industrial mission, by which the agency provides for the management, operation and monitoring of radioactive waste disposal centers, designs and builds new centers for waste that is not acceptable in existing facilities, and defines radioactive waste packaging, acceptance and disposal specifications in accordance with nuclear safety rules;
- a research mission, by which the agency participates in and contributes to research programs pertaining to the long-term management of radioactive waste, in particular in cooperation with the Commissariat à l'énergie atomique et aux énergies alternatives (CEA, atomic energy commission); and
- an information mission, in particular through the periodic development of a register of all radioactive waste and materials on French territory.

### > ARIA scale

European severity scale for industrial accidents made official in 1994 by the Committee of Competent Authorities of the Member States, which implements the Seveso directive. It is based on eighteen technical parameters designed to objectively characterize the effects or consequences of accidents: each of these eighteen parameters includes six levels. The highest level determines the accident's severity index.

**> ASN (Autorité de sûreté nucléaire)**

The ASN is an independent administrative authority charged by the French State to regulate nuclear safety and radiation protection and to keep the public informed of these subjects. It reports to the French Parliament.

**> Assembly, fuel assembly**

A monolithic assembly of nuclear fuel rods filled with fuel pellets (in the case of MOX fuel, made of a mixture of uranium and plutonium oxides). Depending on its generating capacity (e.g. from 900 MWe to 1,600 MWe), the reactor core of a pressurized water reactor (PWR) contains from 150 to 240 fuel assemblies. The dimensions of the assemblies and the quantity of fissile material they contain are a function of the reactor type.

**> Atom**

Component of matter consisting of a nucleus containing positively charged or neutral particles (protons and neutrons), which account for almost all of its mass, around which negatively charged particles (electrons) spin.

**> Becquerel (Bq)**

See unit of measurement.

**> Biomass**

Any organic matter of plant, animal or human origin. Biomass can be classified by origin, chemical composition or its use for energy. When used to produce energy, solid biomass from forestry, agriculture and agri-food activities, wet biomass such as waste, effluents, or treatment plant sludge, and other biomass may be chosen, in addition to energy crops, which are plants cultivated exclusively for energy production (algae, corn silage, soybeans, etc.).

**> Biomass burner**

Component of a biomass power plant in which a solid biomass fuel is burned. The heat released by combustion is used to raise the temperature and/or pressure of a heat transfer fluid (typically water) for different types of applications.

**> Biomass power plant**

Typically, a power plant that generates heat and/or electricity from the combustion of a solid biomass fuel. Its main components are a fuel handling system including a storage silo, a system to feed the fuel into the burner, the burner itself (including the fixed or fluidized bed combustion technology and the dog leg system), a steam turbine-generator combination, and combustion fumes to reduce the emission of pollutants to the atmosphere.

**> Burnup**

Assessment of fuel depletion expressed in gigawatt days per metric ton of heavy metal (Gwd/MTHM). This is the unit of measurement for the thermal energy supplied by the fuel during its irradiation in the reactor. The term "heavy metal" designates isotopes starting with uranium and up.

**> BWR (boiling water reactor)**

Nuclear reactor moderated and cooled by light water which is brought to the boiling point in the reactor core under normal operating conditions.

**> Carbon credits**

Units allocated to companies leading projects that reduce greenhouse gas emissions. The credits can be sold to help finance the projects. Usually calculated in metric tons of CO<sub>2</sub> equivalent, one carbon credit represents a reduction of one metric ton of CO<sub>2</sub>. It can be used to compensate for greenhouse gas emissions in any sector: industrial, transportation or residential.

Countries that have signed the Kyoto Protocol use carbon credits to achieve their greenhouse gas emissions reduction objectives.

**> Cask**

Structure designed to safely contain the radioactive material transported. It may include a variety of special materials, such as radiation-absorbing materials or thermal insulation materials, as well as service equipment, impact limiters, and devices for handling and securing.

**> CEA (Commissariat à l'énergie atomique et aux énergies alternatives)**

A public scientific, technical and industrial research organization that is in a category by itself in France.

In addition to its fundamental research activities in materials and life sciences, the CEA is active in three major fields: defense and global security, energies that do not emit greenhouse gases, and technologies for information and health. It is tasked with promoting the use of nuclear power for scientific and industrial purposes and for national defense.

**> Centrifugation**

Uranium enrichment process that takes advantage of the difference in mass between the 235 and 238 isotopes of uranium, whereby a gaseous mixture of isotopes is spun at high speed and the centrifugal force is used to modify the composition of the mixture. Ultracentrifugation currently has the highest efficiency of the enrichment processes.

**> Chemical element**

Category of atoms that all have the same number of protons in their nucleus.

**> Cladding**

Sealed metal tube constituting the outside of the fuel rod in which the nuclear fuel is inserted to protect it from corrosion by the coolant and prevent the dispersion of fission products. Cladding constitutes the primary containment barrier. For pressurized water reactor fuel, the cladding is made of zircaloy, an alloy of zirconium.

**> Cleanup**

All technical operations to eliminate the risks related to industrial operations and radioactivity in a nuclear facility, consisting of decontaminating the structures, fixtures, floors and walls of the buildings.

**> CLIS (Comité Local d'Information et de Suivi)**

Instituted near the Bure underground research laboratory in France, it is tasked with a general mission of follow-up, information and consultation on radioactive waste management, and in particular on the disposal of such waste in deep geological formations.

**> Cogeneration**

Combined production of heat and electricity in the same power plant. One or more fuels may be used, including biomass, biogas (methane), natural gas, coal and fuel oil.



### > Compact Linear Fresnel Reflector (CLFR)

Technology using rows of flat or very slightly curved mirrors to concentrate the sun's rays towards a fixed horizontal linear receptor consisting of a tube or a bundle of tubes in which the heat transfer fluid flows. The operating fluid is heated by the incident rays of the sun. When the fluid is water, it is referred to as direct steam generation technology (DSG). The luminous energy is converted into thermal energy; the water is heated and converted into steam, and may subsequently be superheated. The steam can then be used directly as process steam for industrial applications or sent to a turbine to generate electricity.

### > Concentrated solar power plant (CSP)

Power plant in which the source of heat is a solar field. The field consists of mirrors that concentrate the sun's rays on a fluid, raising its temperature, so that luminous energy can be converted to thermal energy. The thermal energy is then converted into mechanical energy and finally into electrical energy via a turbine.

### > Containment

System of protection that consists of containing radioactive products inside a defined area.

### > Containment area

During the construction of a facility designed to contain radioactive materials, a series of containment barriers is put up between the materials inside and the environment outside the facility as part of the engineered structures. This creates separate areas called "containment areas".

### > Containment barrier

System capable of preventing or limiting the dispersion of radioactive materials.

### > Contamination

Presence of radioactive substances (dust or liquid) on the surface or inside a medium. Contamination in humans may be external (on the skin) or internal (via the skin or the respiratory or digestive tracts).

### > Controlled areas

Areas where access and conditions for residence time are restricted for reasons of radiation protection.

### > Control rods

Made of neutron-absorbing chemical elements such as boron or hafnium, these rods, often assembled as "clusters", are inserted in the core of a nuclear reactor to control the chain reaction, i.e. to regulate the neutron flux.

### > Conversion

Series of chemical transformations that convert the solid uranium concentrate (usually in the form of an oxide) into uranium hexafluoride ( $UF_6$ , which sublimates at about 56 °C) for the purpose of enriching it in fissile uranium ( $^{235}U$ ), and vice versa.

### > Coolant, heat transfer fluid

Fluid flowing in the core of a nuclear reactor (coolant) or in the recipient of a solar steam generator (heat transfer fluid) to transfer heat.

### > Criticality

A medium containing a fissile nuclear material becomes critical when neutrons are produced by fission of the material at the same rate as they dissipate through absorption and/or escape to the outside. To sustain a fission chain reaction, a continuously operating reactor must be maintained in a critical state. In a subcritical state, not enough neutrons are produced and the reaction stops. In a supercritical state, too many neutrons are produced and a runaway nuclear reaction can occur that can rapidly get out of control.

### > CSP (concentrated solar power)

Concentrated solar power is one way to use solar radiation directly. The technology consists of concentrating solar radiation to heat a fluid to a high temperature and then generate electricity using a turbine, or provide process steam or heat to industry.

### > Cumac

Name of the accounting unit used in the French system for "white certificates", or energy consumption reduction certificates. "Cumac" is a combination of the French words for cumulative (*cumulé*) and discounted (*actualisé*) over the product lifecycle. kWh Cumac and GWh Cumac are typically used.

### > Decay

Natural reduction of the activity of a radioactive substance through spontaneous disintegration.

### > Decommissioning

Administrative procedure consisting of removing a facility from the list of regulated nuclear facilities (INB). At that point, the facility is no longer subject to the legal and administrative requirements pertaining to regulated nuclear facilities.

### > Decontamination

Decontamination is a physical, chemical or mechanical operation designed to eliminate or reduce the presence of radioactive or chemical materials deposited on a person or equipment, or in a facility or open area.

### > Defense in depth

A series of lines of defense designed to prevent the appearance, or limit the consequences as necessary, of human or technical failures that could lead to accidental situations.

### > Deuterium

Isotope of hydrogen whose nucleus consists of one proton and one neutron.

### > Dismantling

Technical and administrative procedures carried out following the final shutdown of a nuclear facility to achieve a designated final state enabling it to be decommissioned. Besides the physical dismantling of all machinery and equipment, dismantling includes decontamination and radioactive waste management.

### > Dose

Measurement of the exposure of an individual to radiation. Exposure is a function of the energy received and the effects related to the type of radiation. Doses are measured in millisieverts (mSv), a subunit of the sievert (Sv) (1 Sv = 1,000 mSv). The mean annual dose from exposure to natural background radiation in France is 2.4 mSv/person.

**> Dosimeter**

The instrument for measuring radioactive doses received by an individual, or by certain of that individual's organs (passive or operational dosimetry), or by the environment (site dosimetry).

**> Ecodesign**

Design of a product or an industrial installation that helps reduce the consumption of natural resources and limit releases likely to impact the environment.

**> Electrolyzer**

Electrochemical system (energy receptor) in which liquid water is separated into oxygen and hydrogen by an electrical current that passes between two electrodes. The ions produced by the oxidation-reduction reactions flow freely from one electrode to the other. The two electrodes (cathode: reduction reaction; anode: oxidation reaction) are linked by the electrolyte and the electric current generator.

In the alkaline electrolyzer, the electrolyte is a potash solution that circulates or is immobilized in a retention matrix; in the membrane electrolyzer, the electrolyte is in the form of a proton conduction ion exchange membrane.

**> End-of-lifecycle operations**

All of the regulatory obligations for shutting down and dismantling nuclear facilities and managing radioactive waste.

**> Enriched uranium, depleted uranium**

Before it is used to fabricate fuel elements for reactor systems moderated and cooled with ordinary water, natural uranium is enriched in  $^{235}\text{U}$  to a concentration of 3-5%. Natural uranium is used to produce uranium enriched in  $^{235}\text{U}$ . The physical or chemical processes used to enrich uranium also produce uranium that has a lower concentration of  $^{235}\text{U}$  than natural uranium (0.2 to 0.4%): this is known as depleted uranium.

**> Enrichment**

Process used to increase the abundance of fissile isotopes in a chemical element. Naturally occurring uranium essentially consists of 0.7%  $^{235}\text{U}$  (fissile isotope) and 99.3%  $^{238}\text{U}$  (non-fissile isotope), and must be enriched in  $^{235}\text{U}$  for it to be used in a pressurized water reactor. The proportion of  $^{235}\text{U}$  is brought to around 3 to 5%.

**> Environmentally regulated facility**

Installations and operations "listed in the nomenclature of regulated facilities that may represent hazards or drawbacks, whether for the convenience of the surrounding area, for health and safety, for agriculture, for the protection of nature, the environment and the countryside, or for the preservation of sites and monuments as well as aspects of an archeological nature."

**> Environmental Management System (EMS)**

Part of the overall management system, which includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources to develop, implement, carry out and maintain the environmental policy.

**> EPR reactor**

Generation III+ pressurized water reactor (PWR). It generates 1,650 MWe of electric power and features a greater level of safety than generations II and III reactors and simplified operations and maintenance. It also has a projected service life of 60 years, compared with an initial service life of about 40 years for the reactors currently in operation around the world.

**> ERU**

Fuel made with recycled uranium.

**> Euratom**

Treaty signed in Rome on March 25, 1957, together with the treaty that founded the European Economic Community (EEC). It institutes the European Atomic Energy Community, which aims to establish "the conditions necessary for the formation and rapid growth of nuclear industries." Its mission consists of contributing, through the development of nuclear energy, to the sharing of knowledge, infrastructure and financing and to ensuring the security of supply within the framework of centralized control. It brings together the 28 member states of the European Union.

**> Exposure**

Exposure of an organ or an organism to a source of radiation, characterized by the dose received.

**> Fertile**

Said of a nuclide that can be converted into a fissile nuclide via capture of a neutron, possibly followed by a series of disintegrations.

**> Final radioactive waste**

Radioactive waste that can no longer be treated, in particular by extracting its reusable content, under current technical and economic conditions.

**> Fissile**

Describes a nuclide capable of undergoing fission; the fission of atoms gives rise to several neutrons.

**> Fission**

The spontaneous or forced splitting of a heavy nucleus – generally after absorption of a neutron – into two or three smaller nuclei, or fission products, accompanied by the emission of neutrons and radiation and the release of a considerable amount of heat. The substantial energy released is the principle underlying nuclear power generation.

**> Fission products**

Fragments of heavy nuclei produced during nuclear fission or the subsequent radioactive decay of nuclides formed during that process. These fission fragments and their decay products are collectively referred to as "fission products".

**> Fuel cell**

Electrochemical system that converts the chemical energy of the oxidation reaction of a fuel directly into electrical energy.

In its simplest form, a fuel cell consists of two electrodes (anode and cathode) and is powered with oxidation-reduction couples likely to achieve a balance with the ions contained in the electrolyte. The oxidant in the fuel cells is either pure oxygen or the oxygen in air. The most commonly used reducing agents are gaseous (hydrogen or methanol), liquid (hydrocarbons or methanol) or solid (zinc, aluminum, etc.).

Unlike accumulators, whose energy is dependent on the active matter incorporated into the electrodes, a fuel cell uses reactive chemical species from an external source (outside the cell), and the species formed are constantly eliminated, theoretically ensuring continuous operation.





### > Fuel cycle

The combination of industrial operations involving nuclear fuel. These operations include uranium ore mining and processing, uranium conversion and enrichment, fuel fabrication, used fuel treatment, recycling of recovered fissile materials to fabricate new fuel, and radioactive waste management. The cycle is said to be “open” when it does not include the recycling of the used fuel, considered as waste to be sent directly to disposal following use in the reactor. Conversely, the fuel cycle is said to be “closed” when it includes used fuel treatment and recycling of fissile materials recovered by such treatment.

### > Fuel rod

Sealed metal tube made of a zirconium-based alloy measuring about 4 meters long (about 13 feet) and 1 centimeter in diameter (2/5 of an inch) and filled with about 300 pellets of nuclear fuel. The tube is known as cladding.

### > Fundamental safety rules (*Règles fondamentales de sûreté, RFS*)

Rules designed to clarify the conditions with which compliance, for the specific type of facility under consideration and for its purpose, is deemed to constitute compliance with French regulatory practice.

### > Gaseous diffusion

Process for the isotopic separation of molecular species that uses the difference in the velocity of diffusion of these molecules (related to their different mass), and thus the different rates at which they pass through a semi-permeable membrane. The uranium hexafluorides  $^{235}\text{UF}_6$  and  $^{238}\text{UF}_6$  can be separated in this way, causing enrichment in  $^{235}\text{U}$ , the fissile isotope of uranium, for nuclear fuel.

### > Gear box

The operating concept of wind turbines involves converting the kinetic energy produced by the rotor at slow rotations of around 5 to 15 RPM into electrical energy that is directly supplied to the grid at a frequency of 50 Hz.

The conventional design of wind turbines is based on the use of proven quadrupole electrical generators and requires an input speed of 1,500 RPM. A gear box is necessary to adapt the rotor rotation speed to the generator while transmitting energy. A gear box consisting of one or more simple or epicycloidal gear trains is needed to transmit effort while adapting rotation speed.

Hybrid transmission wind turbines such as the AREVA M5000 are based on a multipolar generator (some 40 poles) requiring much lower reduction ratios which are affordable and thus allow the use of much more compact gear boxes.

Direct transmission wind turbines use heavily multipolar generators that are costlier but eliminate the gear box stage completely.

### > General operating rules (*Règles générales d'exploitation, RGE*)

Document describing the operating rules (*règles générales d'exploitation, RGE*) defined for the facility and identifying items important for safety. It describes measures to be taken if facility performance is outside the normal operating mode.

### > General radiation protection rules

Document containing rules (*règles générales de radioprotection, RGR*) describing the combination of measures taken to protect people and prevent the risk of exposure to radiation.

### > Generation IV reactor

An innovative reactor system or reactor type that could go on line by the 2040 to 2050 timeframe. These reactor systems are being designed in the framework of international cooperation known as the Generation IV International Forum, in which France is participating. The systems aim to respond to the need to reduce waste volumes, conserve resources, and ensure greater safety and reliability in the nuclear reactors of the future.

### > Glove box

A transparent enclosure in which equipment or materials can be handled in isolation from the operator. Handling is done with gloves attached in leak-proof manner to openings in the wall of the enclosure or with mechanical manipulators. The enclosure is generally kept at slightly negative pressure to contain radioactive materials.

### > HCTISN (Senior committee for transparency and information on nuclear safety)

A body for information, consultation and discussion of the risks related to nuclear operations and their impact on public health, the environment and nuclear security. As such, it may issue opinions on any matter in these fields, as well as on related oversight and information. It can also examine any matter pertaining to the accessibility of information on nuclear safety and recommend any measure to ensure or improve transparency in nuclear matters.

### > Heat recovery

Heat recovery power plants use the residual heat from industrial processes to generate electricity. The technology consists of transferring heat to a heat recovery boiler to produce more heat and electricity via a steam turbine. Heat recovery power plants can reduce demand for energy from industrial facilities and therefore reduce their CO<sub>2</sub> emissions.

### > Heavy metal

Heavy metal is the nuclear material in fuel: uranium and possibly plutonium in the case of MOX fuel. The unit of measurement commonly used for heavy metal is the metric ton of heavy metal (MTHM).

### > HFDS (Senior defense and security official)

The French Defense Code tasks the Minister of Energy with the control of civilian nuclear materials. To date, due to the current division of powers within the French government, that responsibility has been shared by the Minister of Economy, Finance and Industry and the Minister of Environment, Energy and Oceans. To carry out these responsibilities, the Ministers rely on the Defense, Security and Economic Intelligence Service and its employees in charge of examining cases and drafting regulations. The service answers to the Senior Defense and Security Official (HFDS), who acts as the nuclear safety authority for the Minister of Environment, Energy and Oceans.

**> Hulls**

Pieces about 3 centimeters long produced by the shearing of the metal cladding (fuel rods) that had contained nuclear reactor fuel.

**> IAEA (International Atomic Energy Agency)**

International organization under the aegis of the United Nations (UN) whose role is to promote the peaceful use of nuclear energy and to verify that nuclear materials in users' possession are not diverted to military uses.

**> INES (International Nuclear and Radiological Event Scale)**

International scale designed by the IAEA to facilitate communication about nuclear events. It provides comparative elements that can be used to assess the seriousness of an event. The scale ranges from level 0 (deviation with no safety significance) to level 7 (major accident with considerable health and environmental consequences).

Three criteria apply in the application of the INES:

- offsite radioactive releases;
- the consequences inside the installation (damages or personnel injuries);
- degradation of defense in depth.

**> Information commission**

Established near nuclear sites falling within the realm of National Defense whose mission is to inform the public on the health and environmental impacts of the nuclear operations.

**> In situ recovery**

Mining method consisting of recovering a mineral by injecting an acidic or alkaline oxidizing solution directly into the geologic stratum containing the mineral, thus dissolving it. The term "in situ leaching" is also used.

**> Instrumentation and control system**

Combination of electrical and electronic systems used for control, i.e. to perform measurements, operate control systems, and ensure the operating safety of a nuclear power plant or any other complex industrial system.

**> Internal emergency management plan**

Describes the organization, response methods and resources to cope with emergency situations (incident or accident) to protect personnel, the public and the environment from radiation, and to maintain the safety of the regulated nuclear facility.

**> Internal operation plan (*Plan d'opération interne*, POI)**

Describes organizational procedures and resources available at an industrial site to minimize the consequences of a potentially major disaster for people, property and the environment. It may be required by regulation, pursuant to article R.512-29 of the French Environmental Code (environmentally-regulated facility with AS classification, any other facility following a prefectural decision, and certain special facilities such as storage depots of more than 50,000 m<sup>2</sup>).

**> Ionizing radiation**

Flux of electromagnetic waves (radio waves, light waves, ultraviolet or X rays, cosmic rays, etc.), of particles of matter (electrons, protons, neutrons), or of a group of such particles. The flux carries energy which rises with the wave frequency or with the particle speed. The effect of radiation on objects and living organisms is to strip electrons from the atoms that make up their matter (whether living or inert), leaving ionized atoms in their wake, which carry electrical charges, hence the generic name of "ionizing" radiation.

**> IPCC (Intergovernmental Panel on Climate Change)**

Created in 1988 at the initiative of the G7 countries and made up of UN experts, the IPCC is now part of the World Meteorological Organization in the framework of the UN Environment Program. Its role is to assess scientific, technical and socioeconomic information concerning the risk of human-induced climate change. In this regard, it publishes several reports that forecast, among other things, an average increase in global temperatures in one century.

**> Irradiation**

Exposure of an organism or an organ to radiation when the radiation source is outside the organism.

**> IRSN (*Institut de radioprotection et de sûreté nucléaire*)**

The French institute for radiation protection and nuclear safety, a public industrial and commercial agency whose mission, in particular, is to conduct research and assessments in the fields of nuclear safety, protection of people and the environment from ionizing radiation, and nuclear materials safeguards. IRSN provides technical support to the ASN and the HFDS.

**> ISO standards**

From the International Standards Organization. The ISO series 9000 standards set organizational and management system requirements for quality to demonstrate the conformity of a product or service, in particular to customer requirements. The ISO series 14000 standards set requirements for the environmental organization and management system designed to prevent pollution and reduce the environmental effects of an activity.

**> Isotopes**

Nuclides whose atoms have the same number of protons in their nuclei, but a different number of neutrons. For example, three main types of uranium isotopes are found in nature: <sup>234</sup>U (92 protons, 92 electrons, 142 neutrons), <sup>235</sup>U (92 protons, 92 electrons, 143 neutrons), and <sup>238</sup>U (92 protons, 92 electrons, 146 neutrons). All of the isotopes of a given element have the same chemical properties, but different physical properties (mass in particular).

**> Isotopic assay**

Ratio of the number of atoms of a given isotope of an element to the total number of atoms of that element contained in matter. Isotopic assay is expressed as a percentage.

**> Isotopic separation cascade**

Arrangement of separative elements ("stages"), which are interconnected to increase the separative effect of a unit element. The gaseous diffusion and centrifugation enrichment processes separate uranium-238 and uranium-235 by exploiting the difference in mass between those isotopes. Because the separative potential of these processes is low to very low, the basic step must be repeated a large number of times in a cascade to achieve the desired level of enrichment. These elementary stages take place in diffusers or centrifuges, which together form a cascade.



**> ITER (International Thermonuclear Experimental Reactor)**

Research initiative that is the product of international scientific cooperation whose objective is to build a controlled fusion demonstrator to validate the potential of nuclear fusion energy.

**> Leaching, *in situ* leaching, heap leaching**

Extraction of metals through selective dissolution of ore using chemical solutions, whether acidic or alkaline. Leaching may be static, in the case of ore that is placed in a heap on an impermeable pad and sprayed; dynamic, in the case of ore mixed with solutions in a processing plant; or *in situ*, where solutions are injected into the geologic layer containing the ore and pumped out.

**> Light water**

Consisting of hydrogen and oxygen (whereas heavy water is a combination of oxygen and deuterium), it is used in some reactors both to cool the fuel and to recover the energy produced, and to slow the neutrons so as to increase the probability of fission.

**> Local information and consultation committee**

Established near all “Seveso high threshold” chemical industry facilities, the committee’s mission is to create a framework for dialogue and information on action taken by the operators of regulated facilities, under the oversight of government agencies, to prevent the risk of a major accident at the facilities.

**> Local information commission**

Instituted near a site with one or more regulated nuclear facilities (INB). Their general mission is to provide follow-up, information and consultation in matters pertaining to nuclear safety, radiation protection and the impacts of nuclear operations on people and the environment. The CLI publishes the results of its work in a form that is easily understood by the public.

**> Local information commission for major energy facilities of the Tricastin site**

Local information commission set up for the Tricastin nuclear site in France.

**> Mine tailings**

Earth, sand or rock that contains little or no uranium, but that must be extracted to gain access to the ore itself. The naturally occurring radioactivity of mine tailings is comparable to that of the surrounding rock.

**> Moderator**

Material designed to slow neutrons produced by nuclear fission.

**> MOX**

MOX fuel is a conventional nuclear fuel. It differs from UO<sub>2</sub> fuel, a basic nuclear fuel fabricated only with uranium, in that fact that it contains a low proportion of plutonium from recycled used fuel mixed with uranium (MOX means Mixed Oxides of uranium and plutonium). The proportion of plutonium varies according to the type of fuel, and is generally between 5 and 10%.

**> MSNR (*Mission de sûreté nucléaire et de radioprotection*)**

The nuclear safety and radiation protection mission (MSNR) reports to the French Ministries of Environment and Economy; it participates in government missions concerning nuclear safety and radiation protection. In particular, in liaison with the Autorité de sûreté nucléaire (ASN), it recommends government policy in matters of nuclear safety and radiation protection, except for operations and facilities involving national defense and radiation protection for workers. It oversees the activities of the ASN on behalf of the Ministers in charge of nuclear safety and radiation protection.

**> Nacelle**

The nacelle is installed at the top of the wind turbine tower and generally houses the mechanical, pneumatic, electrical and electronic components needed for the operation of the wind turbine (directional system, gear box, generators, converters, instrumentation and control system, etc.).

Almost all horizontal axis wind turbines use forced direction. The nacelles are therefore equipped with a system that uses electrical motors and gear boxes to make sure that the rotor – and thus the nacelle – is always oriented in the direction of the wind.

**> National radioactive waste and materials plan (*Plan national de gestion des matières et des déchets radioactifs, PNGMDR*)**

The PNGMDR is an operational tool for broad-based planning of waste and materials management. Governed by the law of June 28, 2006 on the sustainable management of radioactive waste and materials, its chief goal is to regularly report on the radioactive materials management policy, to assess new requirements, and to set future objectives to be met. The PNGMDR is updated every three years in the form of a published report. The current version is the 2013-2015 edition.

**> NEA (Nuclear Energy Agency)**

Specialized agency of the Organization for Economic Cooperation and Development (OECD) whose mission is to assist its member countries in maintaining and further developing, through international cooperation, the scientific, technological and legal bases that are indispensable to the safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.

**> Neutron**

Electrically neutral particle that enters into the composition of the atom’s nucleus, along with the protons.

**> Neutron poison**

Substance which, when placed or produced in a nuclear reactor, can slow or stop the fission chain reaction by absorbing neutrons.

**> Non-proliferation**

Designates the political and/or technical means used to prevent nuclear proliferation. The international non-proliferation regime consists of the set of international policies and instruments that work to prevent states from acquiring weapons of mass destruction or the means of acquiring them, in violation of their international commitments. The Non-Proliferation Treaty (NPT) is based on distinguishing between nuclear weapons states (NWS) and non-nuclear weapons states (NNWS). The NWS pledge not to transmit their nuclear weapons knowledge to the NNWS, which agree not to acquire a nuclear deterrent capability. In exchange, the NNWS are entitled to access nuclear technologies for peaceful purposes.

**> Nozzle**

Metal component located at the top (top nozzle) or bottom (bottom nozzle) of a fuel assembly. The top nozzle is used for handling of the assembly.

**> Nuclear engineering**

Any activity relating to the design, construction or optimization of nuclear facilities.

**> Nuclear fuel**

Material designated by the French Defense Code as requiring measures to physically protect them against theft or diversion.

**> Nuclear island**

A system encompassing the nuclear steam supply system and the fuel-related facilities, as well as the equipment required for the system's operation and safety. A "conventional island" consists of the alternating current turbogenerator coupled to the nuclear island, and the equipment required for its operation.

**> Nuclear materials safeguards**

Safeguards are of two kinds:

- any measure taken by an operator to secure the materials they hold, including monitoring and accounting, containment, surveillance, physical protection of materials and facilities, and protection during transportation;
- inspections performed by the State (in France, the Senior Official for Defense and Security) or international agencies such as the IAEA and Euratom to verify the effectiveness and reliability of these measures.

In both cases, the purpose of safeguards is to prevent any loss or theft of material, particularly with malicious intent.

**> Nuclear Regulatory Commission (NRC)**

Counterpart of ASN in the United States.

Field of jurisdiction: nuclear safety and radiation protection.

**> Nuclear safety**

Encompasses all of the technical provisions and organizational measures pertinent to the design, construction, operation, shut-down and dismantling of regulated nuclear facilities (INB), and to the transportation of radioactive materials, and is designed to prevent accidents and limit their consequences.

**> Nuclear security**

According to the French Nuclear Safety and Transparency Law of June 13, 2006 ("TSN Law"), nuclear safety includes nuclear safety, radiation protection, prevention and control of acts of malevolence, and emergency preparedness in the event of an accident. In another sense that is closer to the IAEA's definition, it is the prevention of, detection of and response to the theft, sabotage, unauthorized access and illegal moving of nuclear materials, or any other malicious act concerning nuclear materials, any other radioactive substances, or the facilities containing them.

**> Nuclear steam supply system (NSSS)**

A steam production system in which the heat is supplied by a nuclear reactor.

In a pressurized water reactor (PWR), the system consists of heavy components (steam generator, pressurizer and reactor vessel), mobile components (reactor coolant pump sets and control rod drive mechanisms), and the piping that connects them. All of these interconnected components circulate hot water and keep it in a liquid state inside the reactor's primary cooling system. The heat is produced by the fission of atomic nuclei contained in the fuel that is placed in the reactor core, inside the reactor vessel.

**> OHSAS 18001 standard**

Occupational health and safety management system specification designed to prevent risk in the workplace. The objective is to provide interested companies with a tool for assessing and certifying their occupational health and safety management systems which is compatible with international management system standards such as ISO 9001 for quality, ISO 14001 for the environment and ILO-OSH 2001 for occupational safety and health.

**> ONR (Office for Nuclear Regulation)**

Counterpart of the Autorité de sûreté nucléaire (French nuclear safety authority, ASN) in the United Kingdom.

Field of jurisdiction: nuclear safety and radiation protection.

**> Ore**

Rock, mineral or combination of minerals containing one or more useful chemical elements at sufficiently high grades and which can be extracted by an industrial process.

**> Periodic inspection**

Combination of inspections performed periodically in a facility during a scheduled outage.

**> Plutonium**

Chemical element with the atomic number 94 and conventional symbol Pu. Plutonium has many isotopes, the most common of which go from 238 to 242. Plutonium-239, a fissile isotope, is produced in nuclear reactors by neutron capture on uranium-238.

**> Pressurized nuclear equipment**

Equipment that is specially designed for nuclear applications and whose failure could give rise to radioactive releases.

Pressurized nuclear equipment is classified:

- into three levels, from N1 to N3, in particular as a function of the magnitude of radioactive releases that could result from their failure; and
- into five categories, from 0 to IV, based on risk, and in particular risk related to the temperature and pressure of the fluids they contain.

In France, the order of December 12, 2005, which came into effect on January 21, 2011, establishes the conditions for the marketing of all nuclear equipment and devices.



### > Pressurizer

Equipment used to create and maintain pressure in the primary cooling system of a pressurized water reactor (PWR) at a level designed to prevent the primary cooling water from reaching the boiling point. The pressurizer functions at a temperature that is higher than the rest of the cooling system and is where liquid/steam balance is achieved.

### > PWR (pressurized water reactor)

Nuclear reactor moderated and cooled by light water maintained in the liquid state in the core through appropriate pressurization under normal operating conditions.

### > Pyrolysis

Thermal decomposition of a solid fuel (biomass, coal, etc.) in the absence of oxygen to produce other products (gas and matter).

### > Radiation

Also referred to as "ionizing radiation", designates a release and transmission of energy or matter in thermal luminescent, electromagnetic or corpuscular form.

### > Radiation protection, radiological protection

Set of rules, procedures and means for prevention and monitoring aimed at preventing or reducing employee and environmental exposure to the harmful effects of radiation.

### > Radiferous material

Material containing daughter products of uranium, including solid radium and radon, which is released in gaseous form.

### > Radioactive decay

Spontaneous transformation of a radionuclide into another nuclide, accompanied by particle emission.

### > Radioactive half-life

The time it takes for half of the nuclei of a given radionuclide to disintegrate in a quantity of matter. At the end of that time, the radionuclide's radioactivity has decreased by half. No external physical action can modify the half-life of a radioelement, except its "transmutation" into another radionuclide, through neutron capture, for example. The radioactive half-life is thus a physical characteristic of a given radionuclide.

### > Radioactive material

Radioactive substance for which an immediate or later use is planned or foreseen, after treatment if required.

### > Radioactive substance

Substance containing natural or manmade radionuclides whose activity level or concentration warrants radiation protection measures.

### > Radioactive waste

Waste consisting of radioactive substances for which there are no plans for further use.

### > Radioactive waste disposal

In France, this consists of placing radioactive waste in a facility especially designed to isolate them permanently from man and the environment, in accordance with the principles laid down in the Environmental Code.

### > Radioactive waste disposal in a deep geologic formation

Disposal of radioactive waste in a specially designed underground facility in accordance with the principle of retrievability.

### > Radioactivity

Phenomenon in which a nuclide is transformed, releasing radiation. Radioactivity may be natural or artificial (manmade). The radioactivity of an element gradually decreases over time as the unstable nuclei dissipate.

### > Radionuclide

Atom that emits ionizing radiation.

### > Radon

Radioactive gas (<sup>222</sup> isotope) resulting from the natural decay of the uranium and thorium contained in the ground. It reaches the atmosphere through natural cavities and cracks in the ground and may build up in caves, cellars, homes, etc. if not sufficiently vented.

### > Reactor, nuclear reactor

Nuclear facility in which controlled nuclear reactions are conducted, producing heat that is used to make steam. The steam activates a turbine, which drives an electric generator.

### > Reactor coolant pump

Motor-driven pump that circulates the water in the primary cooling system of a pressurized water reactor. It turns at close to 1,500 rotations per minute, pumping about 20,000 cubic meters of water per hour.

### > Reactor core

Consists of the nuclear fuel inside the reactor vessel, arranged in such a way that the fission chain reaction can be maintained.

### > Reactor system

Family of reactors presenting common general characteristics.

### > Reactor vessel

A thick steel container enclosing the reactor core and the control systems for the fission chain reaction. The primary cooling water circulating in the reactor vessel is heated by recovering the energy produced.

### > Recycling of used nuclear fuel

After a reactor residence time of three to four years, the used nuclear fuel must be unloaded. At that time, about 96% of the fuel materials are reusable (95% uranium and 1% plutonium), while 4% are fission products and minor actinides (final waste). Treatment consists of separating the reusable radioactive materials from the final radioactive waste contained in the used fuel (which are packaged for disposal) for purposes of recycling. Recycling allows for significant conservation of natural resources.

### > Regulated nuclear facilities (*installation nucléaire de base, INB*)

In France, an *installation nucléaire de base* (INB) is a regulated nuclear facility which by its nature or by the quantity or activity of any radioactive substances it contains, within the meaning of the INB nomenclature, is subject to the French Nuclear Safety and Transparency Law of June 13, 2006 and to its implementing regulations. Monitoring of regulated nuclear facilities is carried out by the inspectors of the Autorité de sûreté nucléaire (French nuclear safety authority ASN). By way of example, a nuclear reactor, an enrichment plant, a fuel fabrication plant and a used fuel treatment plant are all regulated nuclear facilities.

### > Renewable Energy

Energy produced from renewable, non-fossil sources that can be replaced within a human generation.

### > RepU

Recycled uranium from used fuel treatment.

### > Reserves / Resources

Reserves consist of ore inventories known with certainty that can be feasibly mined in the short term at a competitive economic cost. Resources consist of reserves and of ore inventories whose existence is only assumed or estimated with a certain probability, and that are potentially mineable over the medium to long term.

### > Residual power

Power released by the radioactivity of the nuclear fuel and other materials in a nuclear reactor that is shut down or in a used fuel assembly.

### > Rod cluster control assembly (see control rod)

Equipment containing the neutron-absorbing elements used to control the fission chain reaction in a nuclear reactor. The chain reaction can be slowed or stopped by introducing the rod cluster control assembly into the fuel core.

### > Rotor

Component of a wind turbine consisting of several blades (usually three) attached to a central hub, which are themselves attached to the nacelle.

The wind turns the rotor, producing mechanical energy which is then converted into electrical energy by the generator.

### > Rotor blades

Wind turbine rotor blades capture kinetic energy from the wind and convert it into mechanical energy in the form of aerodynamic lift.

As they are assembled as a rotor by means of a central hub, this linear thrust can be converted into more easily exploitable torque load.

### > Safety analysis report

Report describing the design of regulated nuclear facilities and the measures taken to ensure safety. It identifies the risks presented by the facility and describes the measures taken to prevent them as well as measures conducive to reducing the probability of accidents and their effects.

### > Safety review

The safety review of a facility is used to assess the facility's status in terms of the rules applicable to it and to update the assessment of the risks and drawbacks that the facility may present, taking into account in particular the condition of the facility, the experience acquired from operations, the accumulation of knowledge, and the rules applicable to similar facilities.

### > Safety system

A set of documents presenting measures taken to ensure the safety of a facility. The safety analysis report is one such document. In particular, it includes:

- a license decree (in France, if the facility was created or modified after 1963) and the license application file;
- requirements decreed by the French nuclear safety authority (ASN);
- a Safety Analysis Report (SAR) and general operating rules (*règles générales d'exploitation, RGE*), or general monitoring and servicing rules (*règles générales de surveillance et d'entretien, RGSE*);
- a waste management study for the facility stating the goals for minimizing waste volume and toxicity;
- an Internal Emergency Management Plan (*plan d'urgence interne, PUI*), which may include sections that are common to the entire nuclear site in which the facility is located.

### > SEA sites (sites with significant environmental aspects)

In AREVA's frame of reference, nuclear sites, sites with facilities representing major manmade risk per Seveso regulations, operating mine sites, plant sites with facilities subject to public inquiry, and industrial or office building sites which make a significant contribution to the group's environmental accounting in terms of consumption, releases or hazards.

### > Shielding, biological shielding, biological protection

Protective shielding from radiation used to limit exposure of people.

### > Shipping cask

Name for a container used to ship radioactive materials.

### > Specific burnup

See *burnup*.

### > Specific response plan (*Plan particulier d'intervention, PPI*)

Describes the emergency response organization set up by government agencies in the event of an accident in a nuclear facility with potential off-site consequences. The mobilization and coordination of necessary resources, tailored to the circumstances, are placed under the authority of the Prefect.

### > Stator

Static component of an electric motor (such as a reactor coolant pump set) or an alternator.

### > Steam generator

Heat exchanger in a pressurized water reactor (PWR) that transfers the heat from the water in the primary cooling system to the secondary system, where it is converted into steam that drives a turbine connected to an alternator to generate electricity.



### > Storage

Temporary storage of radioactive materials or waste in a facility that is specifically designed for that purpose, pending their removal.

### > STUK

Counterpart to the Autorité de sûreté nucléaire (French nuclear safety authority ASN).  
Field of jurisdiction: nuclear safety and radiation protection.

### > SWU (separative work unit)

An enrichment plant's production is expressed in SWU. This unit is proportionate to the quantity of uranium processed and is a measure of the work required to separate the fissile isotope.

### > TDG order

French modal order of May 29, 2009 on the transport of dangerous goods ("TDG order").

The order applies to the national or international carriage of dangerous goods by road, rail and inland navigation in France, including loading and unloading operations, intermodal transfers and halts required by transportation circumstances.

The order stems from international and European Community laws and applies in particular to the carriage of radioactive materials (class 7 carriage).

### > Ten-year inspection

Every ten years, nuclear reactors are inspected thoroughly, including a detailed inspection of its principal components: the reactor vessel, the primary cooling system, and the reactor containment.

### > Thermonuclear fusion

The energy from the stars, such as the sun, is produced by the nuclear process of fusion of light atoms, such as hydrogen. Fusion is the opposite of fission, for it corresponds to the merging (rather than the splitting) of atomic nuclei.

### > Thorium

Natural radioelement (232 isotope) that can produce the fissile uranium isotope of uranium, <sup>233</sup>U, through neutron capture.

### > Tokamak

Acronym from the Russian expression *toroidalnaya kamera magnitaya katushka*, which means "toroidal chamber and magnetic coil". The International Thermonuclear Experimental Reactor (ITER) aims to study hot plasmas in this configuration.

### > Torrefaction

Torrefaction (or depolymerization) of biomass is a mild form of thermo-chemical treatment (from 200 to 320 °C) used to eliminate water and change part of the organic material used in biomass to break down its fibers. During the torrefaction process, light organics are removed and the structure of the biomass is depolymerized and changed, causing the fibers to break. Torrefied biomass, also called biocoal, is a high-quality solid fuel that is ideal for certain types of industrial applications, both general and specific, including electricity generation, heat production, cogeneration and central heating. This new fuel opens up new possibilities for renewable energies.

### > Trading

Commercial transactions in the natural uranium market not directly connected to the group's mining operations, in the form of the purchase, sale, exchange, lease or loan of uranium.

### > Transportation emergency response and management plan

Instantly activated in the event of a transportation incident involving radioactive materials. It covers the phases of alert, situational analysis and response in the field following an incident or accident involving the transportation of radioactive materials. It makes available specialized human resources and special equipment to the competent authorities. The entire plan is tested on the national scale once a year on average with the leading players, and in particular the competent authorities.

### > Transuranic elements

Chemical elements in which the nucleus contains more protons than uranium, which has 92. The first transuranic elements are, in increasing order, neptunium, plutonium, americium and curium.

### > Tritium

Isotope of hydrogen whose nucleus consists of one proton and two neutrons. It emits beta rays and is present in the natural state in the air and in effluents from light water reactors. Tritium and deuterium are the two reagents chosen for controlled fusion projects.

### > Turbine

Device used to convert the energy contained in a fluid (water, steam, gas, etc.) into a rotary motion. The turbine is also used to drive the rotation of a current generator in units that generate electrical energy.

### > UF<sub>4</sub>

Uranium tetrafluoride.

### > UF<sub>6</sub>

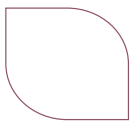
Uranium hexafluoride.

### > Unit, nuclear unit

Unit for power generation consisting of a nuclear steam supply system, including the reactor, and a turbogenerator. Nuclear power plants generally have several units on one site.

### > Units of measurement

- Becquerel (Bq): international unit of measurement of activity (1 Bq = one atomic particle disintegration per second). The becquerel is a very small unit. Previously, nuclear activity was measured in Curies (one curie = 37,000,000,000 Bq, corresponding to the activity of one gram of natural radium).
- Sievert (Sv): legal unit of dose equivalent, used to determine the biological effects produced by a given absorbed dose on a living organism. Dose equivalent is not a measurable physical quantity; rather, it is calculated. It is determined by multiplying the absorbed dose (expressed in grays, where 1 gray = 1 joule per kg) by two coefficient factors which depend on the type of radiation and the type of tissue affected. The millisievert (mSv), which represents a thousandth of a sievert, and the microsievert (μSv), which represents a millionth of a sievert, are used for low doses. By way of example, the average annual natural radioactivity per person in France is 2.4 mSv, a chest x-ray represents about 0.1 mSv, and a round trip by air between Paris and New York is from 50 to 150 μSv.



#### > **UO<sub>2</sub> powder**

UO<sub>2</sub> is the symbol for uranium oxide, which comes in powder or pellet form. It is the constituent component of nuclear fuel. It is also the formula for pitchblende (natural uranium ore).

#### > **Uraniferous material**

Material containing uranium.

#### > **Uranium**

Uranium is a radioactive heavy metal. It is a chemical element with the atomic number 92 and the atomic symbol U, with three radioactive natural isotopes: <sup>238</sup>U (99.28% fertile), <sup>235</sup>U (0.71% fissile), and a very small quantity of <sup>234</sup>U. Uranium-234, which comes from the radioactive decay of uranium-238, is not fissile.

#### > **Uranium concentrate (yellowcake)**

Magnesium, sodium, ammonium uranate or uranium peroxide in solid form resulting from the mechanical and chemical treatment of uranium ore. This marketable concentrate contains about 80% uranium.

#### > **Used fuel storage pool**

Pools in which used fuel is stored for cooling after it is unloaded from a reactor.

#### > **Used nuclear fuel**

Fuel permanently removed from a reactor core after having been irradiated.

#### > **Vitrification**

Process used to incorporate concentrated solutions of final radioactive waste (fission products and minor actinides), which have been chemically separated from the used fuel, into a glass structure by mixing it with a glass matrix at high temperature.

#### > **Waste packaging**

Radioactive waste packaging: operation consisting of packaging waste in a form suited to radioactive materials containment, enabling its shipment, storage and final disposal.

- Very low level radioactive waste such as vinyl or cleaning rags is packaged in drums, in special "big bags", or in very large bins. Very low level radioactive rubble is placed loose inside special big bags.
- Low level and medium level waste is first reduced in volume as much as possible, then packaged in specific ways (immobilized or embedded in a special concrete, bitumen or resin matrix). The immobilizing or embedding matrix keeps the toxic and radiotoxic substances contained within the waste package.
- High level waste is vitrified and poured into stainless steel canisters.

#### > **Wind tower**

Used to place the rotor at a sufficient height to reach higher wind velocities and facilitate its movement; in other words, to extract a much higher energy capacity. The tower houses certain electrical and electronic components, such as the air treatment system, the transformer station and the converter.

#### > **Wind turbine**

Device that converts kinetic energy from the wind into mechanical energy. This energy is usually converted into electrical energy.

#### > **Yellowcake (uranium concentrates)**

"Cakes" of about 80% uranium concentrates.

#### > **Zircaloy**

Type 2 or 4 zirconium-based alloys containing tin, copper, iron and nickel. Other alloys, to which only niobium or vanadium are added, do not bear the name zircaloy.

#### > **Zirconium**

Metal chosen for its mechanical strength and corrosion resistance in high-temperature water, combined with its very low thermal neutron absorption, to make the alloy used in the cladding of light water reactor fuel elements. Zirconium is highly resistant to corrosion at high temperature. It is therefore used in the form of an alloy to fabricate nuclear fuel assemblies, including spacer grids, rods, guide tubes, etc.





## 2. FINANCIAL GLOSSARY

### > Backlog

The backlog is valued based on economic conditions at the end of the period. It includes firm orders and excludes unconfirmed options. Orders in hedged foreign currencies are valued at the rate hedged. Non-hedged orders are valued at the rate in effect on the last day of the period. The backlog reported for long-term contracts recorded under the percentage of completion method and partially performed as of the reporting date is equal to the difference between (a) the projected sales revenue from the contract at completion and (b) the sales revenue already recognized for this particular contract. Accordingly, the backlog takes into account escalation and price revision assumptions used by the group to determine the projected revenue at completion.

### > Cash flows from end-of-lifecycle operations

This indicator encompasses all of the cash flows linked to end-of-lifecycle operations and to assets earmarked to cover those operations. It is equal to the sum of the following items:

- income from the portfolio of earmarked assets;
- cash from the sale of earmarked assets;
- minus acquisitions of earmarked assets;
- minus cash spent during the year on end-of-lifecycle operations;
- full and final payments received for facility dismantling;
- minus full and final payments paid for facility dismantling.

### > Earnings before income tax, depreciation and amortization (EBITDA)

EBITDA is equal to operating income after depreciation, depletion, amortization and provisions, net of reversals. EBITDA is restated to exclude the cost of end-of-lifecycle operations performed in nuclear facilities during the year (facility dismantling, waste retrieval and packaging). It should be noted that the cash flows linked to end-of-lifecycle operations are presented separately.

### > Gearing

The ratio of net debt to net debt + equity.

### > Net cash flow from company operations

Net cash flow from company operations is equal to the sum of the following items:

- operating cash flow;
- cash flow from end-of-lifecycle operations;
- change in non-operating receivables and liabilities;
- financial income;
- tax on financial income;
- dividends paid to minority shareholders of consolidated subsidiaries;
- net cash flow from operations sold, discontinued and held for sale, and cash flow from the sale of those operations;
- acquisitions and disposals of current financial assets not classified in cash or cash equivalents;
- financing of joint ventures and associates through shareholder advances, long-term loans and capital increases.

Net cash flow thus corresponds to the change in net debt, except for transactions with AREVA shareholders, and currency translation adjustments.

### > Net debt

Net debt is defined as the sum of current and non-current borrowings, minus cash, cash equivalents and bank deposits constituted for margin calls for derivatives ("collateral").

### > Operating cash flow (OCF)

Operating cash flow represents the cash flow generated by operating activities before income tax.

It is equal to the sum of the following items:

- EBITDA;
- plus losses or minus gains included in operating income on sales of property, plant and equipment (PP&E) and intangible assets;
- plus the decrease or minus the increase in operating working capital requirement between the beginning and the end of the period (excluding reclassifications, currency translation adjustments and changes in consolidation scope);
- minus acquisitions of property, plant and equipment and intangible assets, net of changes in accounts payable related to fixed assets;
- plus sales of property, plant and equipment and intangible assets included in operating income, net of changes in receivables on the sale of fixed assets;
- plus prepayments received from customers during the period on non-current assets;
- plus acquisitions (or disposals) of consolidated companies (excluding equity associates), net of the cash acquired.

### > Operating margin

The ratio of operating income to sales revenue.

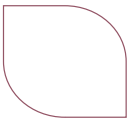
### > Operating working capital requirement (Operating WCR)

Operating WCR represents all of the current assets and liabilities related directly to operations.

It includes the following items:

- inventories and work-in-process;
- trade accounts receivable and related accounts;
- non-interest-bearing advances;
- other accounts receivable, accrued income and prepaid expenses;
- minus: trade accounts payable and related accounts, trade advances and prepayments received (excluding interest-bearing advances), other operating liabilities, accrued expenses, and deferred income.

Note: Operating WCR does not include non-operating receivables and payables such as income tax liabilities, amounts receivable on the sale of non-current assets, and liabilities in respect of the purchase of non-current assets.



**> ROACE (Return on average capital employed)**

Return on average capital employed (ROACE) is an internal and external indicator used to measure profitability and assess the group's performance. In the group's opinion, this performance indicator measures the long-term productivity of the group's capital.

ROACE is a performance measurement indicator of capital employed by the group, as defined by management rather than by accounting standards. This should be taken into account when using ROACE to make comparisons with other companies.

The group defines ROACE as the return on average capital employed.

ROACE represents the after-tax operating profitability of capital employed by the company for its operating requirements.

ROACE is equal to the ratio of net operating income to average capital employed.

Net operating income is equal to operating income less the corresponding pro forma income tax derived by applying the nominal tax rate applicable to the operating income of each subsidiary of the group.

Capital employed comprises the following:

- net PP&E and intangible assets;
- goodwill, other than goodwill related to equity associates;
- prepayments and borrowings funding non-current assets;
- inventories, trade receivables and other operating receivables;
- less customer advances, trade payables and other operating liabilities;
- less employee benefits and provisions for contingencies and losses, excluding provisions for end-of-lifecycle operations and provisions for tax risk.

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AREVA supplies high added-value products and services to support the operation of the global nuclear fleet.

The company is present throughout the entire nuclear cycle, from uranium mining to used fuel recycling, including nuclear reactor design and operating services.

AREVA is recognized by utilities around the world for its expertise, its skills in cutting-edge technologies and its dedication to the highest level of safety.

AREVA's 36,000 employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people.

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**Energy is our future, don't waste it!**