

# 2015 **Reference document**



# REFERENCE **DOCUMENT**



This Reference Document was filed with the Autorité des marchés financiers (AMF, the French financial market authority) on April 12, 2016, 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 document was prepared by the issuer and is binding on those signing it.

This is a free translation into English of the AREVA group's Reference Document for 2015, 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. They 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.

Pursuant to article 28 of the European Community regulation no. 809/2004 of April 29, 2004, the directive 2004/100/CE 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, 2013 and the statutory auditors' report on the consolidated financial statements for the year ended December 31, 2013, presented in pages 190 to 200 and pages 188 to 189 respectively of the Reference Document filed with the Autorité des marchés financiers on March 31, 2014 under number D. 14-0255; and
- 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.

## 1.1. PERSON RESPONSIBLE FOR THE REFERENCE DOCUMENT

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

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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, 2015 on page 168 of this Reference Document, wish to draw attention to:

- Note 1.1 sets out the context of the closing, the AREVA Group's liquidity situation and the information relating to the application of the going concern principle;
- Notes 1.1, 1.3.1.5 and 9, which describe the accounting treatment and the impacts of the transaction under consideration with EDF to transfer a majority share of AREVA NP, as well as the accounting treatment of the discontinued operations (wind power and solar energy activities, nuclear measurements and AREVA TA);

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

- Note 24 describes the reasons that led AREVA to apply paragraph 32 of IAS 11 as from the second half of 2013 and the methods of recognition applicable to the construction contract for the Olkiluoto 3 ("OL3") EPR. In addition, this note specifies the conditions of completion of this contract, in particular for the end of construction and testing until the reactor is put into service as well as for legal risks;
- Notes 1.3.17 and 13 describe the conditions of measurement of the provisions for end-of-lifecycle operations, and their sensitivity to the assumptions used in terms of technical processes, costs, disbursement schedules and inflation and discount rates.

The reports on the consolidated financial statements for the years ended December 31, 2013 and December 31, 2014 contain observations, are incorporated by reference and appear on page 188 of the 2013 Reference Document and on page 170 of the 2014 Reference Document."

Courbevoie, April 12, 2016

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 by the Annual General Meeting of Shareholders convened June 26, 1989. Term renewed in particular by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders 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 by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders 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 by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders 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 by the Annual General Meeting of Shareholders convened May 7, 2013, and to expire following the Annual General Meeting of Shareholders convened to approve the financial statements for the year ended December 31, 2018.

## SUMMARY OF KEY DATA

<i>(in millions of euros, except workforce)</i>	2015	2014*	Change 2015/2014
<b>Income</b>			
Reported revenue	4,199	3,954	+246
Gross margin	(288)	(579)	+291
Percentage of reported revenue	ns	ns	ns
Operating income	(1,388)	(2,115)	+727
Net financial income	(313)	(299)	-14
Share in net income of joint ventures and associates	(21)	(14)	-7
Net income from discontinued operations	(190)	(1,678)	+1,488
Consolidated net income	(2,038)	(4,833)	+2,795
Comprehensive income attributable to equity owners of the parent	(1,825)	(5,155)	+3,300
<b>Cash flow</b>			
EBITDA	685	471	+214
Percentage of reported revenue	16.3%	11.9%	+4.4 pts
Change in operating working capital requirement	246	(76)	+322
Net operating Capex	(631)	(991)	+359
Operating cash flow	297	(579)	+876
<b>Miscellaneous</b>			
Backlog	28,990	32,103	-3,113
Net cash (debt)	(6,323)	(5,809)	-514
Equity attributable to owners of the parent	(2,516)	(691)	-1,825
Workforce (end of period, including operations held for sale)	39,761	41,847	-5.5%
Dividend per share	-	-	-

\* Adjusted for adoption of IFRS 5.

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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 Groups and Business Units) 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. However, the group cannot 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.

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

The Risk Management and Insurance Department, working closely with the operating departments, is responsible for implementing the risk management policy. The department develops methodological tools to ensure consistent treatment of risk among the group's different entities, assists them in their use and promotes the exchange of best practices. The Risk Management and Insurance Department consolidates risk assessment at the group level. Financially, the Risk and Insurance Department arbitrates between retaining part of the risk and transferring it to the insurance and reinsurance markets through the group's comprehensive and global 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 risks;
- characterize these risks so as to be able to rank them; and
- define and implement an action plan aimed at managing them.

The Risk and Insurance Department steers this initiative by:

- establishing a common set of methodological tools and benchmarks;
- leading a network of risk coordinators trained by the group and assigned to the operating units; and
- following up the action plans.

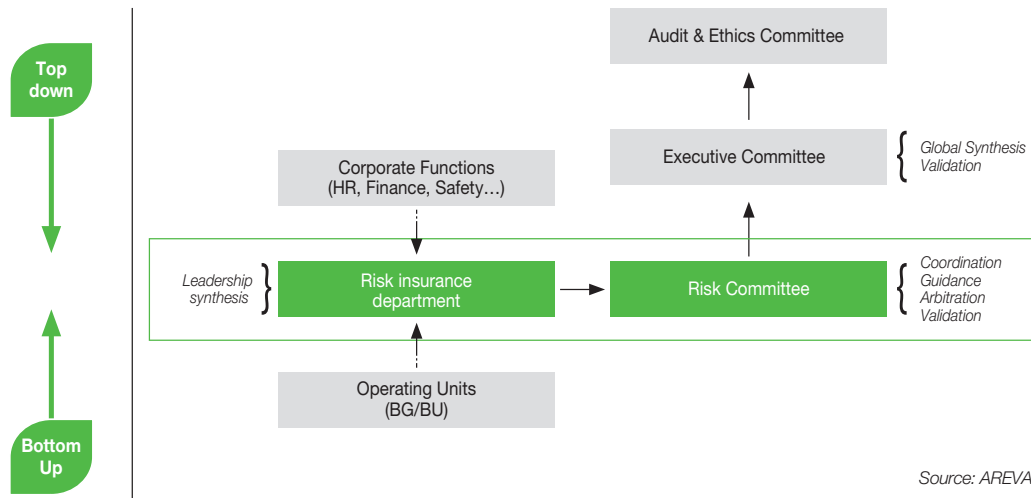
The risk maps are presented every year to the Management Committees of the Business Units and the Business Groups, and then to the Risk Committee, which prepares the summary that will be validated by the group's Executive Committee for presentation to the Board of Directors' Audit and Ethics Committee. 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 Audit Department subsequently implements this plan by conducting audits.

#### RISK ANALYSIS AND CONTROL

Managing risk entails:

- an ongoing and documented process of risk identification, analysis, ranking, 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.);
- contributing to resource optimization and cost reduction; and
- developing business continuity and crisis management plans.

AREVA BUSINESS RISK MAPPING PROCESS SINCE JANUARY 8, 2015 <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 that may have an impact on employee safety, the financial performance of the Business Unit or even of the group, and its corporate image.

The BRM is destined to evolve by incorporating best practices and lessons learned.

The establishment of the risk map is the opportunity for collecting components of recommendations and decision-making 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 analyzing and ranking their risks, and for managing them by implementing action plans using appropriate means.

In each Business Group, the risk management coordinators provide their management with a cross-business picture of risks and of how the Business Units 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 and its sustainable development policy.

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 oversight of national and international authorities. The Risk and Insurance Department draws technical expertise from these departments in performing its duties.

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

By regulation, industrial facilities operated by AREVA are classified into various categories by level of risk and the quantity of nuclear material or chemical substances.

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 mapping process prior to the change of governance on January 8, 2015, please refer to the 2014 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 financial position, AREVA transfers risk to reputable insurance and reinsurance companies worldwide. For example, AREVA has acquired insurance coverage for its industrial risks, civil liability and other risks related to its nuclear and non-nuclear operations, with coverage limits varying according to the nature of the risk and the group's exposure.

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

- recommends solutions Executive Management, either to retain the risk and finance it internally or to transfer it to the insurance market;
- negotiates, sets up and manages comprehensive and global insurance programs for the entire group and reports to Executive 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

The purpose of directors and officers liability insurance is threefold:

- firstly, it provides liability coverage for financial risk incurred by group 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 inadequate 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, 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 capacities available 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 Insurance 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 4.3.1.9.

#### 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. The insurance policies cover auto liability and work accidents 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 2016

The insurance programs will be renewed in April 2016.

## 4.2. LEGAL RISK

### 4.2.1. REGULATORY RISK

The group conducts its operations in accordance with local laws under operating licenses and permits. 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 environmental protection, employee protection, 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 other things, 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 require that the group's facilities and products be brought into compliance, 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 likely to translate into considerable expense to bring the facilities into compliance, but this would bolster their nuclear safety and ensure their sustainability. Similarly, the administrative order of December 12, 2005 related to pressurized nuclear equipment (the "ESPN Order") strengthens requirements and

controls to take into account nuclear safety and radiation protection requirements incumbent upon the manufacturer, which is responsible for the compliance of this equipment, designed for use in nuclear reactors, which 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, which could limit its growth capabilities.

Moreover, some operations, such as those of the Mining Business Group 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 impact its operations, image and reputation.

#### 4.2.1.1. 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 adjacent table.

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

The main nuclear facilities at December 31, 2015, 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
<b>Front End Business Group</b>			
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
			Fabrication of uranium and MOX fuel (undergoing dismantling)
Dessel, Belgium	Fuel	FBFC International SA	
Lingen, Germany	Fuel	ANF	Fuel fabrication
Richland, United States	Fuel	AREVA Inc.	Fuel fabrication
<b>Reactors &amp; Services Business Group</b>			
Maubeuge, France	Equipment	Somanu	Nuclear maintenance workshop
<b>Back End Business Group</b>			
Veurey, France <sup>(1)</sup>	Valuation	SICN	Fuel fabrication plant (undergoing decommissioning)
	Recycling/Decommissioning & Dismantling		Used fuel treatment plants and liquid effluent/solid waste treatment facilities
La Hague (France) <sup>(2)</sup>	Dismantling	AREVA NC	
Marcoule, France	Recycling	AREVA NC	MELOX MOX fuel fabrication plant

(1) Two INBs at this site in final shutdown/dismantling status.

(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 reinforced the 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 under a strict legal framework. For example, specific licenses and permits are delivered for the construction, startup, modification, safety review, final shutdown, 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 or final shutdown 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 control of the transportation of radioactive materials. Pursuant to this 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,

most of whose provisions became effective on July 1, 2013. In addition, the TSN law and law no. 2015-992 of August 17, 2015 concerning the energy transition for green growth (TECV) establishes administrative and criminal penalties (articles L. 596-14 *et seq.* and articles L. 596-27 *et seq.* of the French Environmental Code). Every year, each regulated nuclear facility operator must also submit a report on measures taken in respect of nuclear safety and radiation protection, which is made public.

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 used. Group facilities that may represent hazards or drawbacks, in particular for public health, safety and security, 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 prefectorial 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 Ecology, Sustainable Development and Energy (MEDDE);
- 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 the national safety directives, under the supervision of the Senior Defense and Security Official at the MEDDE 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 with the Transport of Dangerous Goods Order of May 29, 2009 (TDG Order - see *Glossary*);
- the control of cross-border movements of radioactive waste with the Council Directive 2006/117/Euratom of November 20, 2006 on the supervision and control of transfers of radioactive waste and used nuclear fuel; see also *Regulations governing radioactive waste*, below.

Similar regulations provide for rigorous control of facilities and 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 dismantling operations performed in France primarily derives from the TSN Law as codified and the TECV Law. In addition, the September 5, 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 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 authorizing final shutdown and dismantling operations specifies, among other things, the features of dismantling, the dismantling schedule, the final conditions to be achieved, and the types of operations for which the operator is responsible upon completion of 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 is currently the licensee of 20 regulated nuclear facilities, 6 of which are officially in final shutdown/dismantling status, and one nuclear defense facility. 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 4.3.1.

### Regulations governing radioactive waste

In France, the waste generated by nuclear operations or by the dismantling of regulated nuclear facilities is governed by articles L. 542-1 to L. 542-14 of the Environmental Code in particular. 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, the Council directive no. 2011/70/Euratom of July 19, 2011 establishes a strict European Community framework for the safe and responsible management of used fuel and radioactive waste.

The producer or, as applicable, the holder of waste from nuclear operations or dismantling operations 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 the treatment. Every year, the operator submits a report inventorying these substances to the minister of Energy. Article L. 594-1 of the Environmental Code provides that operators of regulated nuclear facilities must establish provisions to cover the cost of dismantling the facilities and managing used fuel and radioactive waste, and allocate the necessary assets to cover these provisions exclusively. In this regard, the regulations specify that the operator must account for these assets separately and that they must be sufficiently secure and liquid to meet their purpose. Their realizable value must be at least equal to the amount of the provisions. The portfolio of assets thus earmarked is protected from all creditors, except for 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 to assess the funding of dismantling expenses. Moreover, financial penalties apply in the event of a failure to comply with all of the obligations related to dismantling expenses.

#### 4.2.1.2. RULES OF BUSINESS ETHICS

The group attaches special importance to adherence to strict ethical values in connection with its operations. It adopted a Values Charter in 2003 that calls for all employees to comply with applicable legislation and regulations and with the specific values, action principles and rules of conduct set forth in that charter. Occasional deviations from these standards by employees, officers or representatives of the group are nonetheless possible, with potential repercussions on AREVA's reputation as a function of their severity and possibly financial costs if violations have been committed.

## 4.2.2. CONTRACTUAL AND COMMERCIAL RISKS

### 4.2.2.1. 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 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 attain the operating margins contemplated when the contract was concluded.

In connection with certain disputes set out in Section 20.8. *Legal and arbitration proceedings*, the group may also be exposed to the risk of customer payment for part of its products and services on a blocked account 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 blocked 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 risk or non-execution can be eliminated.

### 4.2.2.2. 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.

### 4.2.2.3. LONG-TERM CONTRACTS

#### THE GROUP ENTERS INTO LONG-TERM CONTRACTS THAT 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.

### 4.2.2.4. 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.

### 4.2.2.5. EARLY TERMINATION CLAUSES

The group enters into contracts that 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.

Contract performance difficulties, besides the aforesaid negative financial consequences, could also harm the group's reputation with existing or potential customers, particularly in the nuclear sector.

### 4.2.2.6. REQUIREMENTS CONTRACTS

Some contracts concluded by entities of the group, in particular in the Front End Business Group, are contracts for variable quantities, depending on our customers' reactor requirements; these are called "requirements contracts".

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

## 4.2.3. 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.

Except for the following cases, and to AREVA's knowledge, there is no other governmental, administrative, legal 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 in the past twelve months.

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

On December 5, 2008, the AREVA-Siemens consortium initiated arbitration proceedings with the ICC with regard to delays and disruptions suffered in connection with the performance of the contract and the resulting extra costs ("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 which had been retained in contravention of contractual provisions. This decision was duly executed by TVO.

As of the end of 2015, after seven years of legal proceedings (exchanges of briefs by the parties and intermediate 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. The proceeding is following its course.

The Consortium and its counsel still consider the allegations of serious/intentional offense made in TVO's counterclaim to remain unfounded.

Discussions have begun with TVO with the objective of jointly laying the foundations for cooperation to complete the project and settle the dispute. At the closing of the 2015 financial statements, all parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

#### 4.2.3.2. **SOCATRI**

For the civil counts of the case, and following the subpoena of Socatri, Eurodif Production, Comurhex and AREVA NC by the Town of Bollène in August 2012, the High Court of Carpentras rendered a decision on May 12, 2015 which found no known damage to species and natural habitat, to the ground or to water, and granted only 30,000 euros in damages, 154,051 euros for expenses and 50,000 euros for the costs of the proceeding to the Town of Bollène, versus the requested 11 million euros against Socatri. The Town of Bollène did not appeal this decision, which thus becomes final.

#### 4.2.3.3. **DISPUTES INVOLVING AREVA RELATED TO THE T&D BUSINESS, SOLD ON JUNE 7, 2010**

Following the European Commission decision of January 24, 2007 in which 11 companies were fined, including AREVA, for anti-competitive practices concerning the gas-insulated switchgear market (GIS), the Court of Justice of the European Union, in its decision of April 10, 2014, partly upheld certain appeals which had been lodged in this matter by AREVA, causing a modification of the distribution of the penalty, but not a reduction of the overall penalty. The total amount of the penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. This amount was paid in full by Alstom to the European

Commission in an out-of-court settlement, and AREVA paid the sum of 5.1 million euros to Alstom pursuant to the agreement reached in September 2015 on the share of the fine to be borne by AREVA.

Disputes involving AREVA related to the T&D business, sold on June 7, 2010, are now closed.

#### 4.2.3.4. **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 and the presentation of the company's financial statements concerning this purchase from 2009 to 2012.

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.

#### 4.2.3.5. **CFMM**

A request for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 against the CFMM company by a partner, Mr. Georges Arthur Forrest, in which the petitioner challenges the decision of the General Meeting of Shareholders on June 24, 2013 to liquidate ArevExplo RCA. CFMM has submitted counterclaims in response to this petition. An arbitration tribunal has been constituted and the proceeding, which is to take place in 2015 and 2016, is expected to result in a decision in 2017.

#### 4.2.3.6 **EMPLOYEE SHARE OWNERSHIP PLAN**

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. **INDUSTRIAL AND ENVIRONMENTAL RISK**

By nature, the group's operations carry risk, most notably those performed in the nuclear facilities listed in Section 4.2.1.1. 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.

### 4.3.1. NUCLEAR RISK

#### 4.3.1.1. RISK OF NUCLEAR ORIGIN

Risks of nuclear origin are linked 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 the means to prevent events of concern and to detect and manage incidents and accidents and limit their potential consequences, based on defense-in-depth principles. These principles consist of systematically analyzing potential technical, human or organizational failures, and of defining and implementing a series of independent lines of defense to protect against the consequences of those failures.

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

#### Dissemination of radioactive materials that can lead to contamination

Uncontained radioactive materials (solid, liquid or gaseous) 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 (normal or accidental), as well as after shutdown, in particular by interposing suitable containment barriers and ventilation systems.

#### Radiation

Whenever a person works in the presence of radioactive materials, there is a risk of exposure to radiation.

The estimated biological impacts of radiation on the human body are generally expressed in millisieverts (mSv). The regulatory annual dose 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 possible. In addition and if necessary, the time at work of operators is limited. The group applies the ALARA principle ("as low as reasonably achievable"), which holds that any action will be taken to reduce exposure to radiation, as long as it is reasonable from the technical, economic, social and organizational points of view. 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. In accordance with applicable regulations, regular training sessions are held to maintain their knowledge at the appropriate level.

The results recorded (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 in operating requirements, mass limitations, etc. In areas of facilities most exposed to risk, prevention measures are strengthened with the use of shielding which strongly reduces 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 are verified under both normal and accidental operating conditions. 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 temperature increase. The energy is removed to control the temperature rise 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.

#### 4.3.1.2. 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 for managing 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 into operating instructions and on limiting their possible consequences.

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

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

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

These risks are managed with an approach similar to that used for nuclear risk management, reflecting 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.

Measures are also adopted to minimize the consequences of a failure whenever 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).

**A risk highly specific to the group involves the use of uranium hexafluoride (UF<sub>6</sub>).**

During enrichment operations, uranium is handled in the chemical form of UF<sub>6</sub> (uranium hexafluoride), which is a 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 highly toxic compound for man, 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 and the parties involved and the establishment of a suitable organization combined with personnel training in particular contribute to the limitation of these risks.

#### 4.3.1.3. 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 secured 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. The analysis consists of demonstrating that damage affecting the nuclear safety of the facility is unlikely to occur at the level of the event scenario.

##### 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, and its potential severity depends on the type of aircraft and the surface 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 and determine the means for limiting its consequences (factoring in the organization of airspace use, type of flights, known crash statistics, etc.), including the risk of deliberate attack.

Special measures are taken to protect the 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 action.

The possible causes of external flooding (rain, river flooding, breach of levies, tsunami) are factored into the design of the facilities and in 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 also 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' strength after 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*). Other measures are being implemented in accordance with regulatory decisions by ASN applicable to the group's nuclear facilities.

#### 4.3.1.4. 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:

- the containment of the materials;
- continued 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 monitoring center is able to access in real time all necessary information on shipments under its supervision at all times.

In addition, insurance is taken out for shipments in accordance with the conditions described in Section 4.3.1.9. *Special coverage relating to nuclear facility operations.*

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

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 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 (available on the group's website under "Media Center"), 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 executive management of AREVA and each of its subsidiaries set up an organization reflecting the legal provisions of the country in question based on the overriding liability 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 4.3.1.1.). The same continuous improvement initiative applies to the reduction of impacts from liquid and gaseous effluents (see Appendix 3, Section 2. *Environmental information*).

##### An organization

In the fields of nuclear safety and radiation protection, the Safety Health Security Quality Environment Department (SQED) 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 part of the SQED. It is headed by 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, which performs independent verifications of the operating organization of the facilities; and
- ongoing support from the SQED's safety specialists.

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 monitoring subcontracted work. This includes applying internal guidelines for compliance with nuclear safety, radiation protection and environmental protection requirements as part of the procurement process. It also includes the definition of a social certification for service providers based on the criteria of nuclear safety, occupational safety, training, professionalization 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 evaluated 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 on a scale from 1 to 7. Level 1 or higher events are of public record.

As per its commitments, the group publishes, both in hard copy and on its website (under "Media Center"), the annual report of the General Inspectorate of Nuclear Safety. This report presents the status of nuclear safety and radiation protection at 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 elements identified by nuclear safety specialists with a view to identifying areas for improvement.

Also, 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 Nuclear Safety and Radiation Protection Report and makes it publicly available.

#### 4.3.1.6. 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, in France, inspectors reporting to the Senior Defense and Security Official at the Ministry of Ecology, Sustainable Development and Energy, regularly verify compliance with and proper application of these measures.

#### 4.3.1.7. NON-PROLIFÉRATION

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 the 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.

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

As an operator of regulated nuclear facilities and industrial facilities covered by legislation on environmentally regulated sites, the group is legally obligated to secure, dismantle or remediate its facilities after shutdown, in whole or in part, and to manage waste resulting from these operations. As a mine operator, it must also provide for closure, securing and reclamation after operations.

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

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

Future expenses relating to end-of-lifecycle operations for its nuclear facilities and for reclamation of regulated industrial facilities are identified and special provisions are recorded. Rules regarding provisions for end-of-lifecycle operations, in the amount of 6.985 billion euros on a discounted basis, including a third party share of 188 million euros, are described in Section 20.2. *Notes to the consolidated financial statements*, Note 13. *End-of-lifecycle operations*.

The provisions set up to cover these expenses are based on estimates of future costs developed by the group, taking into account, by definition, a series of assumptions (see Section 20.2. *Notes to the consolidated financial statements*,

Note 13. *End-of-lifecycle operations*). However, it may 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 the growing body of 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 13. *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 the group's financial position. For example, as provided in the French law of June 28, 2006, the Direction Générale de l'Energie et du Climat (DGEC, the French government's office of climate and energy) tasked a working group with performing a new cost assessment for deep geologic disposal (Cigéo Project). The working group, established by a decision on June 23, 2011 of the Industrial Coordination Committee for Radioactive Waste (COCIDRA) and led by the DGEC, brings together representatives from Andra, AREVA, the CEA, the EDF group and ASN. In its order of January 15, 2016, the Ministry of Ecology, Development and Energy set the cost for implementation of long-term management solutions for long-lived medium- and high-level radioactive waste (the Cigéo project) at 25 billion euros (not discounted to the economic conditions of 2011) for a period of 140 years beginning in 2016. This cost, arising from the phase outlining the Cigéo project, substitutes for the 2005 estimate of 14.1 billion euros (at 2003 economic conditions) on which the corresponding end-of-life cycle provision was based. The development of this new reference cost for Cigéo led AREVA NC to supplement the net end-of-lifecycle provision by 250 million euros, factoring in the increased cost of Cigéo and a margin for contingencies. The provision for Cigéo (disposal) is thus a total of 716 million euros in discounted value at December 31, 2015 (2.136 billion euros in undiscounted value) based on criteria for allocation of funding among producers that is unchanged in relation to previous accounting periods. It should be noted that Cigéo is funded by EDF, the CEA and AREVA according to allocation criteria based on the volume of waste to be sent to the geologic repository. The two main factors likely to influence the amount of the provision are the cost of the Cigéo project and the funding allocation criteria.

In addition, any reduction of the discount rate, or any acceleration of the dismantling schedule, would require the group to record an increase in the value of the provisions (for more details, see Section 20.2. *Notes to the consolidated financial statements*, Note 13. *End-of-lifecycle operations*).

The group holds a portfolio of financial assets (equities, bonds, mutual funds and receivables from third parties) to fund its future end-of-lifecycle obligations. The group is exposed to a risk of insufficient value of assets held to fund its end-of-lifecycle operations. The group would have to use its own financial resources to fund these operations, which would result in a significant negative impact on its net income and financial position.

In particular, considering the intrinsic volatility of equity markets, the value of the portfolio of financial instruments could decrease and/or provide a return insufficient to fund the group's end-of-lifecycle operations. The sensitivity of the value of the portfolio to variations in the markets is described in Section 20.2. *Notes to the consolidated financial statements*, Note 13. *End-of-lifecycle operations*.

Used fuel treatment contracts call for the final waste and residues from those operations to be allocated to and retrieved by the original waste and residue generator. However, as the temporary holder of the nuclear waste and residue generated by its customers, the group could remain liable if a customer defaults or files for bankruptcy.

#### 4.3.1.9. SPECIAL COVERAGE RELATING TO NUCLEAR FACILITY OPERATIONS

International nuclear liability law is based on a series of principles that override general liability law. The operator of the nuclear facility that caused the damage is solely responsible. This is known as the exclusive liability channeling principle. Its liability is objective ("no fault"), for which there are few exemptions. The operator of a nuclear facility is therefore required to compensate the 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 at a capped amount.

This system is defined by international treaties such as the Paris Convention on Third Party Liability in the Field of Nuclear Energy of July 29, 1960, amended, and the Brussels Supplementary Convention of January 31, 1963, amended, or the Vienna Convention of May 21, 1963, 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 convention, the Price Anderson Act establishes a system to manage 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, France has set a maximum nuclear civil liability amount, currently 91.5 million euros per nuclear accident in a nuclear facility and 22.9 million euros per accident during transport. Moreover, should an accident occur in a regulated nuclear facility in France, the French government would assume liability above 91.5 million euros and up to a limit of 228.6 million euros. Thereafter, the Signatory states to the Brussels Supplementary Convention would assume collective liability for the amount above 228.6 million euros, up to a limit of 381.1 million euros.

The protocols amending 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 the increase of the three tiers of indemnity. Thus, the nuclear operator's liability would increase from 91.5 million euros to 700 million euros per nuclear accident in any given facility (70 million euros in a reduced-risk

facility). The limit of liability during transportation would increase from 22.9 million euros to 80 million euros per accident. 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 this amount, the other Signatory States would intervene up to a limit of 1.5 billion euros. A mechanism to increase these limits would apply as new States ratify the Conventions.

In addition, law no. 2015-992 of August 17, 2015 concerning the energy transition for green growth brings forward the effective date for the increased nuclear operator liability (700 million euros per nuclear accident in a facility and 80 million euros per transportation accident), as contemplated in the protocols of February 12, 2004 amending the Paris and Brussels Conventions. These new caps on the French nuclear operator's responsibility will be effective as from February 18, 2016.

#### Description of insurance acquired by the group

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 special insurance policies comply with the international conventions governing nuclear operator liability, including their liability limits.

The insurance policies are reinsured by the nuclear insurance pools of various countries, including Assuratomie 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). The coverage for some complex 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; rather, they are covered by specific programs set up locally in agreement with AREVA's Risk and Insurance Department.

### 4.3.2. CHEMICAL RISK MANAGEMENT

#### 4.3.2.1. 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.

#### 4.3.2.2. 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 on the properties of chemical substances and the risks associated with their use.

It requires that all chemical substances produced or imported in quantities of more than one metric ton per year be registered. 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.

Some 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-Quality-Environment Department, Purchasing Department, Legal Department, and Research and Development Department), 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 Front End Business Group, 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.

### 4.3.3. OTHER ENVIRONMENTAL RISK

#### 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 received a limited number of claims in France for occupational diseases concerning various disorders in 2015, mostly for musculoskeletal ailments (joint disorders).

## 4.4. OPERATIONAL RISK

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

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 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.

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

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

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

**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, 2015, 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, equipping and maintenance of the EDF group's nuclear power generating resources. 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 pertaining to the energy transition in France (articles L. 311-5-5 and L. 100-4-5) on EDF's operations should be specified in the Multiyear Energy Program to appear in the spring of 2016. According to the report of the Cour des Comptes (Court of Audit) of February 10, 2016, the law provided that the adoption of the Multiyear Energy Program be accompanied by a study of the economic, social and environmental impacts of the program and on its sustainability for public finances. The implications of the law for the nuclear reactor fleet maintenance project must be specifically identified and assessed therein.

The group's 10 biggest customers, including the EDF group, represented about 63% of its revenue at December 31, 2015.

### 4.4.4. RISK RELATED TO THE INFORMATION SYSTEM

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, it cannot guarantee that no technical malfunction will occur likely to cause significant disruptions.

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

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 concludes 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.

#### 4.4.6. 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. RISK RELATED TO MAJOR PROJECTS

Generally, the 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 concerning the equipment supplied, loss of skills or questions about technologies, 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 be different from those initially anticipated insofar as costs and productivity may vary during contract execution.

#### 4.5.1. NEW REACTOR CONSTRUCTION CONTRACTS

As for any new project, the construction of a new reactor model involves risks relating to its technical implementation, the manufacture of new components, achievement of 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 the executive 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 teams hold joint progress meetings once a month 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 4.2.3.1. *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*.

### 4.5.2. AREVA'S INDUSTRIAL PROJECTS

#### 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 product of 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.

## 4.6. COMPANY EXPOSURE TO PRICE, CREDIT, LIQUIDITY AND CASH MANAGEMENT RISK

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) 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.

The reporting system also includes weekly reports submitted to the group's CFO, including a valuation of all positions and their market value. Together, these reports and reviews are used to monitor the group's counterparty risk. For more information, please refer to Section 20.2. *Notes to the consolidated financial statements*, Note 31.

### 4.6.1. LIQUIDITY RISK

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 its 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. These aspects are described in more detail in Section 20.2. *Notes to the consolidated financial statements*, Note 31. *Market risk management*.

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

As of the date that this Reference Document was filed, AREVA's Standard & Poor's rating was B+ for long-term borrowings and B for short-term borrowings, with a negative outlook (developing).

At December 31, 2015, the liquidity risk was covered for the year of 2016 by:

- a positive gross cash position of 0.8 billion euros (versus 1.7 billion euros at December 31, 2014). Gross cash was maintained at this level through the combination of optimization actions taken during the year (strengthened cash management, implementation of the competitiveness plan, factoring transactions and the sale of tax credit receivables). These optimization actions will continue in 2016;

- an unused balance of confirmed bilateral lines and syndicated line of credit in the amount of 2.1 billion euros.

Since December 31, 2015:

- as it announced on January 27, 2016, AREVA drew 2,045 million euros on its bilateral lines of credit and syndicated line of credit on January 4 and 5, 2016;
- in addition, an interim financing in the amount of 1.1 billion euros, negotiated with banks, will ensure the group's business continuity.

At December 31, 2015, current financial debt totaled 1.440 billion euros, consisting in particular of:

- the last installment, in the amount of 200 million euros, of a loan granted by the European Investment Bank, reimbursed in January 2016;
- the scheduled repayment of 964 million euros of a bond issue in September 2016;
- scheduled repayments of the redeemable loan for structured financing of Georges Besse II in the amount of 36 million euros;
- accrued interest on bond issues in the amount of 56 million euros in September 2016;
- commercial paper in the amount of 26 million euros; and
- current bank credit facilities and positive credit balances in the amount of 91 million euros.

Beyond 2016 and up to 2018 year end, significant debt repayments include the bond issue expiring in October 2017 in the nominal remaining amount of 798 million euros, the repayment of the 1.1 billion interim financing in January 2017, the repayment of bilateral lines of credit in the amount of 795 million euros in 2017 and the repayment of the syndicated line of credit in the amount of 1.250 billion euros in January 2018 and the repayment of a private placement issued in Japanese

yens of approximately 60 million euros in September 2018. Over that timeframe, business continuity will be ensured through the measures set forth in the group's financing plan, whose objective is to give the company the means to implement its transformation plan and to have a financial profile enabling it to refinance in the markets on a long-term basis. These measures include among others the capital increase, the sale of the majority of AREVA NP to EDF, and the other subsidiary sales.

### 4.6.2. FOREIGN EXCHANGE RISK MANAGEMENT

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. For 2015, the average value of the euro decreased by 10% compared with the US dollar.

The principal factors that may influence the group's exposure to currency risk, by Business Group, are:

- Mining and Front End Business Groups: due to their geographically diversified locations (local currencies: euro/FCFA, Canadian dollar, tenge) and their operations denominated primarily in US dollars, which is the world reference currency for the price of natural uranium and for conversion and enrichment services, these Business Groups have significant exposure to the risk of the US dollar's depreciation against the euro. This exposure, consisting mainly of multiyear contracts, is hedged globally to take advantage of the automatic hedges resulting from the purchase of materials. As medium to long term exposure is involved, the amount of the hedge is set up according to a gradual scale for a duration based on the likelihood of the risk, generally not to exceed five years;
- Reactors & Services Business Group: Specific insurance coverage is usually acquired or forward currency transactions are concluded to hedge the risk

associated with sales of heavy components (steam generators, reactor vessel heads) that may be invoiced in US dollars while production costs are incurred in euros;

- Back End Business Group: This Business Group's exposure to foreign exchange risk is minimal. Most sales outside the euro zone are denominated in euros.

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 Treasury Management Department, except as otherwise required by specific circumstances or regulations. The Financial Operations and Treasury Management Department (DOFT) centralizes the currency risk for the entities and hedges its position directly with banking counterparties. A system of strict limits, particularly concerning results, marked to market, and foreign exchange positions that may be taken, 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.

For more information, please refer to Section 20.2. *Notes to the consolidated financial statements*, Note 31. *Market risk management*.

### 4.6.3. INTEREST RATE RISK MANAGEMENT

The group's exposure to fluctuating 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 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. The group's rate

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 sets authorized limits for portfolio sensitivity, derivatives authorized to manage financial risk, and subsequent positions that may be taken.

For more information, please refer to Section 20.2. *Notes to the consolidated financial statements*, Note 31. *Market risk management*.

### 4.6.4. RISK ASSOCIATED WITH EQUITY SECURITIES AND OTHER FINANCIAL INSTRUMENTS

#### THE GROUP HOLDS OF 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 volatility inherent in equity markets.

Of particular note at December 31, 2015 are equities held in the portfolio of financial assets earmarked for future end-of-life-cycle operations (see Section 20.2. *Notes to the consolidated financial statements*, Note 13. *End-of-lifecycle operations*).

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 to fund end-of-lifecycle operations is an integral component of AREVA's asset management program, which includes equities to increase long-term returns as part of a program to allocate assets between bonds and equities (see Section 20.2. *Notes to the consolidated financial statements*, Notes 13, 14 and 15).

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

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

#### 4.6.5.1. RESERVES AND RESOURCES

The group's uranium reserves and resources are only estimates drawn up by the group based on geological assumptions (developed based on core drillings, among other things) and economic assumptions, and there is no guarantee that 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. *Mining Business Group*).

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 in 2015 is described in Section 6.4.1. *Mining Business Group*.

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 contract 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, for Katco resources, AREVA declares 6,510 metric tons of uranium in measured and indicated resources and 6,250 metric tons of uranium in inferred resources; their registration in the Kazakh State's records is under review. Validation is expected in 2016.

#### 4.6.5.2. 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 price risk for uranium in its mining operations and to price risk for uranium conversion and enrichment services. Natural uranium and conversion and enrichment prices have fluctuated 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 that 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.

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.

### 4.6.6. OTHER COMMODITY RISK

The group has little exposure to variations in commodities prices.

### 4.6.7. COUNTERPARTY RISK RELATED TO THE USE OF DERIVATIVES

#### 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 involve exposure to counterparty risk when the contracts are concluded over the counter.

To minimize this risk, 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. An umbrella 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 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 that may involve an increased risk of bank default, 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).

## 4.7. OTHER RISK

### 4.7.1. 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 certain States cannot be excluded and could have a significant negative impact on the group's financial position. The debates that have begun or will come in various countries on the future of nuclear power could evolve in a manner that is unfavorable to the group's operations, particularly as influenced by 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 reviews of 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, at a time 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 system, monetary restrictions, and renegotiation or cancellation of ongoing contracts, leases, mining permits and other agreements. Acts of terrorism can also generate socio-political turmoil or 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 concerning 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 Nigerien law of 2006.

#### **THE GROUP CONDUCTS OPERATIONS ON INTERNATIONAL MARKETS SUBJECT TO 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 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 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 or 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 projects that technology leaders and 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.

### 4.7.2. 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 of approval, or a delay in this regard, 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 15, 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, 2015, the CEA held 54.37% of AREVA. 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.

### 4.7.3. 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 conclusion 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.

The group's development, reorganization or restructuring could potentially be accompanied by labor protests that could disrupt its operations and impact its financial position.

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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\* (*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.

\* On January 8, 2015, the Shareholders of AREVA 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 for the management of some of those risks, opening up the opportunity for a business combination between EDF and AREVA NP.

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

In concrete terms, that reorientation should translate into:

- the sale of part of AREVA NP to EDF under terms and conditions yet to be defined (AREVA keeping a strategic interest in AREVA NP);
- the creation of a joint AREVA NP/EDF entity for the design and project management of new reactors;
- the strengthening of the partnership between AREVA and EDF.

As a result of the implementation of this guidance, AREVA was led to refocus its operations on the nuclear materials cycle and on their sustainable management.

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

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

#### 2012-2014

On May 16, 2012, AREVA finalized the disposal of its 26% interest in Eramet to the Fonds stratégique d'investissement.

On June 11, 2012, AREVA closed the sale of its 27.94% equity interest in the Millennium mining project to Cameco Corporation for 150 million Canadian dollars (about 115 million euros) following the signature of the sales agreement on March 2, 2012.

On August 28, 2012, AREVA finalized the disposal of its 63% interest in La Mancha Resources, Inc. to Weather Investments II.

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 June 24, 2013, the AREVA Supervisory Board appointed Pierre Blayau to the position of chairman of the Supervisory Board to replace Jean-Cyril Spinetta, who had resigned.

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%. In addition, the group undertook the buy-back of outstanding bonds maturing in 2016 and 2017.

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 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.

## 2015

*For the main events of 2015, please refer to Sections 6.4. Operations and 9.1.3. Highlights of the period.*

## 5.2. INVESTMENTS

### 2014

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Gross Capex amounted to 986 million euros in 2014 and to 991 million euros net of disposals. In 2014, 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.

### 2015

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In 2015, gross Capex decreased in the Mining and Front End operations, in accordance with the planned pace of construction and ramp-up of the Cigar Lake mine in Canada and of the conversion and enrichment facilities.

As a result, it amounted to 640 million euros in 2015, compared with 986 million euros in 2014.

Net of disposals, Capex amounted to 631 million euros in 2015, compared with 991 million euros in 2014.

This Capex program covers all Business Groups. However, projects were selected and rescheduled based on their current level of completion and usefulness.

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

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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, which is 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 among other things of a steam supply system that converts water into steam. 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 turbine, the alternating current generator connected to it, and 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.

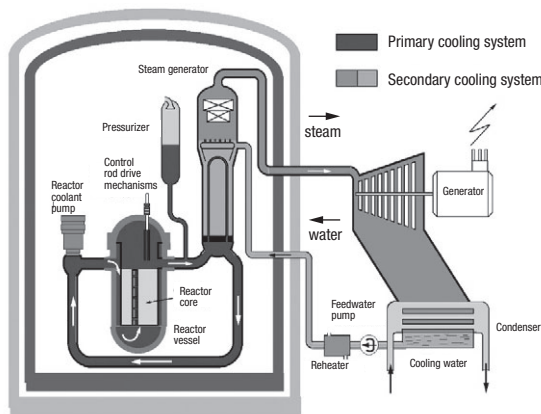
### The world's most prevalent reactor: the pressurized water reactor

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 is 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.

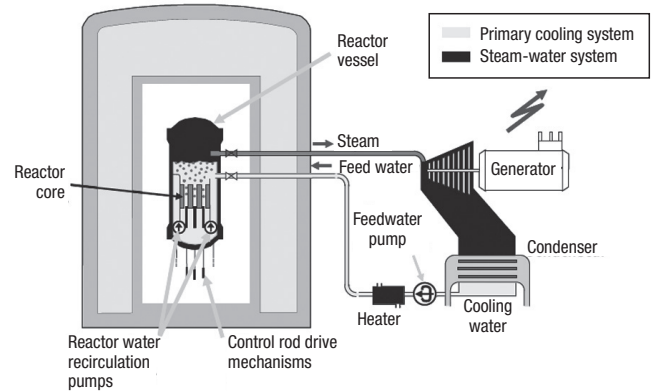
#### PRESSURIZED WATER REACTOR



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 the 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.

AREVA's operations in renewable energies are presented in Section 6.4.5. *Renewable Energies Business Group.*

## 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 2015, world primary energy consumption is expected to grow from 13.56 gigatons of oil equivalent (Gtoe) in 2013 to 17.9 Gtoe in 2040, giving average annual growth of 1.1%. 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.

Electricity consumption, which rose an average of 3% per year from 1990 to 2013 (with 3.3% growth from 2000 to 2013), has grown a little more than world primary energy consumption, which rose an average of 1.9% per year from 1990 to 2013 (with 2.3% growth from 2000 to 2013). According to the IEA's New Policies Scenario, world power generation in 2040 is estimated at 39,444 TWh, compared with 23,318 TWh in 2013, for average annual growth of 2.3%. Almost all of this growth originates in non-member countries of the Organization for Economic Cooperation and Development (OECD). In China, for instance, electricity consumption is expected to more than double by 2040.

On the supply side, oil, gas and coal continue to be the preferred energy sources. In 2013, oil constituted 31.1% of global primary energy, while coal represented 29% and natural gas 21.4%. 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 question of the security of fossil fuel supply 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

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 attempt 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 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 in its GHG emissions by 2020 compared with 1990 levels. The reduction to be met by 2030 is 40%.

The commitment of these countries has fostered a global turnout.

The compilation of the Intended Nationally Determined Contributions (INDC) submitted 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.

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 2015, which includes the INDCs of the different countries, there is a gap between these two numbers. Whereas power generation rises nearly 70% over the period, CO<sub>2</sub> emissions grow by only 15%, thanks to energy efficiency and less use of coal. This scenario leads to a temperature increase of 2.7°C (Source: WEO 2015).

(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.

## 6.1 Markets for nuclear power and renewable energies

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.

The agreement reached by the governments during COP 21, held in Paris in December 2015, is the first agreement on this subject to involve both developed countries and developing countries. It reiterates the founding principle of joint but differentiated responsibility for climate change (making the distinction between developed and developing countries). It strengthens the implementation of the Framework Convention to contain the average global temperature increase to less than 2°C above pre-industrial levels by the end of the century and to try to limit it to 1.5°C, which significantly lowers the 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 achieve the latter reduction.

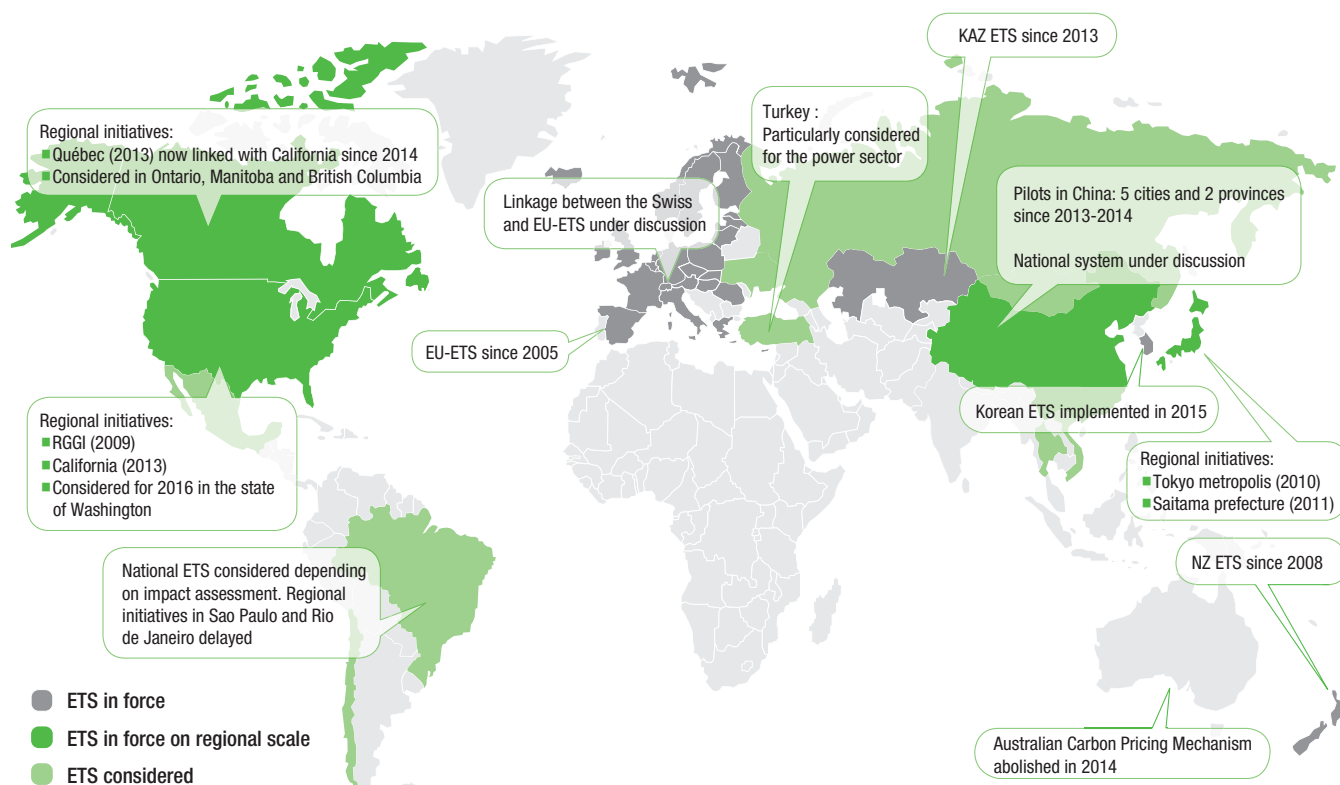
The Paris agreement calls for an update of the INDCs every five years and an increased ability to adapt to climate change. It also calls for the availability of a Green Climate Fund, which was set up in 2009 during the Copenhagen conference and

provisioned at the level of 7.4 billion euros in 2014 through contributions from the United States, Japan, the United Kingdom, Germany and France. The agreement sets a floor of 100 billion dollars per year by 2020 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.

The agreement will be open for signature by the States for a year and a half starting April 22, 2016. It will enter into force 30 days after at least 55 States totaling at least 55% of the GHG emissions have signed it.

To change the direction of the emissions curve, several States have decided to assign an economic value to carbon and have established 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)



Source: ICAP, 2015.

At the global level, 39 countries and 23 regions 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.

- The European Union set up a system of caps on CO<sub>2</sub> emissions and of emissions trading in January 2005 called the Emissions Trading System (ETS). The EU ETS is one of the world's first and currently the largest operational systems, bringing together the 28 member States of the European Union along with Norway, Iceland and Liechtenstein. It is one of the most mature systems.

- In 2013, Kazakhstan also initiated a system of caps and emissions trading. Ukraine is contemplating an emissions trading system, as are Russia and Turkey; the electric power segment 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 that 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 preparing to institute an emissions trading system, and two initiatives are pending in Sao Paulo and Rio de Janeiro.
- 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 soon. 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.
- A similar program has also existed in New Zealand since 2008. Australia had initiated an emissions trading system but abolished it in 2014.
- Meanwhile, South Africa is planning to deploy a system that combines a carbon tax with emissions trading as from January 1, 2016.

The price of carbon remained relatively low in these markets (less than 30 euros per metric ton of CO<sub>2</sub>) and did not have a real impact on GHG emissions reduction. In Europe, prices for the European Union Allowance (EUA) have stagnated since 2013 at around 5-9 euros per metric ton of CO<sub>2</sub>. Other factors may have played a part in observed emissions reductions, such as the impact of policies in support of 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. This involves creating reserves of emissions permits so as to promote trading and maintain or even increase the price per metric ton of CO<sub>2</sub>.

### 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. According to the IEA New Policies scenario, oil production peaked in 2006 and the average world price per barrel is expected to reach 128 dollars by 2040 (in US dollars). Forecasting the medium- to long-term availability of fossil fuel resources (oil and natural gas) thus remains very difficult. The reserves, production costs and environmental standards that might impact production (in particular for shale gas, bituminous sands, deep offshore oil and arctic resources) are all subject to considerable uncertainty today.

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 geopolitical risks.

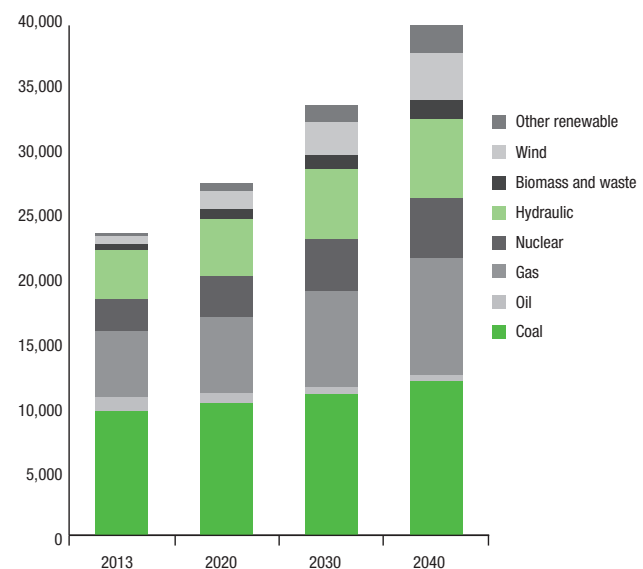
Oil is used mainly for transportation, while natural gas and coal are used for industry, power generation and heat production. China is a big consumer of coal, which it uses heavily in its energy mix.

### 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.

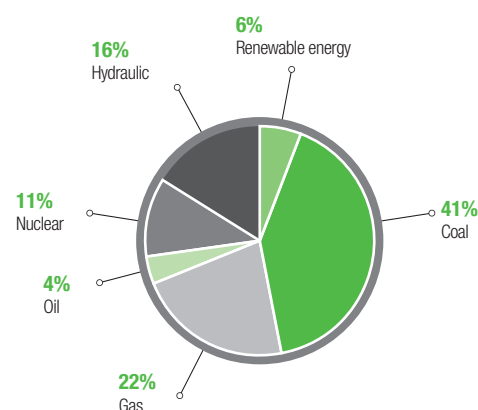
In the WEO 2015 New Policies Scenario, the contribution of low-carbon technologies to electricity production increases from about one third in 2013 to 47% in 2040. This increase comes primarily from non-hydro renewable energies. Contributions from nuclear power and hydropower to the electricity mix are stable over that period. Nuclear generating capacity would climb by more than 86% to around 4,606 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 sixfold by 2040.

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



Source : IEA, WEO 2015.

#### WORLD ELECTRIC POWER GENERATION IN 2013



Source : IEA, WEO 2015.

### 6.1.1.2. NUCLEAR POWER

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

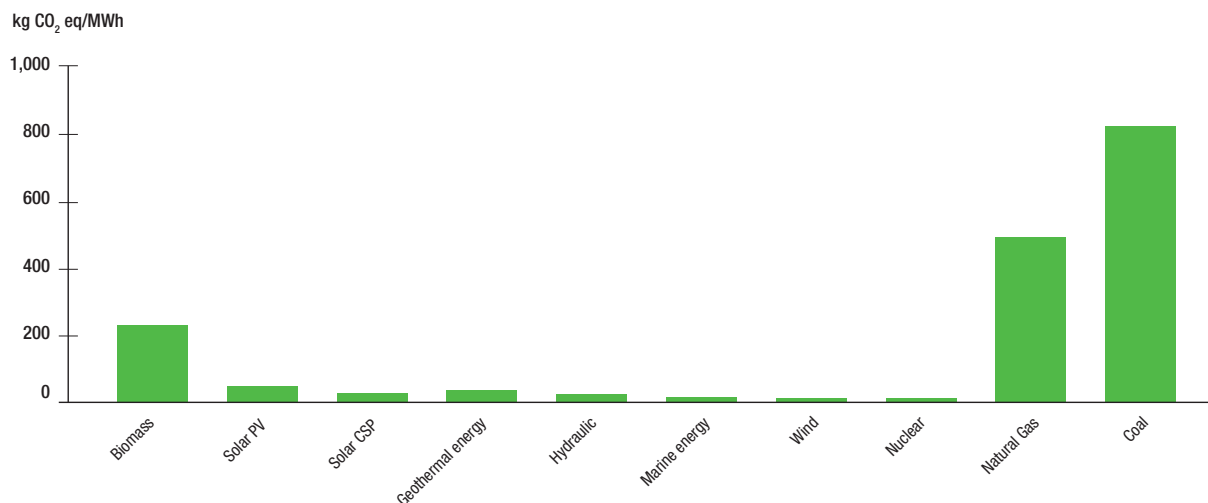
- it helps combat climate change;
- it creates significant added value locally as well as a large number of highly qualified jobs that cannot be delocalized;
- it is cost-competitive compared with other sources of baseload electricity;
- it offers stable production costs with less uncertainty concerning 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 for preserving the reserves of the 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.

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: 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.

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

## 6.1 Markets for nuclear power and renewable energies

In Europe, shale gas production may appear attractive in view of the region's growing dependency on imported gas. There are, however, 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.

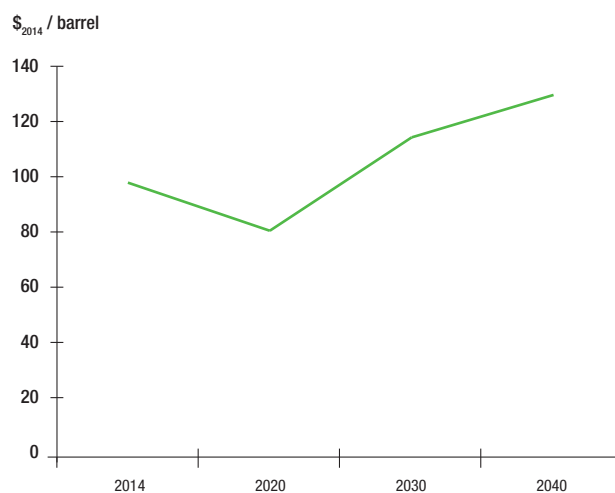
In Europe, carbon prices remained low in 2015, in particular because planned EU-ETS <sup>(1)</sup> reforms will take several years to be put into practice. However, increasingly stringent commitments in terms of emissions reductions are expected to push carbon prices up in countries where a regulated 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.

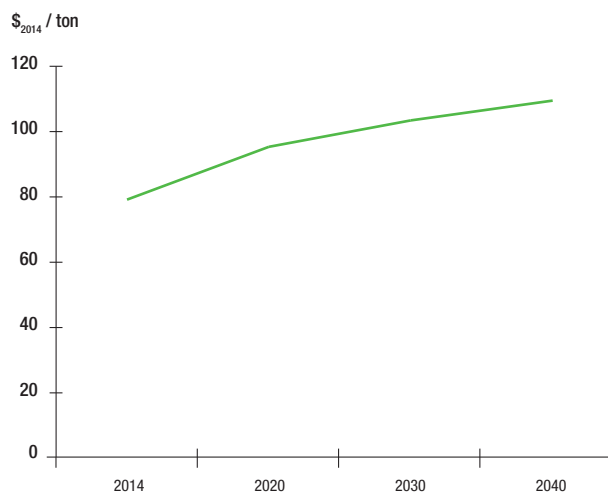
In addition, for countries that export fossil energy, nuclear power helps secure current and future income for national budgets: the resource extracted can be used to generate cash from exports rather than using it to produce electricity locally.

## OIL PRICE SCENARIO



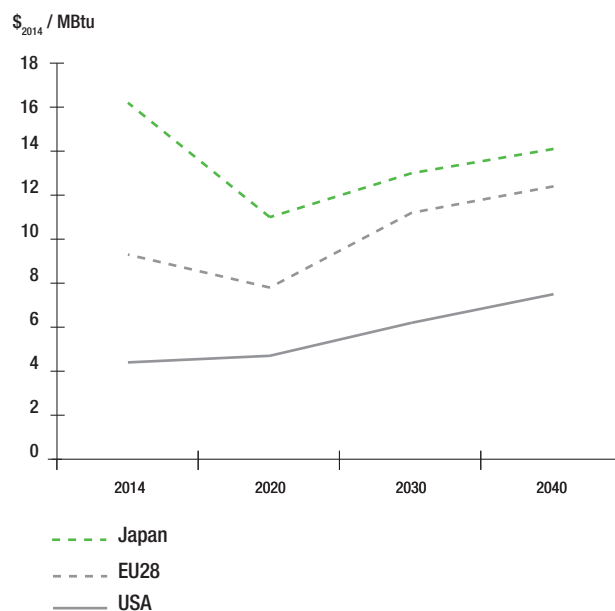
Source: WEO 2015.

## COAL PRICE SCENARIO



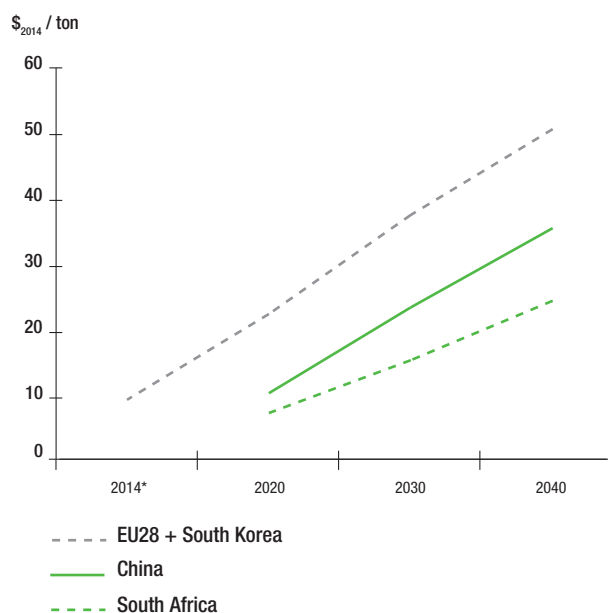
Source: WEO 2015.

## GAS PRICE SCENARIOS



Source: WEO 2015.

## CARBON PRICE SCENARIOS



\*For EU28.

Source: WEO 2015.

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

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 on new nuclear units is very high, representing several billion dollars, and the share of that investment in the kilowatt-hour cost is 60% or more. Equipment costs vary as a function of their location, as do those of labor. Such construction requires specific financing, with a share of capital and a share of 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, also coupled to social and political factors. The US Nuclear Regulatory Commission has granted permission to extend the operating life of 78 units up to 60 years. US utilities predict that fuel and maintenance costs will go down in the coming years to face the reduced price of electricity in the markets. In fact, reactors operating in deregulated markets are more at risk than those that operate in regulated markets. Five reactors have already closed in the United States, in 2013, due to market conditions – two in California, two in Florida and one in Wisconsin – and others are threatened. Five reactor uprating projects have been cancelled. In Sweden, the relatively low market prices for electricity and the recent increase in the nuclear tax threatens the competitiveness of two reactors, which are likely to close five years earlier than planned.

### 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. For example, proven uranium resources are found in OECD countries (41%), in major emerging countries such as Brazil, Russia, China and South Africa (23%), and in other parts of the world (36%) (source: *Uranium 2014: Resources, Production and Demand*, IAEA® OECD 2014).

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

AREVA's range of reactors offers a combination 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 (core catcher to confine the molten core, prevention of a hydrogen explosion or steam inside the containment, 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;
- 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 also contribute to energy self-sufficiency as regards fossil resources while limiting greenhouse gas emissions.

Many countries are offering support for renewable energies, whether through subsidized electricity rates, production quotas, green certificates, or other means. The commitment of many countries to expanding the percentage of renewable energies in their production leads 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.

Renewable energies thus offer several advantages on the environmental, economic, strategic and operational levels:

- they contribute to the fight against climate change by avoiding carbon accumulation in the atmosphere, in addition to reducing local pollution associated with certain gases (SO<sub>x</sub>, NO<sub>x</sub>)<sup>(1)</sup> and particles emitted by plants using fossil fuels;
- under certain conditions, they can become competitive with fossil sources of electricity, especially in a situation with rising fuel prices over the long term and uncertainties about CO<sub>2</sub>;
- they are available locally and well distributed geographically, thus contributing to security of supply, unlike oil and gas reserves, which are concentrated in Russia and the Middle East;
- they limit trade deficits for countries that import fossil energies and preserve the reserves of the exporting countries by limiting their domestic use;
- they offer heightened operational performance, although their integration into power grids raises important challenges due to their intermittency.

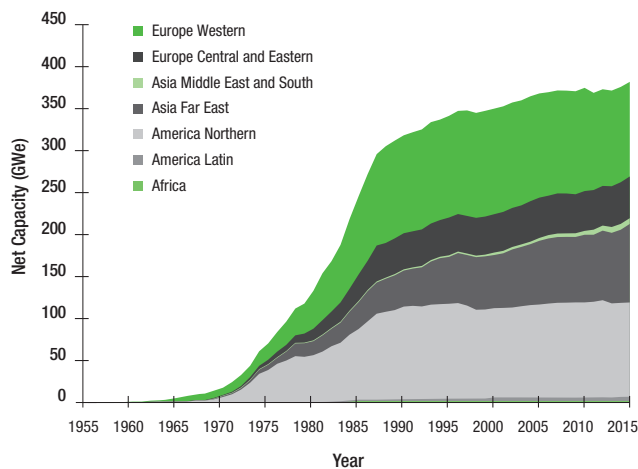
(1) SO<sub>x</sub>: sulfur oxides emitted by coal and diesel fuel combustion – NO<sub>x</sub>: nitrous oxides emitted by the combustion of all types of fossil energies.

### 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 20% over the 1990 to 2015 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. This trend continues despite delays associated with the assessment of the Fukushima accident in 2011.

#### WORLD INSTALLED NUCLEAR GENERATING CAPACITY (IN NET GWE)



Sources: IAEA PRIS Database, AREVA Estimations.

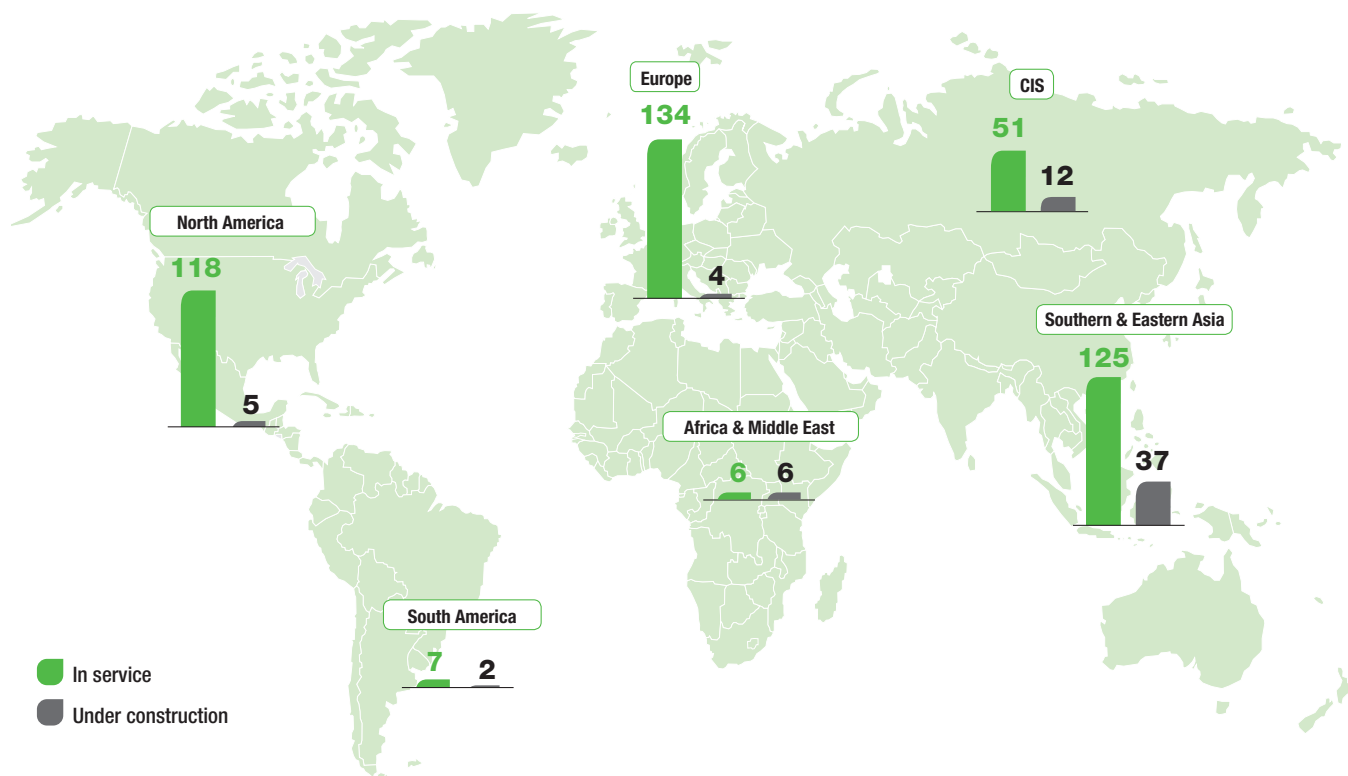
Global installed nuclear generating capacity is estimated at 382 GWe in 2015, slightly more than in 2014.

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

At December 31, 2015, a total of 441 reactors representing 401 GWe (382 GWe net) were in service in 31 countries, including the world's largest energy consuming regions.

With about 42% 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 27% of the fleet. Through 2016-2017, most of the medium-term growth potential for nuclear power 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 2015



Sources: IAEA, WNA, restated by AREVA.

Nuclear power continues to grow globally, 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), 66 reactors were under construction worldwide at the end of 2015 (compared with 70 at the end of 2014); 158 reactors were planned or on order (compared with 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: the majority are pressurized water reactors (PWR), which represent practically all of the new builds, while the remainder are boiling water reactors (BWR). There were 360 light water reactors in service in 2015, including 56 VVER reactors (Russian PWR technology);
- heavy water reactors based on a Canadian design (CANDU), of which there were 49 in service at the end of 2015;
- gas-cooled reactors (Magnox and AGRs), of which there were 15 units in service in the United Kingdom.

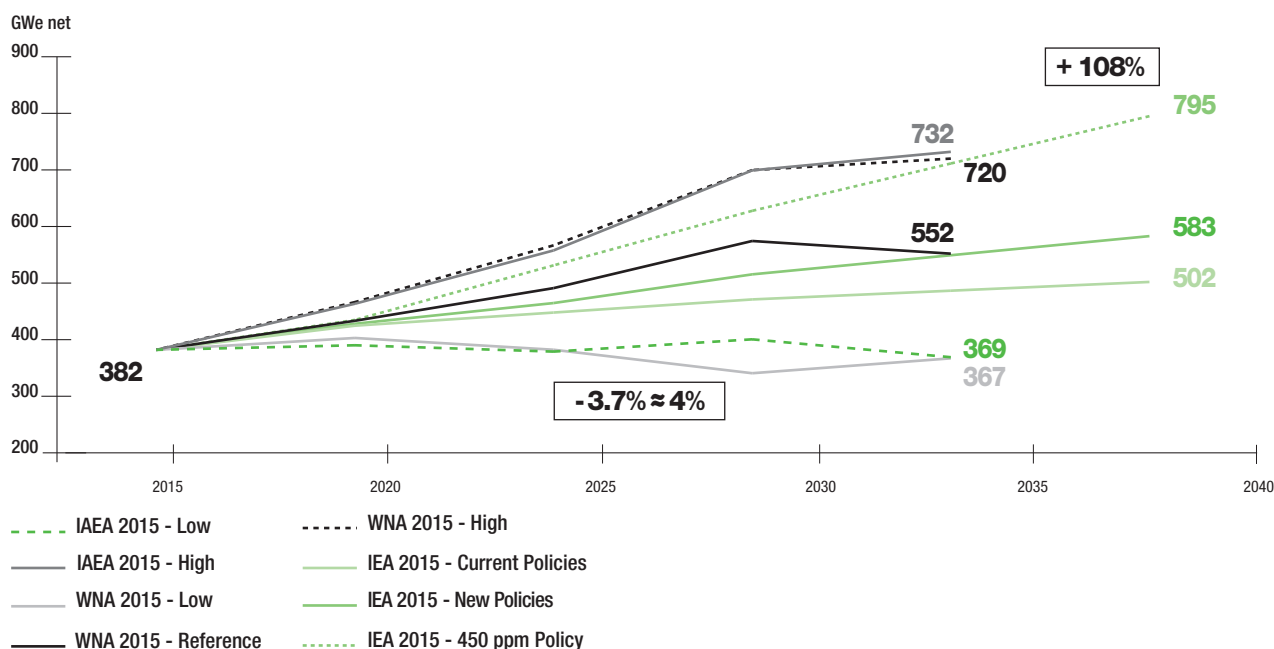
Other types of reactors in service include Russian-designed light water graphite reactors (RBMK) and breeder reactors, but their number and power rating are marginal on the international level.

## 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 sensitive nuclear facilities, 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.

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



Sources : IAEA, WNA, International Energy Agency.

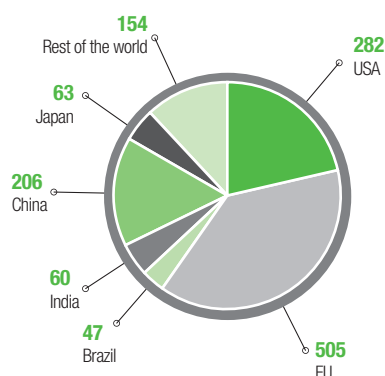
In France, the law on the energy transition and green energy adopted by Parliament in July 2015 sets a ceiling on installed capacity in France of 63.2 GWe and sets an objective for reducing nuclear's share of power production to 50% by 2025. Methods of implementation are still being defined at this time.

### 6.1.3. RENEWABLE ENERGIES MARKETS

Each year since 2008, renewable energies represented a greater share of new generating capacity coming on line in the United States and Europe than that of fossil energies. Whereas 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 in the figure below, more than 60% of the electricity from renewable energies was produced in Europe or in the United States in 2013.

**ELECTRICITY GENERATION FROM RENEWABLE SOURCES\* BY REGION IN 2013 (TWH)**



\* Excluding hydropower  
Source: IEA, WEO 2015.

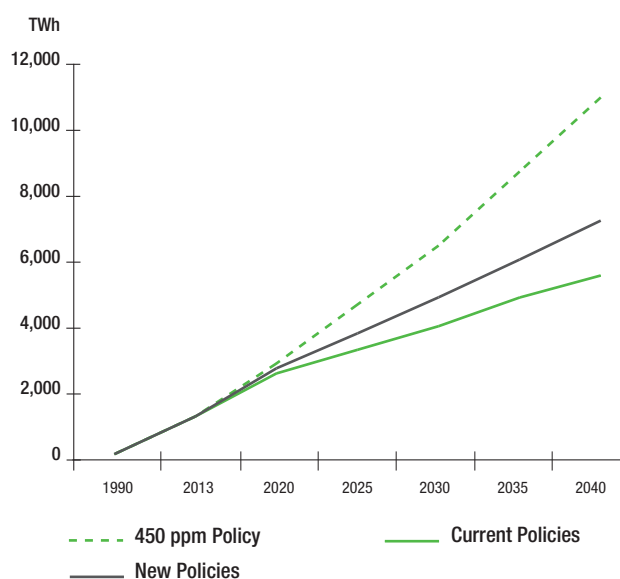
Europe is particularly dynamic when it comes to developing renewable energies. For example, the European Union has set a goal of a 27% share of final energy consumption from renewable energies by 2030.

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. China, for example, has set up seven pilot exchanges to trade carbon credits. 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 2015* foresees very strong worldwide growth in electricity generation from renewable sources, for a combined total excluding hydropower of 4,925 TWh per year by 2030.

**WORLD RENEWABLE ELECTRICITY GENERATION\* (TWH)**



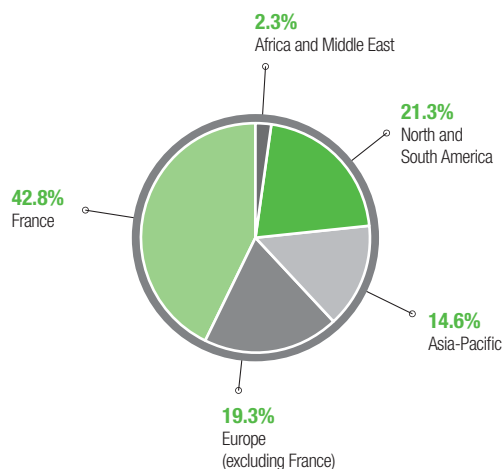
\* Excluding hydroelectric power  
Source: IEA, WEO 2015.

## 6.2. AREVA'S CUSTOMERS AND SUPPLIERS

### 6.2.1. CUSTOMERS

#### REGIONAL DISTRIBUTION OF CUSTOMERS BY REVENUE

##### AREVA'S REVENUE



Source : AREVA.

AREVA's customers are chiefly electric utilities, energy services companies, public entities (agencies in charge of the back end of the nuclear 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.

A consolidated assessment of 2015 shows that the breakdown of operations by geographical area adjusted from IFRS 5 varies little in connection with the reorganization of the group and of the nuclear industry.

The EDF group is AREVA's leading customer, representing about 30% of its revenue. The group's top ten customers represented approximately 63% of its revenue in 2015. 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 growth in Asia.

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

AREVA is in a position to sign large-scale contracts and to make offers for the fuel cycle and connected with reactor supply. AREVA is competing for several other large new build projects, particularly in Europe, China and India.

In addition to contracts with nuclear utilities, more than 90% of which are reactors served by AREVA in 2015, the group has significant contracts with governmental and paragonovernmental 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, 2014* 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 diversity of these different types of customers from very distinct regions offers the benefit of uncorrelated market dynamics. This situation is strengthened by the diversity of the three complementary resources targeted by AREVA's renewables offering: coastal winds, direct solar radiation and biomass.

### 6.2.2. SUPPLIERS

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Outsourced procurement represented a volume of approximately 3.3 billion euros in 2015 (consolidated group excluding Wind Energy, Solar Energy and Nuclear Measurements), including 1.3 billion euros for non-production purchases (information technology, telecommunications, intellectual and engineering services, corporate services and energies). Production purchases are divided among the following categories:

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

## 6.3. OVERVIEW AND STRATEGY OF THE GROUP

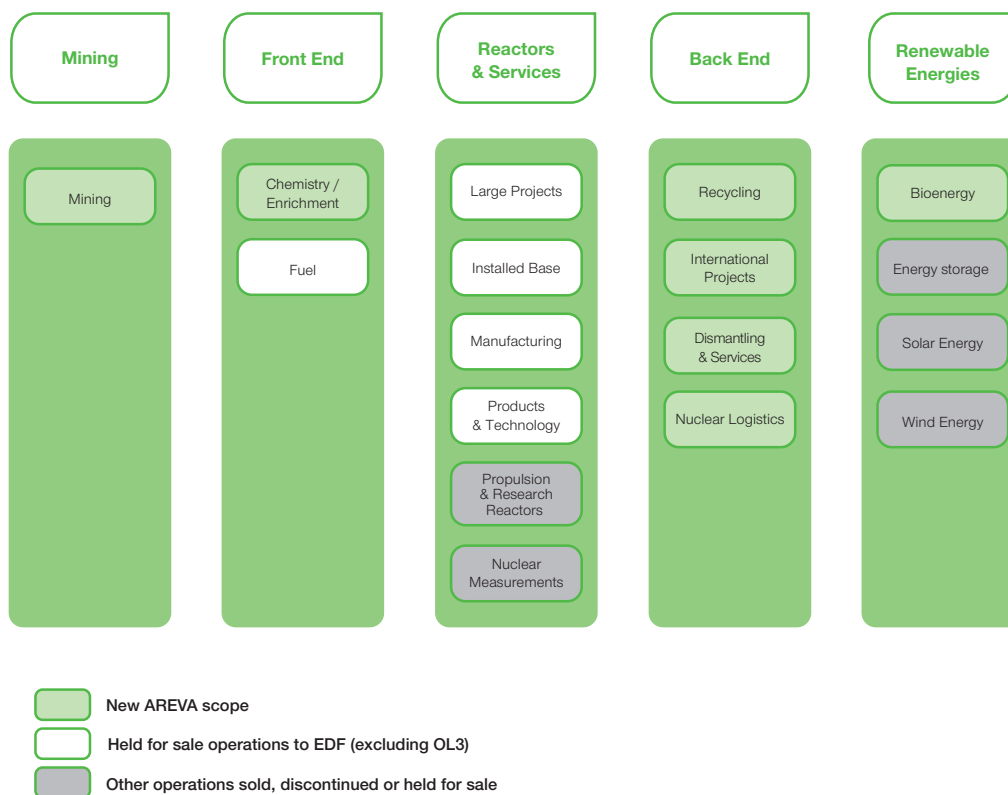
### 6.3.1. OVERVIEW

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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.

To optimize the opportunities for synergy available in the French nuclear industry, AREVA's operating footprint is destined to change significantly:

- EDF will acquire a majority interest in AREVA NP, whose operations include the design, construction, servicing of and upgrades to nuclear steam supply systems as well as the design and fabrication of nuclear fuel;
- the operations of the new AREVA will be refocused on the fuel cycle.

**CHANGE IN AREVA'S OPERATING FOOTPRINT**

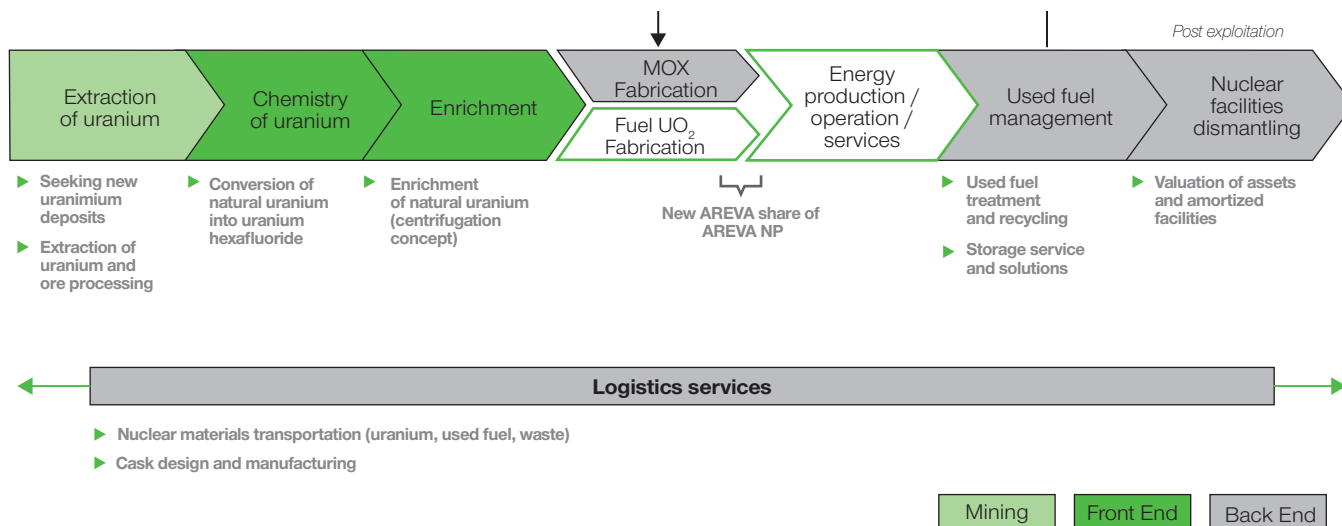
Source : AREVA.

In its new scope of consolidation, AREVA has recognized technology expertise across the entire nuclear fuel cycle anchored in 40 years of research, operating experience and proprietary processes, enabling it to meet the challenges of nuclear

power plant operators. It offers high value-added technologies and services in uranium mining, chemistry and enrichment, used fuel recycling, logistics, fuel cycle engineering and dismantling.

**THE GROUP'S BUSINESSES**

The group's operations in the nuclear power sector revolve around four main fields:



Source : AREVA.

In view of the asset sales in progress, AREVA NP's operations are recognized as discontinued operations, in accordance with IFRS 5. In particular, its revenue is no longer recognized in the group's revenue.

In 2015, AREVA had reported revenue of 4,199 million euros. The group had 29 billion euros in backlog at December 31, 2015, representing 7 years of revenue, providing good visibility for the group. It employs 39,761 people.

### AREVA'S REPORTED 2015 REVENUE BY BUSINESS GROUP

The **Mining Business Group** represents 34% of AREVA's revenue reported for 2015, or 1,447 million euros. Present on five continents, its operations include exploration for new deposits, mining and milling of the uranium ore, and site rehabilitation following mining operations. Today, AREVA is **a leader in uranium production** with a diversified portfolio of operating mines (Canada, Kazakhstan and Niger) and projects under development or in the exploration phase (Africa, Canada and Mongolia).

The **Front End Business Group** represents 26% of revenue reported for 2015, or 1,097 million euros. It combines the uranium chemistry and enrichment operations. **The new Comurhex II conversion plant and Georges Besse II enrichment plant position AREVA as a major player in the front end of the nuclear cycle.**

The light water reactor fuel assembly design and fabrication\* operations, which were previous part of the Front End Business Group, are part of the operations held for sale in connection with the sale of AREVA NP.

The **Reactors & Services Business Group** is part of the operations held for sale:

- the sale of AREVA NP's Large Projects, Installed Base, Manufacturing, and Products & Technology operations; and
- other asset disposals concerning the Propulsion & Research Reactors and Nuclear Measurements operations.

Accordingly, this Business Group is no longer presented in business segment information.

The **Back End Business Group** represents 38% of AREVA's revenue reported for 2015, or 1,593 million euros. It offers effective management solutions for the back end of the nuclear cycle. AREVA's solutions consist primarily of used reactor fuel treatment to recover reusable materials, and of nuclear site cleanup and value development. The Back End Business Group's technology and industrial lead have enabled it to be a major player in markets for the back end of the nuclear cycle and to comply with the highest standards for nuclear and occupational safety. AREVA's customer base in the back end of the fuel cycle is chiefly comprised of European utilities. The group has signed agreements to transfer technology to Japan, the United States and China in connection with work to define used fuel management solutions. The business group is also active in site and facility value development after production has been discontinued.

The **Renewable Energies Business Group** is no longer presented in business segment information, and in fact three of its operations – Wind Energy, Solar Energy and Energy Storage – no longer contribute to consolidated results, and the Bioenergy operations are now part of the Corporate and other operations described hereunder.

The group's **Corporate and other operations** represents 1% of AREVA's revenue reported for 2015, or 62 million euros. This function includes the bioenergy business, which supplies turnkey design, construction and commissioning services to customers for biomass power plants.

## 6.3.2. STRATEGY

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

- reactor shutdowns in Germany and the slow reactor restart in Japan;
- excess capacity in the uranium, conversion and enrichment markets;
- the reduction in power generators' maintenance budgets.

Despite the economic situation, energy demand fundamentals confirm the growth prospects for the nuclear market. According to available estimates, world nuclear generating capacity is destined to rise more than 50% by 2040, led by the Asian market in particular.

Although the growth of the global installed base is confirmed, the fundamentals of this 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 (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 construction project alone, and because AREVA NP and EDF have overlapping skills in the nuclear island.

Given this situation, it is planned to:

- **sell a majority interest in AREVA NP to EDF.** AREVA will keep a strategic interest in AREVA NP. This acquisition of an equity interest should optimize the performance of the French nuclear industry and its global reach;
- **create a joint entity between AREVA NP and EDF devoted to the design and construction of nuclear islands for new reactors.** This combination will underpin an ambitious export policy and the future replacement of the French nuclear fleet;
- **develop the AREVA-EDF partnership** to improve the performance of the French nuclear industry. This strategic partnership should serve to establish new industrial plans of action, in recycling for example.

\* Excluding MOX fuel.

AREVA NP's future development should rely on four fundamentals: maintaining its recognized operational excellence in safety, quality and performance; continuing to improve performance; setting up a new organization and new management; and developing industrial synergies with EDF while complying with applicable regulations on competition.

It should occur as part of a newly created entity devoted to the production of nuclear islands for new reactor projects. This plan will preserve the integrity of AREVA NP's nuclear steam supply system skills.

It should follow four major lines of action:

- consolidate AREVA NP's global market share in fuel supply by developing new products and a policy of selective market conquest;
- strengthen the development and deployment of innovative solutions in services to nuclear operators;
- develop the position of a supplier of technology building blocks (equipment, technologies and services);
- participate in the growth of EPR and ATMEA 1 construction projects through the new plan drawn up between EDF, AREVA NP and the entity devoted to new builds.

The new AREVA would refocus on its core business to maintain its role as a global expert in the nuclear materials cycle and its sustainable management. Armed with its competitiveness plan, the strengthened of its backlog, and its new management team, its growth strategy would follow three major lines of action:

#### **Maintain its technology leadership and develop a new culture of innovation**

In its new consolidation scope, AREVA would have recognized technology leadership in used fuel on a global scale, with large-scale assets and projects. In logistics, the group is present across the entire value chain. It also has cutting-edge technologies in mining and the front end of the cycle, both in terms of competitiveness and in terms of safety and environmental impacts.

Armed with this technology base and its plan to preserve skills and expertise, the new AREVA would strengthen its culture of innovation to capture growth drivers and will foster customer innovation.

#### **■ Capture major growth opportunities in Asia**

Asia's domestic nuclear cycle industry is relatively undeveloped at this stage. It is currently a source of 20% of the group's revenue, in line with the percentage of the global fleet represented by Asian power plants. It could offer new growth opportunities to the new AREVA. Among them, the industrial and financial impacts of the technology transfer contract associated with the Chinese recycling plant project may be considered a "game changer" for the group and its partners. Other discussions with Chinese industrial companies are in progress in mining, conversion and logistics.

Also, in the back end of the cycle, new AREVA's participation in the resumption of recycling and dismantling operations in Japan could have a very favorable impact on the group's profile.

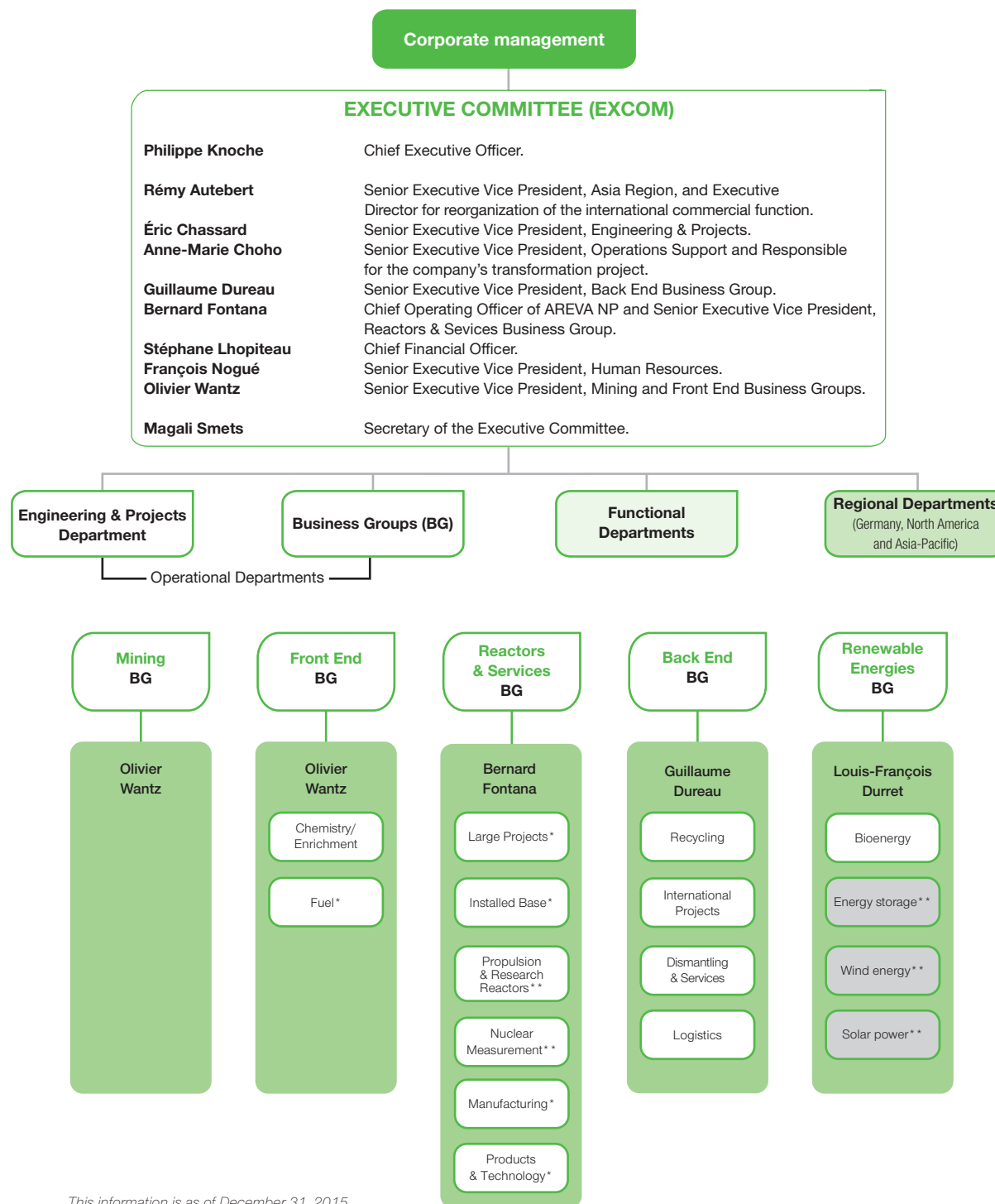
#### **■ Complete the capital spending program on industrial capacity in anticipation of a market rebound**

The path to profitable growth will be facilitated by the completion of AREVA's major capital spending programs. The group currently has some of the world's largest mineral reserves, which are geographically diversified, new plants (the ore processing plants in Canada and Kazakhstan, the Georges Besse II enrichment plant, the Comurhex II conversion plant and the waste storage facility at La Hague), a new logistics offering and experienced engineering capabilities.

In each of these industrial facilities, safety levels must remain above reproach. Anchored in the group's DNA, safety culture remains the primary condition for operational performance, acceptance of activities, and product and service value.

With new industrial assets and a competitive mining portfolio, AREVA will be able to take full advantage of the expected market turnaround.

### 6.3.3. OPERATING ORGANIZATION



This information is as of December 31, 2015.

\*Held for sale operations (excluding OL3).

\*\*Other operations sold, discontinued or held for sale.

## 6.4. OPERATIONS

### 6.4.1. MINING BUSINESS GROUP

#### KEY FIGURES

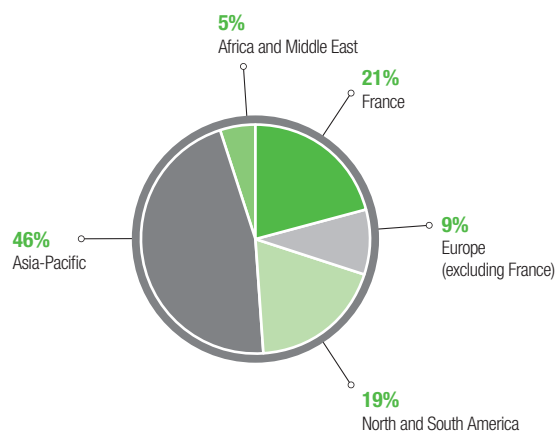
	2015	2014
Revenue* (in millions of euros)	1,447	1,297
Operating income (in millions of euros)	183	(73)
Workforce at year end**	3,317	3,819

\* Contribution to consolidated revenue.

\*\* The workforce was restated to reflect the change in the financial consolidation scope.

For purposes of information, 1 metric ton of natural uranium corresponds to about 2,599 pounds of U<sub>3</sub>O<sub>8</sub>.

#### 2015 REVENUE BY GEOGRAPHICAL AREA



Source: AREVA.

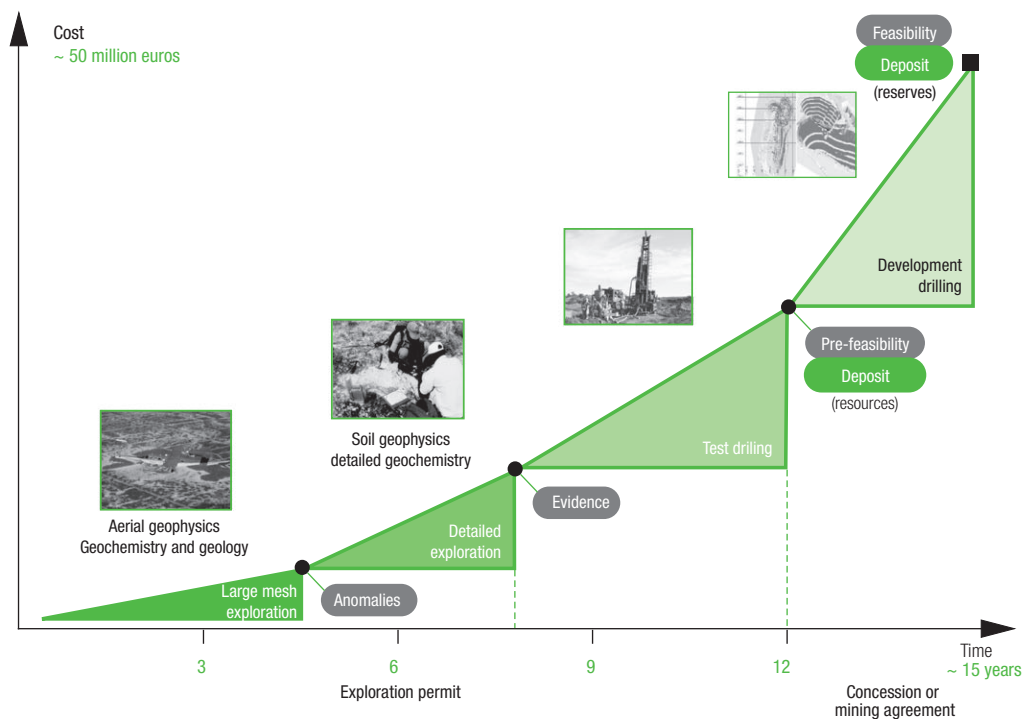
#### BUSINESSES

The four leading businesses of the Mining Business Group are:

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

The group's mining operations involve uranium which in its natural state contains two main isotopes: more than 99% is non-fissile uranium-238 (<sup>238</sup>U), while 0.7% is fissile uranium-235 (<sup>235</sup>U).

Mining operations cover long cycles requiring substantial capital expenditure over several years before mining operations 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 site rehabilitation.

**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 phase of exploration consists of detecting surface or subterranean indicators using aerial or ground geophysics and surface geological surveys. This is followed by test drilling to develop, in case of positive results, 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 mining feasibility, both technically and economically (reclassification from resource to reserve).

These operations, which require 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 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 containment 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.

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

## OPERATIONS AND HIGHLIGHTS

Key events in 2015 in the Mining Business Group (BG) were as follows:

- in accordance with the memorandum of understanding signed by the State of Niger and AREVA in 2014, the Imouraren site was mothballed with the expectation of its future restart. All demobilization activities and implementation of the restructuring plan were completed in 2015;
- in June, the State of Niger and AREVA signed a second financing agreement for the agricultural development project in the Irhazer-Tamesna-Air region. This milestone confirms the development of buildings and activities for regional crop irrigation. This agreement, in the amount of 14 million euros, falls under a memorandum of understanding between the State of Niger and AREVA signed on December 1, 2006 and confirmed via a strategic partnership agreement between the two parties of May 26, 2014;

- in June, the Mineral Resources Authority of Mongolia granted three exploration permits for the Dulaan Uul, Umnut and Zuuvch Ovoo uranium deposits located in Dornogovi Province;
- in September, Cameco and AREVA officially celebrated the production startup of the Cigar Lake mine and the McClean Lake mill during a ceremony held at the site in the North Saskatchewan region of Canada attended by Bill Boyd, Saskatchewan Minister of Energy, and several local community representatives. The Cigar Lake mine and the McClean Lake mill produced 11.3 million pounds in 2015;
- in September, AREVA published its Responsible Growth Report on a dedicated website for the first time (<http://www.rse-mines.areva.com>). After having been audited by an independent third party, the 2014 report received a score of A+, the highest score according to the standards of the Global Reporting Initiative.

By controlling its production costs and the level of its capital expenditure, the Mining business turned in good operating and financial performance in 2015, despite a context of falling prices.

In 2015, AREVA produced 8,070 metric tons of uranium in joint venture share (equity share of production) corresponding to 10,456 metric tons on a financial consolidation part:

- Somaïr produced 2,509 metric tons of uranium, for an AREVA share of 1,591 metric tons (on a 100% basis);
- Cominak produced 1,607 metric tons of uranium, for an AREVA share of 546 metric tons (on a 100% basis);
- Katco produced 4,109 metric tons of uranium for an AREVA share of 2,095 metric tons (on a 100% basis);
- McArthur River/Key Lake produced 2,221 metric tons of uranium (AREVA's share);
- Cigar Lake produced 1,612 metric tons of uranium (AREVA's share).

#### 2015 PRODUCTION IN METRIC TONS OF URANIUM (MTU)

Country	Site	Financial consolidation share 2015 MTU	Type <sup>(1)</sup>
Canada	McArthur River	2,221	UG
Canada	Cigar Lake	1,612	UG
Canada	McClean Lake	3	n.d.
<b>Total</b>	<b>Canada</b>	<b>3,835</b>	
France	Hérault Mining Division	2	n.d.
<b>Total</b>	<b>France</b>	<b>2</b>	
Kazakhstan	Katco	4,109	ISR
<b>Total</b>	<b>Kazakhstan</b>	<b>4,109</b>	
Niger	Cominak <sup>(2)</sup>	-	UG
Niger	Somaïr	2,509	OP
<b>Total</b>	<b>Niger</b>	<b>2,509</b>	
<b>TOTAL</b>		<b>10,456</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.

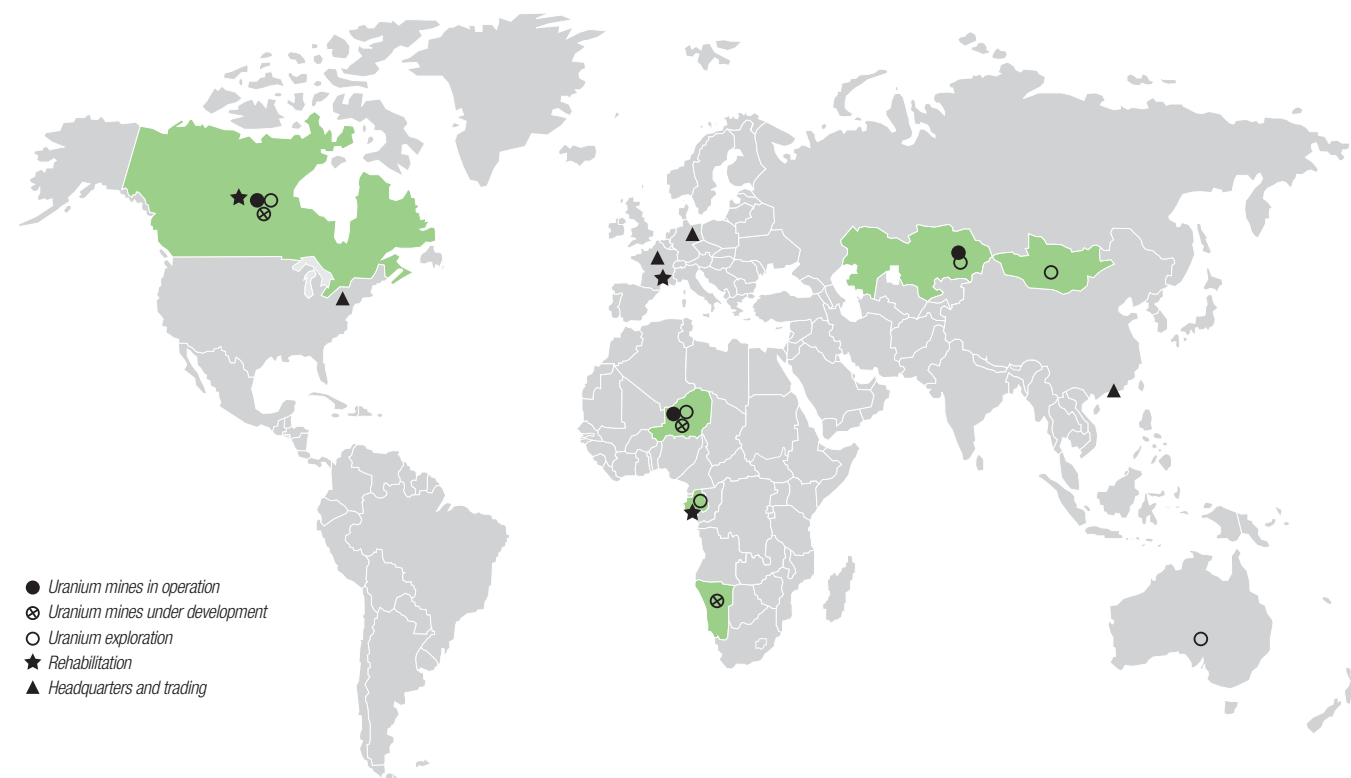
#### MANUFACTURING AND HUMAN RESOURCES

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 deliveries.

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

As part of the competitiveness plan set up to cope with a context of price deterioration, staff adjustments continued, with a reduction of 13% compared with 2014.

## LEADING SITES OF THE MINING BUSINESS



Source: AREVA.

**Canada**

AREVA has been engaged in mining operations in Canada for more than 50 years.

In Canada, AREVA's production comes from the McArthur River and Cigar Lake mines operated by Cameco Corporation. 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 and in the Nunavut territory, 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 64.8% interest in Kiggavik. The final environmental impact study for the Kiggavik project submitted in October 2014 to the Nunavut Impact Review Board (NIRB) was not approved in May 2015 due to the lack of a specific start date. The NIRB indicated that it would not impose a definitive ban on the project, saying that the project could be presented for review at a later date once the uncertainties concerning its start date and the development program have been removed.

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 Corporation, which holds a 69.805% interest (AREVA's stake is 30.195%). The McArthur River mine has, with Cigar Lake, the world's largest 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 Corporation, which holds an 83.33% interest (AREVA holds 16.67%). McArthur River and Key Lake have a capacity of 7,200 metric tons of uranium per year (18.7 million 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 of 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 the ore body to freeze the ground, and mine it by jet boring.

Cigar Lake should produce 6,900 metric tons of uranium per year at full capacity (18 million pounds of  $U_3O_8$ ).

With 11.3 million pounds of uranium concentrates produced in 2015, production ramp-up at the Cigar Lake mine reached a production level above that of the forecast.

**McClean Lake**

AREVA operates McClean Lake and is a 70% owner alongside Denison Mines Ltd, which has a 22.5% stake, and Overseas Uranium Resources Development Company Ltd of Japan (Ourd), which owns 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 the ramp-up of mining production (18 million pounds of uranium concentrates).

In 2016, it is planned to obtain the regulatory permit to increase production levels of uranium concentrates at the McLean Lake mill, which is currently limited to 13 million pounds.

**Niger**

Exploration teams from the Commissariat à l'énergie atomique (CEA, the French atomic energy commission) detected uranium in Niger at the end of the 1950s. The uraniferous area is located west of the Air granitic body.

Close to 2,000 people work at Somair and Cominak, excluding 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 by the State of Niger and AREVA on May 26, 2014:

- the mining agreements for Somair and Cominak were renewed till the end of 2018 in accordance with the Nigerien mining law of 2006 (with neutralization of the value-added tax impact);
- a Joint Strategy Committee was set up. It 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 a share of the Tahoua-Arlit road renovations;
  - financing of the construction of an office building for 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 share capital; 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 town 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 the back end process of the mill. Given the current characteristics of the ore processed, capacity is in the range of 2,000 and 2,500 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, producing approximately 1,500 metric tons of uranium per year (3.9 million pounds of U<sub>3</sub>O<sub>8</sub>).

**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 owned by the government of Niger holding the remaining 33.35%.

In view of market conditions, production startup work was 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.

Shareholders include AREVA (51%) and the Kazakh company Kazatomprom (49%), the national natural uranium producer of Kazakhstan.

Development of the two mining 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. In 2015, Katco 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 with the State of Kazakhstan is under review and constitutes the first development stage of this deposit.

**Namibia**

The Trekkopje deposit is located in Namibia. AREVA has owned 100% of the property 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. The equipment and facilities are currently mothballed, and regular maintenance continues to be provided.

**Mongolia**

For more than 15 years, AREVA has successfully conducted mineral exploration operations 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 that will lead AREVA's exploration activities in Mongolia.

In accordance with nuclear energy law in Mongolia, these permits must be transferred to a new mining company in which the state-owned Mon-Atom company overseen by the Commission of State Properties has a 34% interest. The remaining 66% will be held by AREVA Mongol, itself 66% owned by AREVA and 34% owned by Mitsubishi Corporation. After receiving the necessary permits, the mining company will begin building and operating the pilot in order to confirm the technical and economic parameters of the deposit and update the feasibility study.

### Australia

AREVA suspended its drilling work in Australia in the second half of 2015. Targeted studies will continue in view of the future resumption of work.

### Gabon

In Gabon, exploration work resumed a few years ago at AREVA's former mining sites continues.

## AREVA'S EQUITY INTERESTS IN URANIUM PROJECTS

Country	Site	Type*	Operator	Share in JV %	Financial consolidation** %
Australia	Koongarra	n.d.	AREVA	100.00%	100.00%
Canada	Cigar Lake	UG	Cameco	37.10%	37.10%
Canada	Dawn Lake	n.d.	Cameco	23.09%	23.09%
Canada	Key Lake	OP/UG	Cameco	16.67%	16.67%
Canada	Fox Lake	n.d.	Cameco	21.76%	21.76%
Canada	Kiggavik-Sissons Schultz	OP/UG	AREVA	64.80%	64.80%
Canada	McArthur River	UG	Cameco	30.195%	30.195%
Canada	McClean Lake	OP	AREVA	70.00%	70.00%
Canada	Midwest	OP	AREVA	69.16%	69.16%
France	AREVA Mines	n.d.	AREVA	100.00%	100.00%
Kazakhstan	Katco	ISR	AREVA	51.00%	100.00%
Mongolia	Zoovch Ovoo	ISR	AREVA	66.00%	100.00%
Mongolia	Dulaan Uul	n.d.	AREVA	66.00%	100.00%
Namibia	Trekkopje Project	OP	AREVA	100.00%	100.00%
Niger	Arlit Concession	n.d.	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%
CAR	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 2015.

Source: AREVA.

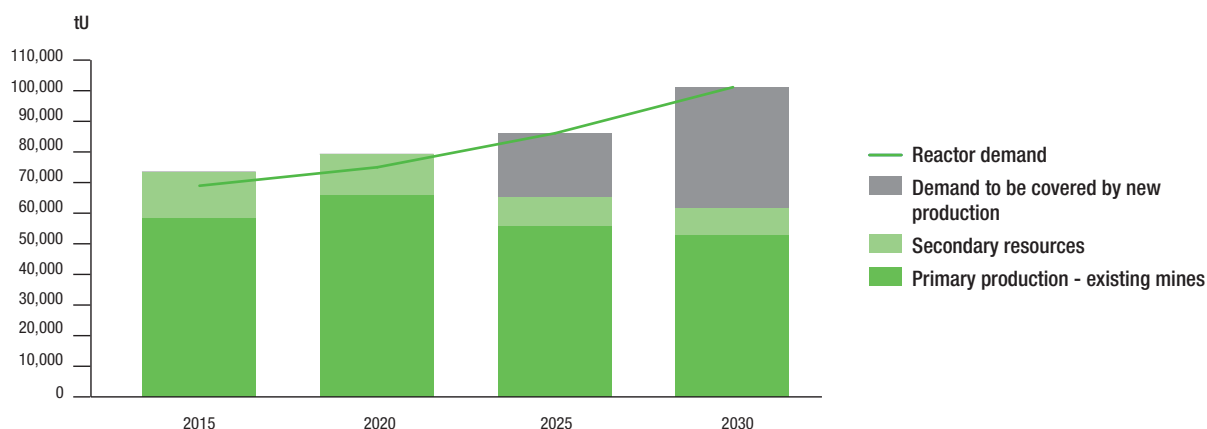
## MARKET AND COMPETITIVE POSITION

### Market

Reactor requirements amounted to approximately 69,000 metric tons of uranium in 2015 ("gross" demand expressed in natural uranium; source: UxC Q4 2015), slightly up from 2014, led in particular by demand in Asia (e.g. China).

Supply consists of:

- mining production, which amounted to approximately 60,700 metric tons of uranium, an increase of 8% compared with 2014 following the restart of the Cigar Lake mine;
- secondary resources estimated to a total of 15,250 metric tons of uranium, according to UxC, coming from materials from used fuel recycling, marketing of uranium inventories of the US (DOE) and Russian governments, re-enriched depleted uranium, and low-enriched uranium of enrichers.

**WORLD DEMAND AND SUPPLY IN 2015**

Source: UxC Q4 2015

**Estimated global production in 2015****TOP TEN URANIUM PRODUCING COUNTRIES**

Rank	Producer	Production (MTU)	%*
1	Kazakhstan	23,700	39%
2	Canada	13,300	22%
3	Australia	5,700	9%
4	Niger	4,100	7%
5	Russia	3,100	5%
6	Namibia	2,900	5%
7	Uzbekistan	2,400	4%
8	China	1,600	3%
9	United States	1,300	2%
10	Ukraine	1,000	1%
<b>TOTAL TOP 10</b>		<b>59,100</b>	<b>97%</b>
	Other	1,600	3%
	Global production	60,700	100%

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

\* Rounded to the nearest bp.

**TOP TEN URANIUM PRODUCERS**

Rank	Producer	Available share of production* (MTU)	%**
1	Kazatomprom	11,700	19%
2	Cameco	11,000	18%
3	AREVA	9,400	16%
4	ARMZ/Uranium One	7,900	13%
5	BHP Billiton	3,200	5%
6	Rio Tinto	2,800	5%
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>53,200</b>	<b>88%</b>
	Other	7,500	12%
	Global production	60,700	100%

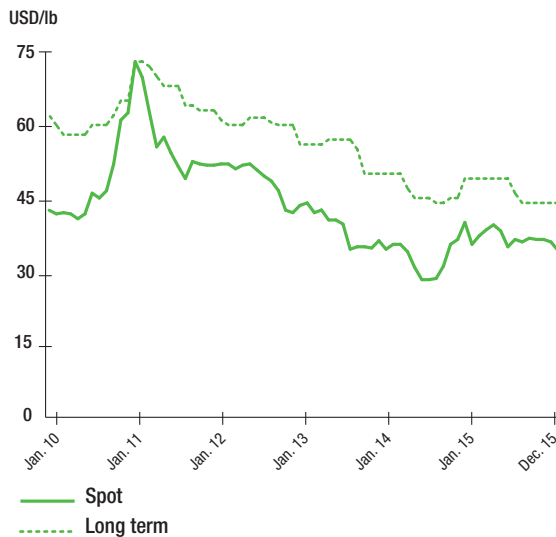
Source: Annual reports from the different companies (rounded to the nearest 100 metric tons) and AREVA estimates.

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

\*\* Rounded to the nearest bp.

In 2015, AREVA produced 9,400 metric tons of uranium (in share of production available to the group).

### URANIUM PRICE INDICATORS 2010-2015 (IN CURRENT US DOLLARS)



Sources: UxC, Uranium market outlook Q-4 2015.

The spot market, which accounts for approximately 15% of uranium supply, varied between \$33 and \$40 per pound, ending the year at \$34.25 per pound. These relatively low levels reflect an imbalance between supply and demand, currently offset by opportunistic purchases to cover Western utilities' medium-term requirements, and inventory increases by Chinese utilities. The long-term indicator, which reflects the signature of multi-year contracts for deliveries starting a few years from now, fell in 2015, ending the year at \$44 per pound versus \$49.50 per pound at year-end 2014.

With the decline of market indicators since Fukushima, producers have announced numerous project postponements, closures and/or mothballing of producing mines, and reduced production. 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), in particular with 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

AREVA has 181,189 metric tons of uranium reserves in its deposits (joint venture share).

The volume of the best-known resources (measured and indicated resources) is 98,641 metric tons of uranium (joint venture share). The volume of inferred resources available to AREVA is 178,205 metric tons of uranium (joint venture 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 Executive Management, is to validate the schedule for updating resources and reserves, to validate the resources and reserves published 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, 2015, 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 with sufficient detail 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 with sufficient detail to issue a reasonable assumption on the continuity of the geology and the grades.

**Inferred Resources:** Share of mineral resources for which the quantity, concentration and grade can be estimated based on geological evidence and limited sampling, and which can be reasonably relied upon 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 resources, as demonstrated by at least one preliminary feasibility study or mining project. The study includes adequate information about mining and processing operations, metallurgy, the economic aspects and other relevant factors to demonstrate that mining is profitable at the time the report was written. Mineral reserves include dilution factors and the allowance for mining losses incurred during mining operations.

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

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

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

**SIGNIFICANT CHANGES IN RELATION TO 2014 (JOINT VENTURE SHARE)**

Aside from the depletion of production, the following changes (joint venture share) occurred:

- Fox Lake: Preliminary estimate by Cameco of inferred resources at the Fox Lake deposit totaling 5,700 metric tons of uranium for AREVA's share (21.8%).

As a reminder, historical estimates of resources for the Midwest deposit in Canada and the Dulaan Uul deposit in Mongolia, which were done before the adoption of international standards, were about 10,000 metric tons of uranium each (joint venture share). These deposits have good potential but are not priorities and 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 2015 ESTIMATES)**

Country	Site	Proven			Probable			Total reserves				
		Ore Kt	Grade % <sub>U</sub>	Metal MTU	Ore Kt	Grade % <sub>U</sub>	Metal MTU	Ore Kt	Grade % <sub>U</sub>	Metal MTU	Recovery %	Metal (after application of yields) MTU
Canada	Cigar Lake	226	186.01	42,056	376	114.94	43,183	602	141.64	85,240	98.50%	83,961
Canada	Key Lake	67	4.26	287	-	-	-	67	4.26	287	98.70%	283
Canada	McArthur River	1,195	81.59	97,521	200	159.67	31,919	1,395	92.78	129,440	98.70%	127,757
Canada	McClean	90	3.01	271	1	43.20	22	91	3.23	293	96.00%	281
<b>Canada</b>	<b>Total</b>	<b>1,579</b>	<b>88.75</b>	<b>140,136</b>	<b>576</b>	<b>130.40</b>	<b>75,123</b>	<b>2,155</b>	<b>99.89</b>	<b>215,260</b>		<b>212,283</b>
Kazakhstan	Katco	-	-	-	15,245	0.72	10,929	15,245	0.72	10,929	84.15	9,197
<b>Kazakhstan</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>15,245</b>	<b>0.72</b>	<b>10,929</b>	<b>15,245</b>	<b>0.72</b>	<b>10,929</b>		<b>9,197</b>
Niger	Cominak	771	3.30	2,545	2,337	3.32	7,761	3,108	3.32	10,306	93.10%	9,595
Niger	Imouraren	-	-	-	306,048	0.70	213,722	306,048	0.70	213,722	81.51%	174,196
Niger	Somaïr	831	0.89	741	3,229	1.43	4,603	4,060	1.32	5,344	83.45%	4,459
<b>Niger</b>	<b>Total</b>	<b>1,602</b>	<b>2.05</b>	<b>3,286</b>	<b>311,614</b>	<b>0.73</b>	<b>226,086</b>	<b>313,216</b>	<b>0.73</b>	<b>229,372</b>		<b>188,250</b>
<b>TOTAL</b>		<b>3,181</b>	<b>45.09</b>	<b>143,422</b>	<b>327,435</b>	<b>0.95</b>	<b>312,138</b>	<b>330,616</b>	<b>1.38</b>	<b>455,560</b>		<b>409,729</b>

Source: AREVA.

Country	Site	Share in JV MTU
Canada	Cigar Lake	31,150
Canada	Key Lake	47
Canada	McArthur River	38,576
Canada	McClean	197
<b>Canada</b>	<b>Total</b>	<b>69,970</b>
Kazakhstan	Katco	4,690
<b>Kazakhstan</b>	<b>Total</b>	<b>4,690</b>
Niger	Cominak	3,262
Niger	Imouraren	100,439
Niger	Somaïr	2,827
<b>Niger</b>	<b>Total</b>	<b>106,529</b>
<b>TOTAL</b>		<b>181,189</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 2015 ESTIMATES)**

Country	Site	Proven			Probable		
		Ore Kt	Grade %U	Metal MTU	Ore Kt	Grade %U	Metal MTU
Canada	Cigar Lake	3	51.75	140	18	64.49	1,129
Canada	Dawn Lake	-	-	-	184	37.46	6,885
Canada	Fox Lake	-	-	-	-	-	-
Canada	Kiggavik	-	-	-	10,418	4.70	48,953
Canada	McArthur River	62	32.53	2,017	5	25.94	122
Canada	McClellan	82	30.23	2,479	242	14.13	3,424
Canada	Midwest	-	-	-	463	4.81	2,227
<b>Canada</b>	<b>Total</b>	<b>147</b>	<b>31.60</b>	<b>4,635</b>	<b>11,329</b>	<b>5.54</b>	<b>62,740</b>
Kazakhstan	Katco	-	-	-	6,310	1.03	6,510
<b>Kazakhstan</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>6,310</b>	<b>1.03</b>	<b>6,510</b>
Mongolia	Zoovch Ovoo	-	-	-	-	-	-
<b>Mongolia</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Namibia	Trekkopje 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	-	-	-	21,195	1.43	30,183
<b>Niger</b>	<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>129,863</b>	<b>0.71</b>	<b>92,767</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>147</b>	<b>31.60</b>	<b>4,635</b>	<b>147,502</b>	<b>1.10</b>	<b>162,017</b>

\* Average grade after dilution of the ore to be leached.

(1) Katco is waiting for approval of the registration of 6,510 MTU of measured and indicated resources and 6,250 MTU of inferred resources in the State's records, expected to be received in 2016.

Source: AREVA estimates.

### Mining site rehabilitation

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

Measured + indicated				Inferred			AREVA share
Ore <i>Kt</i>	Grade <i>%U</i>	Metal <i>MTU</i>	JV share measured + indicated <i>MTU</i>	Ore <i>Kt</i>	Grade <i>%U</i>	Metal <i>MTU</i>	Inferred share in JV <i>MTU</i>
20	62.78	1,268	470	285	139.29	39,670	14,717
184	37.46	6,885	1,590	46	8.44	385	89
-	-	-	-	387	67.74	26,195	5,700
10,418	4.70	48,953	31,722	731	2.82	2,059	1,334
67	32.06	2,139	646	344	65.45	22,528	6,802
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>11,476</b>	<b>5.87</b>	<b>67,375</b>	<b>40,100</b>	<b>1,839</b>	<b>50.49</b>	<b>92,880</b>	<b>30,059</b>
6,310	1.03	6,510	3,320	24,004	0.86	20,596	10,504
<b>6,310</b>	<b>1.03</b>	<b>6,510<sup>(1)</sup></b>	<b>3,320</b>	<b>24,004</b>	<b>0.86</b>	<b>20,596<sup>(1)</sup></b>	<b>10,504</b>
-	-	-	-	525,000	0.10*	50,000	33,000
-	-	-	-	<b>525,000</b>	<b>0.10</b>	<b>50,000</b>	<b>33,000</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
-	-	-	-	348	2.72	947	322
108,668	0.58	62,584	36,085	4,394	0.66	2,879	1,660
21,195	1.43	30,183	19,136	13,844	1.64	22,653	14,362
<b>129,863</b>	<b>0.71</b>	<b>92,767</b>	<b>55,221</b>	<b>31,431</b>	<b>1.49</b>	<b>46,882</b>	<b>36,747</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>147,649</b>	<b>1.13</b>	<b>166,652</b>	<b>98,641</b>	<b>852,248</b>	<b>0.33</b>	<b>278,253</b>	<b>178,205</b>

Site surveillance continues after rehabilitation, in particular monitoring of air quality, surface water and groundwater quality, bio-indicators and the food chain. The monitoring provided under post-closure management plans for the mine sites 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 local stakeholder expectations. Experience to date indicates that this period is generally not less than 10 years. For sites located in emerging countries and/or countries where there are strong expectations of 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

In 2015, the group sold around 13,000 metric tons of uranium, in slight increase compared to 12,600 metric tons of uranium in 2014.

The backlog amounted to 9.115 billion euros at the end of 2015. The backlog is diversified among customers in different uranium-consuming regions.

### Suppliers

The sold uranium 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 develop its portfolio of projects by conducting the necessary studies in order to be able to launch new capital expenditure.

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

## 6.4.2. FRONT END BUSINESS GROUP

To optimize the opportunities for synergy available in the French nuclear industry, and in application of IFRS 5, the Fuel operations of the Front End Business Group were classified as "operations held for sale" belonging to AREVA NP. In the new AREVA, the footprint of the Front End Business Group will be limited to the Chemistry and Enrichment operations.

### 6.4.2.1. CHEMISTRY-ENRICHMENT

#### Key figures

	2015	2014
Revenue* (in millions of euros)	1,097	988
Workforce at year end**	3,012	3,331

\* Contribution to consolidated revenue.

\*\* The workforce was restated to reflect the change in the financial consolidation scope.

#### Businesses

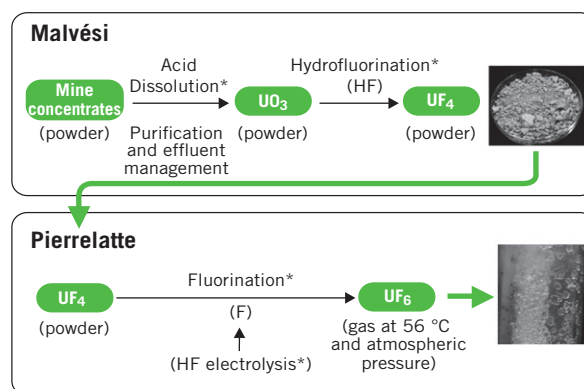
#### Conversion of natural uranium ( $U_3O_8$ ) into uranium hexafluoride ( $UF_6$ )

The Chemistry business's primary activity is to convert natural uranium ( $U_3O_8$ ) into uranium hexafluoride ( $UF_6$ ). All enrichment processes – the necessary next step in nuclear fuel fabrication – 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 hydrofluorinated with hydrofluoric acid, which converts it into  $UF_4$ . These operations are carried out in AREVA's plant at the Malvési site in the Aude department of southern France;

- in the second stage, the  $UF_4$  is converted through 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 southern 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 proportionate 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.

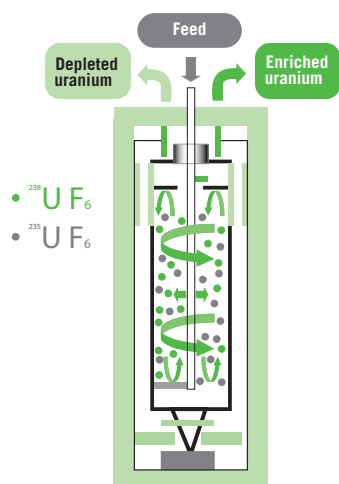
### **Implementation of a new, more efficient enrichment technology that uses less energy**

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. The most critical phase, consisting of removing the majority of the uranium present, was completed in October 2015. AREVA also filed a dismantling permit application at the end of March 2015.

### **CENTRIFUGATION CONCEPT**



Source: AREVA.

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 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 that 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 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 for the sale and installation of defluorination lines with Tenex and Urenco.

### **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 to be converted chemically 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 fresh 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 activities such as the production of chlorine trifluoride, used to clean enrichment barriers from the Eurodif plant, which was shut down permanently in 2012.

### **Manufacturing and human resources**

The Front End BG's Chemistry-Enrichment operations are split between two industrial sites in France, i.e. Malvési and the integrated platform of Tricastin:

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

Integration of the Tricastin platform was completed in 2013 with the pooling of support functions and the creation of industrial services for the entire site. With this integration, AREVA will reap the benefits of bringing together on a single platform all of the operations related to the transformation of uranium, such as  $\text{UF}_6$  shipments between the different plants, at a lower cost and under better safety conditions. The personnel employed in the facilities are certified for the use of hazardous chemicals and for the special aspects of uranium work.

AREVA is the majority owner of SET. Six partners own a total of 12% of the company's capital (5% held by GDF Suez, 2.5% by Kansai Electric Power together with Sojitz, 2.5% by Korea Hydro & Nuclear Power Co. Ltd, 1% by Kyushu Electric Power and 1% by Tohoku Electric Power), demonstrating our utility customers' dedication to this major project.

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 2015, 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 2014, but the transaction volume is distinctly lower than pre-Fukushima volumes, taking into account the already high level of coverage of utility requirements.

The enrichment market is structured around multiyear 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.

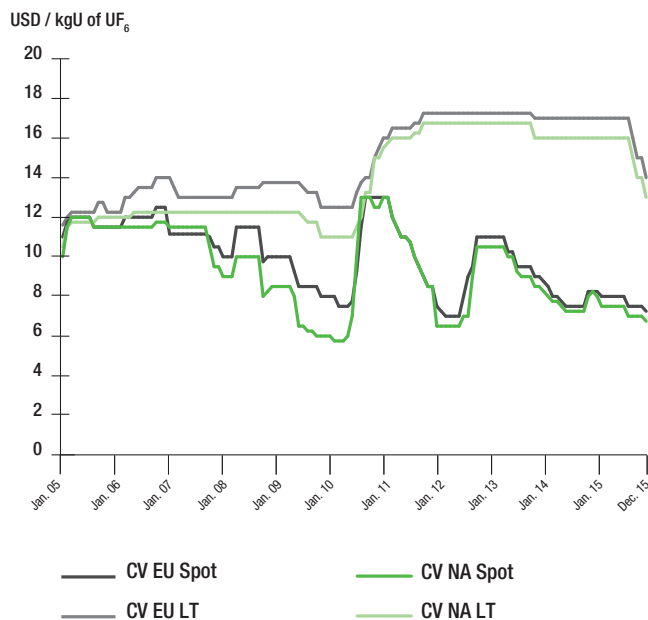
## Market and competitive position

### CONVERSION MARKET

Annual global demand for conversion in 2015 is estimated at about 58,400 metric tons of natural  $UF_6$ , including 18,800 metric tons in Western and Central Europe (Euratom area), 6,800 metric tons in Russia and Eastern Europe, 18,000 metric tons in North America, and 13,200 metric tons in Asia. 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  $UF_6$  will be around 11,400 metric tons in 2020 (Source: 2015 WNA Report, Reference Scenario).

The market has seen a recent decrease due to surplus capacity in the conversion market, but the gap between spot and long-term indicators reflects the perception of a weak long-term conversion market linked 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  $UF_6$  in 2015, AREVA 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 capacities of AREVA's competitors are thus estimated as follows:

- 12,500 metric tons for TVEL;
- 15,000 metric tons for Converdyn;
- 12,500 metric tons for Cameco; and
- 4,000 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 10 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

Global annual demand for enrichment is estimated at more than 47.3 million SWU in 2015 (source: WNA 2015). Market growth will remain limited in volume, but will also be relatively steady, essentially driven by Asia, where nuclear power programs are growing faster than in the other three major regions of the world.

The Fukushima accident triggered a drop in spot market indicators due to reduced demand in Japan and Germany and a drop in long-term indicators, particularly until Japan announces the restart of its reactors.

The market is traditionally regulated by geopolitical considerations, but they have less and less impact. In Europe, the Euratom Supply Agency monitors the supply of uranium and enrichment services within the framework of the Corfu Declaration. In the United States, since the US Congress amended the Suspension Agreement in 2008, the Russian supplier Rosatom is allowed to supply up to 20% of the US utilities' requirements starting in 2014 and concluded several contracts with these customers.

However, Rosatom's competitors are still unable to access the Russian uranium enrichment market.

### COMPETITIVE POSITION IN ENRICHMENT

Operator	Estimated installed capacity	Process
Georges Besse II (France)	7.4 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)	5.1 million SWU/year	Centrifugation
Other (Japan, Brazil)	0.6 million SWU/year	Centrifugation
<b>TOTAL (2015)</b>	<b>58.0 MILLION SWU/YEAR</b>	

Source: AREVA estimates based on available data.

AREVA, Urenco and Rosatom are the leading players in the enrichment market.

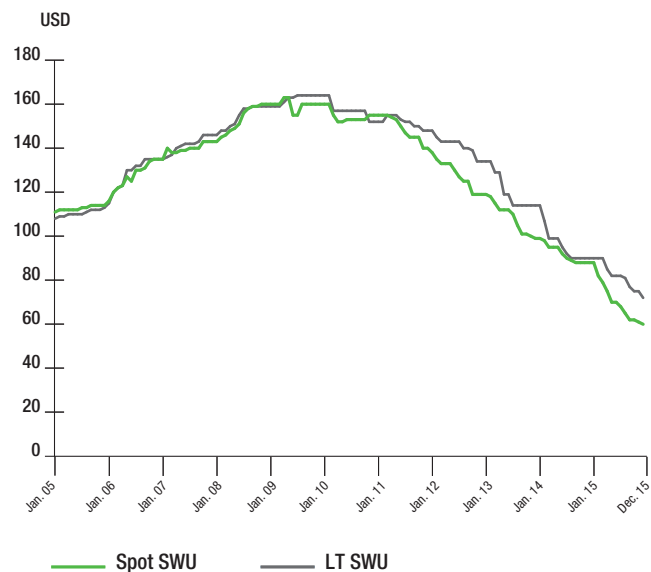
The Georges Besse II plant achieved 7.4 million SWUs per year of installed capacity at the end of 2015 and is now close to its nominal capacity of 7.5 million SWUs, which will be reached in 2016.

On September 30, 2014, the US bankruptcy court approved the reorganization plan of Usec Inc., which has been operating under the name of Centrus Energy Corp. since the fourth quarter of 2014. While Centrus is still a market player, no direct production is planned before the construction of the American Centrifuge Plant (ACP), but recent budget reductions and construction schedule forecasts confirm delays until at least 2020. Urenco, whose shareholders are German, British and Dutch, announced that its installed capacity in Europe and the United States reached 18.9 million SWU per year in 2015.

In former USSR countries, 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.

GE-Hitachi has drastically reduced financing for its laser enrichment project.

### 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 Chemistry-Enrichment operations is to bolster AREVA's position as a major player in the global uranium 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; known as the Comurhex II project, both sites are concerned. 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 an electrolysis facility used to heat the buildings.

With Comurhex II, the environmental footprint will decrease considerably:

- 75% reduction in ammonia effluents, 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.

In 2015, the Comurhex II project continued after reaching major milestones in 2014:

- at the Malvési site, new drum emptying, dissolution and concentration facilities entered production, and qualification continued of UF<sub>4</sub> produced with the new thermal denitration process, which will replace chemical denitration;
- at the Tricastin site, construction continued on utilities and the functions of fluorination and effluent treatment.

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 a growth in volume. The sharp upturn in demand in Asia should largely offset a decline in demand in Europe.

For the coming years, the goal of the Enrichment business is to successfully ramp up production at the Georges Besse II plant in order to reach full production capacity in 2016, and to strengthen the profitability of the investments made with operational and commercial levers.

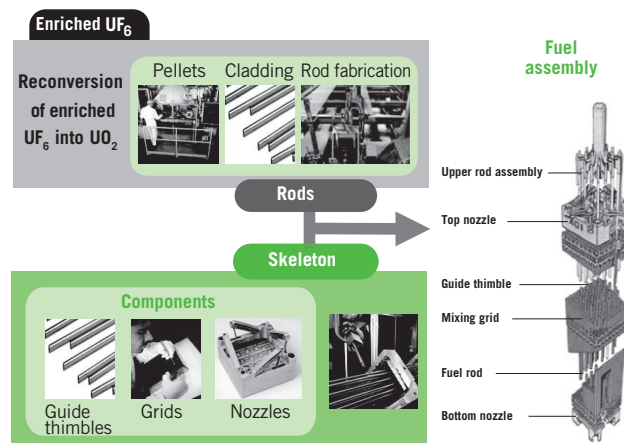
#### 6.4.2.2. FUEL

To optimize the opportunities for synergy available in the French nuclear industry, and in application of IFRS 5, the Fuel operations of the Front End Business Group were classified as "operations held for sale" belonging to AREVA NP.

#### 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. The Back End Business Group's Recycling Operations department fabricates the MOX fuel (see Section 6.4.4. *Back End Business Group*).

#### PRINCIPAL STAGES IN LIGHT WATER REACTOR FUEL ASSEMBLY FABRICATION



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 for 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 analyses.

The Fuel business also manufactures zirconium-based products and semi-finished products which may be sold to some competing fuel assembly fabricators. In addition, the Fuel business markets fuel-related engineering services, fabrication services and onsite fuel-related services.

## Operations and highlights

Production plant streamlining and performance improvement continues.

In the United States, the operational excellence program is being finalized for the Richland site's pelleting operations.

In Europe, the final MOX fuel assembly fabrication campaign was carried out at the Dessel site; meanwhile, demolition of the first nuclear building took place as part of the site dismantling program. The Lingen site in Germany submitted its periodic safety reassessment report and is pursuing an optimization plan aimed at strengthening its competitiveness. At the Romans plant in France, repairs of the effluent treatment station were finished and work began on the construction of the new crisis command center in connection with the plant's safety commitments.

Concerning the zirconium operations, a transformation plan was launched to improve overall performance. In addition, the CAST joint venture in China with SGTC (a subsidiary of the Chinese nuclear group CNNC) performed its first cladding tube deliveries to CJNF, a subsidiary of CNNC, in China.

## Manufacturing and human resources

The Fuel business is structured into three entities, with facilities in Europe and the United States:

- a Business Line which combines the Products & Technology, Fuel Design, Contracts and Services organizations, and which also includes the development of fuel-related service proposals and the supply chain;
- a department of Components operations, which includes all of the zirconium products manufacturing processes, from zircon ore to finished products. It has five plants in France, each specialized in one aspect of zirconium metallurgy or forming, as well as a grid manufacturing plant in Germany and two joint ventures, one in Japan and the other in China;
- a Fuel operations department organized into six production sites, one in the United States and five in Europe, which mainly supply US and European utilities. In Japan, a joint-venture production site serves the Japanese market.

## 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 in-core repair of defective fuel rods or assemblies at the utility's reactor site. Given their importance for the customer's operations, the contracts normally include warranties. These warranties are provided for:

- fuel integrity under all normal operating conditions and up to the contractual burnup (see *Glossary*);

- satisfactory fuel performance in the reactor at nominal power;
- compatibility with fuel assemblies 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 declining slightly in 2013, the market for zircon sand and zirconium dioxide (the base material for the extraction of zirconium metal in the Jarrie plant) remained stable in 2014 and 2015, at the lower threshold of profitability for the market. Most of the zirconium dioxide supplies (approximately 75%) are secured under multi-year contracts.

The price of nickel, a component of inconel alloys, fell in the first part of the year compared with 2014; the drop was sharper in the second half-year due to the slowdown in China's metal consumption. The price of carbon black lost ground in 2015, in the wake of oil prices, to which it is pegged.

The group's supplies of other key components and materials – such as magnesium and niobium or the components needed to manufacture rod cluster control assemblies (plate cutting, silver-indium-cadmium bars) and stainless steel tubing – are secured with annual and multi-annual contracts.

The price of electricity was significantly secured in 2015 with the establishment of a five-year group agreement. Prices for industrial gases, including nitrogen and hydrogen, were up slightly in 2015. Nitrogen prices and requirements have been hedged. There is no longer any scarcity in the helium market (as was observed in 2014); the price for helium was secured in 2015 through a group contract.

The subcontractor expense for grid plate cutting is stabilized over the 2015 to 2017 period, whereas there is a downward trend for control rod drive mechanism components.

## 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).

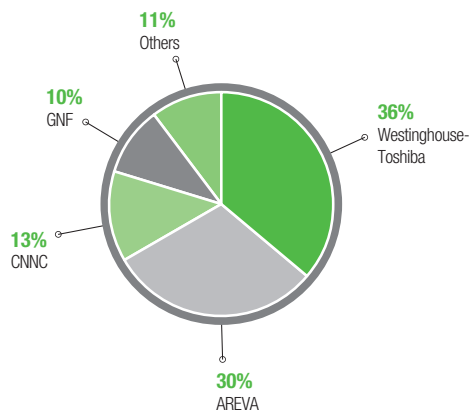
Approximately 79% of the requirements for light water reactors (excluding VVERs) are supplied mainly by AREVA, Toshiba-Westinghouse<sup>(1)</sup> and Global Nuclear Fuel (GNF)<sup>(2)</sup>. As of the end of 2015, AREVA had supplied a total of 224,898 assemblies.

The Fuel business remains number one 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.

(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.

### MARKET SHARE OF LIGHT WATER REACTOR FUEL SUPPLIERS, EXCLUDING VVER REACTORS, IN 2015



Source: NAC (Fuel Trac, 2015 edition); average data for 2015 +/- 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 stable at less than 6,500 metric tons of heavy metal (uranium or plutonium contained in the fuel assemblies) and at approximately 6,000 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

The principal objective of the Fuel business is to ensure fuel reliability. Beyond this major requirement, the Fuel business is pursuing efforts to improve its operating performance, whether in design and fabrication or in terms of nuclear safety, industrial safety and environmental impacts, with excellence as its objective.

In keeping with its technology orientation, innovation is key to the Fuel's business's development. For example, the lead assemblies of ATRIUM™11 next-generation fuel (BWR) were loaded in 2015 in Duke's Brunswick reactor and TVA's Browns Ferry reactor, while GAIA (PWR) fuel was loaded in Duke's Harris reactor in the United States, supported by six major US utilities – Duke, Dominion, Exelon, Fenoc, PSEG and Southern Company – through a Technical Advisory Board created for the deployment of this new generation of fuel design.

In China, AREVA is building on more than 20 years of cooperation to pursue its development, directly or through joint ventures. In 2015, development projects were actively pursued with Chinese players in the Front End.

The streamlining of its production plants and the development of partnerships in Asia, 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.

### 6.4.3. REACTORS & SERVICES BUSINESS GROUP

To optimize the opportunities for synergy available in the French nuclear industry, and in application of IFRS 5, the Large Projects, Installed Base, Manufacturing, and Products and Technology activities of the Reactors & Services Business Group were classified as "operations held for sale" belonging to AREVA NP. The Nuclear Measurements and Propulsion and Research Reactors activities, for which discussions are in progress, are also classified in the "operations held for sale" category.

#### OVERVIEW

The Reactors & Services Business Group designs and builds the two leading reactor technologies currently used around the world to produce electricity – pressurized water reactors (PWR) and boiling water reactors (BWR) – as well as naval propulsion and research reactors. It also offers products and services for the modernization, inspection and servicing of all types of nuclear reactors.

The activities of the Reactors & Services Business Group are organized into profit centers (business divisions), cost centers (operations divisions) and horizontal operating functions:

- the Large Projects Business Division: management and execution of large nuclear reactor projects;
- the Installed Base Business Division: solutions and services for existing and future nuclear reactor fleets;

- the Propulsion and Research Reactors Business Division: nuclear for defense and civilian applications;
- the Nuclear Measurements Business Division: design and manufacturing of radioactivity detection and measurement systems;
- the Manufacturing Business Division: manufacturing of components of the nuclear steam supply system and of nuclear safety instrumentation and control systems;
- the Products and Technology Business Division: conceptual designs, R&D, product certification and management, design authority and licensing.

In terms of installed capacity, AREVA supplied a significant share of the global fleet of pressurized water reactors (PWR). PWRs represent nearly two-thirds of the world's nuclear generating capacity. Reactors designed by AREVA are located in key regions of the world: Western Europe, South America, China, South Korea and South Africa. Its main competitors are Toshiba-Westinghouse, General Electric, KHNP of South Korea, and Rosatom of Russia in the new builds field, and Mitsubishi Heavy Industries, the General Electric and Hitachi team, and Toshiba-Westinghouse in the installed base field.

The group's German teams also have solid experience in boiling water reactors (BWR), for which General Electric is the global leader. The use of BWRs is more limited than that of PWRs. BWR power plants are in service in the United States, Germany, Northern Europe, Spain and Switzerland in particular.

## STRATEGY AND OUTLOOK

The Reactors & Services Business Group's objective is to assert itself as one of the world's leading nuclear companies by aiming for long-term profitable growth founded on the complementarity between a strong installed base and the construction of new power plants, and on performance in project execution.

To achieve this objective, the Reactors & Services Business Group draws on its construction projects in Finland, France and China. AREVA is currently building the world's first generation III reactors, where it advances its positions favorably on all markets, in particular in the United Kingdom, where the group is already engaged in detailed discussions for the construction of two EPR reactors at the Hinkley Point site.

The United States is also important for the Reactors & Services Business Group's growth, as it remains the world's largest installed base despite the nuclear market slowdown. AREVA has conquered considerable market share in that country, both in maintenance services to the installed base and in engineering services.

In Asia, which continues to have the highest business growth potential, AREVA is concentrating its commercial efforts on China, Japan, South Korea and India.

The group has been in China for more than 25 years, where it is building the first two EPR nuclear islands at Taishan in Guangdong Province after winning the contract at the end of 2007. In India, AREVA signed major framework agreements at the end of 2010 concerning the construction of two EPR reactors.

To achieve its development and performance goals, the Reactors & Services Business Group is pursuing five major strategic lines of action:

- secure the profitability of the Large Projects business;
- increase the profitability of the services activities and be a major player in EDF's "Grand Carénage" program;
- develop innovative, differentiating solutions;
- reinforce AREVA's industrial footprint in China;
- respond to the utilities' heightened sensitivity to prices by being competitive.

At the same time, it is paving the way for the reactors of the future by participating in international research and development programs on generation IV fast neutron reactors and high temperature reactors (see Section 11.1.4. *Future directions in technology*), for which the group has a strong base of expertise from past efforts in France, the United States and Germany.

### 6.4.3.1. LARGE PROJECTS

#### Businesses

The missions of the Large Projects Business Division are to:

- submit structured, comprehensive offers for reactor projects in support of the Marketing and Sales teams;
- carry out construction projects by assuming responsibility for executing reactor projects, *i.e.*, engineering, procurement, construction and commissioning;
- manage purchasing and procurement for the construction projects;
- provide project services (standard project schedule, project management office, 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.

## OPERATIONS AND HIGHLIGHTS

### Reactors under construction

#### China

In 2015, the Taishan construction project met important milestones and entered the testing phase.

All of the documentation needed for testing prior to fuel loading was submitted to the customer TNPJVC in March 2015.

This year, unit 1 focused on planning and on launching preliminary tests:

- the main control room was finalized for commissioning;
- numerous systems tests were conducted, including the backup diesel generator and the reactor pumps;
- the first overall tests were carried out successfully and a major milestone was met in September ("nuclear circuit cleaning" operation), the last milestone before undertaking "cold tests" at the end of the year.

Installation of electro-mechanical systems in unit 2 continued at a brisk pace:

- all of the steam generators were introduced into the building;
- the primary cooling loop was completed.

#### Finland

The project met major milestones in 2015:

- the instrumentation and control system tests progressed according to schedule, enabling STUK to validate tests performed on the TXP cabinets (operational platform), thus giving the green light for their complete transfer to the site in August 2015, three weeks ahead of schedule;
- delivery of the TXP cabinets to the site allowed wiring work to be deployed, including cabinet connection. Once this work has been completed by the construction teams, *in situ* testing of the instrumentation and control system will start at the beginning of 2016.

#### France

Work continues at the Flamanville 3 EPR reactor:

- installation of the primary coolant system moved forward considerably with the introduction of the last three steam generators. It is planned to complete the primary coolant system at the beginning of 2016;
- in September, the Flamanville 3 teams started introducing the vessel internals into the reactor building;
- the pace of auxiliary system installation rose sharply in 2015;
- the last safety instrumentation and control system cabinets were delivered in June 2015; their installation and connection are in progress in order to transfer the systems to testing.

In September 2015, EDF announced the optimization of the management of the Flamanville 3 EPR project as well as a new master schedule.

**Brazil**

In June, AREVA decided to temporarily reduce its activities on the Angra 3 nuclear reactor of Eletrobrás Eletronuclear (ETN), located in the Brazilian state of Rio de Janeiro. The agreement signed by AREVA and ETN in 2013 covers the supply of engineering services and components, in addition to the reactor's instrumentation and control system.

This temporary reduction is due to a delay in the financing of the remainder of the activities to be carried out to complete the project. AREVA will resume all of its project-related activities as soon as ETN has firmed up a long-term financing solution.

**New Build projects****South Africa**

The South African government plans to build 9,600 MWe of nuclear generating capacity by 2030. The first unit is expected to be operational in 2023.

AREVA is preparing its application to respond to the call for tenders which could be issued in 2016. AREVA will participate as a member of the French team. The South African government is supposed to send the call for tenders 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 (K.A.CARE) 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 K.A.CARE.

**United States**

AREVA informed the Nuclear Regulatory Commission (NRC) in February of its decision to suspend the review of the request for certification and for a license to design the EPR reactor.

**Finland**

TVO decided not to file a construction license request for Olkiluoto 4. The Finnish government's decision in principle, approved by the Parliament, expired at the end of June 2015.

**India**

In 2015, AREVA signed a contract with NPCIL for pre-engineering studies on the Jaitapur EPR project and a contract with the engineering company Larsen & Toubro to examine areas for cooperation in connection with the project. 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.

**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 technology could be selected 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 tenders and attended different seminars, for which they signed a "Statement of Participation".

**United Kingdom**

EDF and CGN signed a Strategic Investment Agreement for the construction and operation of two EPR reactors for the Hinkley Point C power plant in Somerset, in southwestern England.

Under this agreement, EDF will have a 66.5% interest in Hinkley Point C and CGN will have a 33.5% interest. EDF is contemplating involving other investors in the project in due course, although its initial interest will not fall below 50%.

AREVA submitted an offer for its contribution to the project. The draft contract is being finalized in parallel with the conduct of engineering activities under a pre-contractual agreement.

**Turkey**

In March, in connection with the project to build the new Atmea1 reactor, the President of Turkey and the Turkish parliament ratified the intergovernmental agreement signed with Japan in 2013 and the agreement between the Turkish government and the Turkish-French-Japanese consortium (EUAS, Engie, Itochu and MHI) forming the Project Company.

PJCO and the Engineering, Procurement and Construction Team (EPC), including MHI and AREVA, started a feasibility study to assess the adequacy of the proposed construction site and is also working on planning and analysis of the project's financial and contractual framework.

**Manufacturing and human resources**

The Large Projects Business Division's teams are located in France, Germany, Finland, China and Brazil.

**Relations with customers and suppliers**

The Large Projects Business Division'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 businesses, such as the Manufacturing and Installed Base Business Divisions. It also works closely with the Mining, Front End and Back End Business Groups.

**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 Division's decision to bring 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.

### 6.4.3.2. **INSTALLED BASE**

#### **Businesses**

The Installed Based Business Division offers:

- products and services to maintain, upgrade and extend the operating period of reactors in service;
- solutions and products for the installation and commissioning of new reactors;
- equipment, including heavy components, mobile components, and large forgings and castings.

The Installed Base Business Division's portfolio of solutions and services is designed to improve facility availability and productivity while reinforcing reactor safety conditions.

#### **Operations and highlights**

Key highlights of 2015 include the following:

##### **Germany**

AREVA won a contract to perform scheduled unit outage services at the nuclear power plants of Isar 2, Brokdorf and Grohnde in Germany.

##### **United States**

AREVA won a contract valued at several million dollars to manufacture and deliver a replacement vessel head to a US utility. As part of the contract, AREVA will also supply control rod drive mechanisms.

AREVA won a contract for unit outage and maintenance services for five nuclear power plants in the United States representing several tens of millions of dollars over three years.

AREVA developed a major innovation allowing US nuclear power plant operating periods to be extended. This process, called cavitation peening, will be used for the very first time in the vessels of the Byron and Braidwood reactors.

AREVA signed several contracts with US utilities for strategic cybersecurity engineering services and expertise. These services will enable the group's customers to improve the digital protection systems of their nuclear power plants

##### **France**

In the summer of 2015, the group completed the replacement of three steam generators for unit 3 of the Blayais power plant operated by EDF. The reactor was connected to the grid on September 5.

In August, AREVA completed the delivery of the four steam generators for unit 2 of the Paluel nuclear power plant for its customer EDF as part of the "Grand Carénage" (major retrofits) program.

AREVA is adapting its capacities to "Grand Carénage" challenges. In this regard, the group inaugurated the extension of the Tooling Decontamination and Servicing Center (CEDOS) in Sully-sur-Loire.

##### **Sweden**

Our customer OKG ended the project to modernize unit 2 of Oskarshamn, leading to the demobilization of AREVA's teams. This decision puts an end to a complex project which had an unfavorable impact on the group's financial statements.

#### **Safety Alliance program**

In 2015, the group won a series of supply contracts for passive autocatalytic recombiners and filtered containment venting systems for China, Spain and South Korea. These new contracts will help maintain the group's position as a major player in the worldwide market.

#### **Manufacturing and human resources**

For historical reasons, the Installed Base Business Division's teams are located mostly in France, the United States and Germany, but also 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 Division 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 include power companies on five continents – Europe, North America, South America, Asia and Africa – where the Installed Base Business Division maintains and modernizes more than 250 reactors.

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 Installed Base's cost structure. They concern:

- subcontracted labor for scheduled unit outages and design activities;
- the supply of products or equipment such as instrumentation and control systems or parts and tooling to replace steam generators in the framework of component replacement or power plant modernization activities.

#### **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.

More generally, in services to the installed base, AREVA and Toshiba-Westinghouse are the two major players, followed by the team of General Electric and Hitachi of Japan, and Mitsubishi Heavy Industries (MHI) of Japan.

Other large local companies may be present at the regional level, such as KPS in South Korea, SNC Lavalin in Canada, Tecnatom in Spain and numerous other specialized companies in every country with nuclear power plants, in particular the subsidiaries of utilities in China for example. In some segments – most notably non-destructive examination and general maintenance – the competition is rising, particularly in Europe and the United States. At the global level, services to nuclear power plants represent an increasingly competitive market.

The nuclear equipment market is divided into two segments: the component maintenance and replacement market, and the new builds market.

### Outlook and development goals

Like the global energy market, the Installed Base Business Division's outlook remains relatively stable, but mixed: while growth is shaping up in China, it remains a challenge in other countries. However, operators want to continue to operate their reactor fleets, particularly in the United States, in France with EDF's "Grand Carénage" program and in the United Kingdom.

To increase business volume, the Installed Base Business Division 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, AREVA's Installed Based continues to perfect its work tools and raise productivity.

#### 6.4.3.3. PROPULSION AND RESEARCH REACTORS

##### Businesses

##### ***Nuclear energy supply systems for naval propulsion***

The core business of the Propulsion and Research Reactors Business Division is the design, manufacturing and maintenance of naval nuclear propulsion reactors for the French Navy, and the supply of 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 logistical support. Nuclear reactors designed by the Propulsion and Research Reactors team have powered several of the French Navy's submarines and aircraft carriers during all of the fleet's operating missions for 40 years.

The Business Division also meets propulsion-related requirements: control systems, monitoring systems, and acoustic discretion of systems and 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, the Business Division provides support to the operator of onboard reactors in the form of training, services and maintenance.

##### ***Engineering of nuclear facilities and major scientific research instruments for complex facilities (research reactors, scientific research facilities and industrial facilities)***

The Propulsion and Research Reactors Business Division 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;
- the Business Division is also responsible for the supply of certain equipment related to the construction of the Mégajoule Laser in Bordeaux and now provides support to the teams assisting the CEA as prime contractor;
- it plans to be charged with the design of the small modular reactor (SMR) as part of a new Franco-British consortium steered by EDF.

##### ***Fabrication and sale of research reactor fuel and medical targets***

CERCA's operations 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 targets is used for medical applications.

##### ***Design of electronics and instrumentation and control systems***

The Propulsion and Research Reactors Business Division offers high-tech electronics and instrumentation and control systems to customers in the defense, nuclear and aerospace industries through its subsidiaries ELTA and AREVA Expansion.

### Operations and highlights

Highlights of 2015 include:

Defense nuclear segment:

- for the Barracuda program: completion of installation of the nuclear steam supply system block in the first submarine of the series (the *Suffren*) in Cherbourg and of the power plant module in the second submarine of the series (the *Duguay Trouin*) in Nantes;
- for operating activities:
  - land-based test reactor (RES): continuation of systems tests with the completion of hydraulic strength tests of the primary and secondary cooling systems;
  - completion of fabrication of the first reload for the *Charles de Gaulle* aircraft carrier;

Civilian nuclear segment:

- for the Jules Horowitz Reactor program (RJH):
  - signature of a tripartite agreement between the CEA, AREVA SA and AREVA TA on July 20 establishing rules for continuation of the program together with an AREVA SA support mechanism to limit the group's financial risk from now to the end of the work;
  - completion of eight detailed design reviews, including those relating to the reflector and all mechanisms;
- for the EPR reactors:
  - Flamanville 3 and Taishan 1 and 2: delivery to the site of all equipment for the in-containment refueling water system tank (IRWST);

- Hinkley Point C: continuation of early studies of the non-computerized safety system (NCSS) and of the engineering of the analogue instrumentation and control system of the Unicorn platform.

### Manufacturing and human resources

The Propulsion and Research Reactors Business Division has five main manufacturing and engineering locations in France:

- Saclay: support functions and project operations;
- Aix-en-Provence: mainly engineering activities;
- Cadarache: in-service support to and operation of onboard reactors;
- Toulouse: electronic equipment design and manufacturing (ELTA and AREVA Expansion subsidiaries);
- Romans: fabrication of fuel for nuclear research reactors and medical targets (AREVA NP entity).

It is also based in the ports of Toulon, Brest and Cherbourg, and near the DCNS Indret in Nantes and the CEA in Bordeaux.

### Relations with customers and suppliers

The principal customers of the Propulsion and Research Reactors Business Division are:

- Defense sector: the CEA, the Direction générale de l'armement (DGA, the French defense procurement agency), and DCNS (French naval defense company);
- Civilian nuclear sector: CEA and the Institut Laue-Langevin (ILL) of France, ANSTO of Australia, JAEA of Japan, NRG of the Netherlands, SCK-CEN of Belgium, TUM of Germany and NECSA of South Africa.

The principal suppliers to the Propulsion and Research Reactors Business Division are:

- Defense sector: DCNS, AREVA NP, TECHNOPLUS INDUSTRIES, SPX-CLYDE UNION;
- Civilian nuclear sector: SEIV, ENDELENGIE, COMEX, SOGETI.

### Market and competitive position

The Propulsion and Research Reactors Business Division operates in the defense market, primarily in naval nuclear propulsion and defense facilities, exclusively in France.

It is also positioned in France and abroad in low-power reactors for research and medical applications, whether for new construction, for services to the installed base, or for the supply of targets and fuel.

Its main competitors for its civilian activities are other major constructors such as Invap, Rosatom and Kaeri, and technology and systems engineering companies such as Tractebel, Westinghouse, Nukem and Babcock.

The Propulsion and Research Reactors Business Division also provides power reactor expertise and solutions for AREVA in the energy market.

### Outlook and development goals

The Business Division initiated a process to refocus on its nuclear operations, based on a two-pronged model.

In the defense nuclear segment, the Business Division plans to keep its design, construction, maintenance, dismantling and fuel supply activities for nuclear propulsion reactors, as well as its engineering activities for defense facilities, making sure to maintain its expertise at the highest level of excellence.

In the civilian nuclear field, the Business Division's mission 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 low-power reactors and nuclear facilities devoted to research and medical applications, and the supply of the related fuel;
- engineering services for power reactor systems and equipment, particularly in the field of instrumentation and control.

As part of the refocusing of its activities in the nuclear field, the Business Division continued its program of divestment of non-nuclear activities by combining the electronic equipment design and manufacturing activities for the nuclear and transportation market of its subsidiary ELTA in a new organization, AREVA Expansion, with the remaining activities for the aerospace market to be sold outside the group in 2016.

On December 17, consistent with AREVA's strategy of refocusing on cycle activities, AREVA announced that the group and its shareholders have begun discussions on the sale of AREVA TA while preserving the integrity of its operations. Based on the scenario currently being examined, the State would become the direct majority shareholder alongside other existing shareholders interested in this. This proposal is in the preliminary stage. It will require dialogue with the social bodies and approval by AREVA's governing bodies and the competition authorities.

#### 6.4.3.4. NUCLEAR MEASUREMENTS

##### Businesses

Under the Canberra trademark, the Nuclear Measurements Business Division designs, manufactures and markets equipment and systems to detect and measure radioactivity for the protection of employees and the general public. Applications include industrial nuclear facility monitoring, waste characterization, laboratory measurements, radiation protection and nuclear safeguards. Its products and full range of services meet customer requirements for nuclear safety, occupational safety and monitoring of their customers' production operations.

##### Operations and highlights

The transformation plan led by AREVA calls for the group to refocus on its core businesses. To this end, AREVA began the process of selling its subsidiary Canberra, resulting in the selection of the offer from Mirion-Charterhouse on December 24, 2015. The objective is to finalize the transaction by the end of 2016.

##### Manufacturing and human resources

The Nuclear Measurements Business Division has five manufacturing sites in the United States, France, Belgium and Canada, as well as sales offices and service facilities in those same countries as well as in Japan, the United Kingdom, Germany and Russia. In addition, the entity has a global network of sales agents and service centers.

##### Relations with customers and suppliers

##### Customers

The Nuclear Measurements Business Division's traditional customers are divided among a large number of diversified segments: nuclear fuel fabricators, nuclear power generators, radiochemical laboratories, environmental monitoring laboratories, and laboratories of national and international agencies for oversight and regulation.

**Suppliers**

Canberra buys from local and international suppliers. Depending on the raw materials or the equipment involved, purchase contracts are awarded to regional or national suppliers, including low-cost countries for standard supplies.

**Market**

The group is a major player in the global nuclear measurements market, with a market share of approximately 20%. The market is estimated at 900 million euros per year.

**Outlook and development goals**

The Nuclear Measurements Business Division continues to pursue cost control efforts, improving its competitiveness and its ability to withstand revenue fluctuations. These efforts aim to provide Canberra with the necessary flexibility to adapt to changes in the Japanese market, which is becoming a market for solutions and services, particularly in the field of dismantling. In the medium term, the entity also plans to expand in the radiation monitoring systems field, whether for reactor fleet replacements and the United States or for new builds.

6.4.3.5. **MANUFACTURING****Businesses**

The Manufacturing Business Division designs and manufactures mainly:

- large forgings, castings and machined parts used in the manufacture of heavy components for the nuclear island and in process industries such as petrochemicals;
- heavy components: reactor vessels, vessel heads and vessel internals, steam generators, pressurizers and support structures <sup>(1)</sup>, which are the main components required to manufacture a nuclear steam supply system;
- 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;
- nuclear safety instrumentation and control systems (TELEPERM™ XS, in-core instrumentation and monitoring/diagnostic systems).

**Operations and highlights**

- The Chalon St-Marcel plant performed the hydraulic test of the vessel head for the Flamanville 3 EPR in December 2015. This is an important milestone which followed the authorization given to AREVA by the nuclear safety authority ASN to implement its supplemental testing program to demonstrate that the FA3 reactor vessel head and bottom have sufficient strength. ASN also authorized the continuation of vessel head manufacturing operations (welding of instrumentation adaptor closures, paneling, thermal insulation, etc.).
- AREVA launched a quality improvement initiative at its Creusot, Saint-Marcel and Jeumont equipment manufacturing plants. Detailed procedures and a schedule have been defined for this action plan and were sent to the nuclear safety authority at the beginning of 2016.

- AREVA won a contract valued at several million dollars to manufacture and deliver a replacement vessel head and control rod drive mechanisms to a US utility.
- For its customer Electrabel, the group finished the delivery of new reactor vessel heads for unit 3 of the Tihange nuclear power plant and for Doel 4 in Belgium.

**Manufacturing and human resources****Heavy equipment**

The Creusot plant in France's Saône-et-Loire department has production capacity for forged and machined parts. Its production resources consist mainly of machining facilities and a forge equipped with two presses (9,000 metric tons and 11,300 metric tons). In recent years, capital spending programs have been carried out to increase the production capacity of the sites. At the same time, the capital spending program deployed at the Industeel steel works (ArcelorMittal group) enabled AREVA's dedicated supplier to manufacture larger and better quality ingots in a shorter period of time.

The Chalon/St-Marcel plant near Chalon-sur-Saône, France, 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.

**Mobile equipment**

The Jeumont plant <sup>(2)</sup> in northern France manufactures mobile equipment for the nuclear island. Established in 1898, it specializes in the design and manufacture 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 is also present in China through the AREVA Dongfang Joint Venture formed between AREVA and the DEC group to manufacture Jeumont-designed reactor coolant pump sets for the Chinese market.

**Instrumentation and control systems**

The Karlsruhe plant industrializes and assembles in-core instrumentation systems as well as specialized mechanical equipment. It also designs and assembles the valve malfunction prevention system.

The Erlangen site assembles instrumentation and control system cabinets for the TELEPERM™ XS safety instrumentation and control system. It also develops and manufactures diagnostic systems and automated control systems.

**Market and competitive position****Heavy equipment**

The nuclear forgings market has long been split between Creusot Forge and its leading competitor, the Japanese company Japan Steel Works (JSW), which supply a large part of the Western world's demand for forged products. Competition has increased since 2006, with large capital projects in Germany, Italy, South Korea, China and India.

(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) Previously called JSPM.

The market for heavy components is characterized by substantial international competition made up of six leading companies: Toshiba-Westinghouse, Doosan, MHI, Ensa, Mangiarotti (formerly Ansaldo, bought out by Toshiba-Westinghouse) and Babcock & Wilcox. The EDF group has also opened up the competition for the manufacture of replacement steam generators. AREVA is able to respond to customer requirements for all engineering and project management services.

AREVA is one of the major players in the French market.

### **Mobile equipment**

The leading competitors in the mobile components market are Toshiba-Westinghouse, MHI, Curtis Wright, KSB and Andritz.

Power plant operating lifetime extension 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.

### **Instrumentation and control systems**

The leading competitors in the instrumentation and control system market are Toshiba-Westinghouse, Rolls Royce and GE.

For safety instrumentation and control system products, the group's strategy is to keep the design and development work in-house and to subcontract a share of the manufacturing work.

As regards sensitive in-core instrumentation products, the goal is to master the entire value chain in order to ensure the overall performance of the systems developed.

### **Outlook and development goals**

The Manufacturing Business Division's primary mission concerns PWRs of all types. The nuclear equipment market is divided into two segments: the component maintenance and replacement market, and the new builds market.

With the global energy market in a down cycle, workload prospects for the manufacturing plants are also down, particularly in the Creusot facilities and to a lesser extent in the Jeumont plant. The load forecasts for the Saint-Marcel heavy component manufacturing site are being upheld through 2018 with the manufacturing of replacement steam generators for EDF's 1300 MWe reactors and prospects for the manufacturing of primary equipment for the Hinkley Point EPR in Great Britain.

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 components for nuclear reactors to the requisite standards of quality, on time and at a competitive cost.

## **6.4.3.6. PRODUCTS AND TECHNOLOGY**

### **Businesses**

The Products and Technology Business Division ensures the certification (licensing) and technical performance of its products and supplies advanced products and technologies offering high performance levels. Activities range from monitoring changes in regulations to certification, and include identification of their impacts on reactor design for new builds or for power plants in operation.

### **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 breeder reactors.

In 2015, the preliminary design study for the Astrid reactor nuclear island and instrumentation and control system was finished as part of the partnership contract signed with the Commissariat à l'énergie atomique et aux énergies alternatives. The collaboration with Japan decided at the intergovernmental level took the form of the collaboration of MHI/Mitsubishi Fast Breeder Reactor Systems Inc. (MFBR) in certain engineering work. An agreement for the next phase involving basic design was signed in late 2015 with the Commissariat à l'énergie atomique.

The key objectives of development activities in Products and Technology, which support the Large Projects and Installed Base activities, were as follows:

- upgrade reactor demonstration methods and software used to draw up safety analysis reports, consistent with the latest requirements from the regulatory authorities. For example, they include neutronic calculations of core power and accident behavior analyses (e.g. loss of coolant). These two specific topics are illustrated by the development of the Arcadia and Cathare software and methods in preparation for upcoming large projects such as the EPR NM and the ten-year inspections of the EDF fleet;
- development and continuous improvement of reactor components and products, from the vessel and steam generators to a variety of valves. This R&D has made progress in incorporating new safety requirements and understanding equipment behavior during its service life (up to 60 years). In particular, programs aimed at excellence in industrial production quality were reinforced, in collaboration with the R&D teams of the plants and subcontractors;
- productivity gains and responsive engineering studies, and value gains for our customers: significant progress has been made in reducing certain calculation times and in defining new products and services for the installed base (catalogue of Value Alliance and Forward Alliance solutions).

### **Design Authority**

The entity is the authority when it comes to the Business Group's products (reactor models and products and services offered by the Installed Base Business Division). For reactors, it ensures the consistency of the models under construction or development. For the products and services of the Installed Base Business Division, it provides independent verification of the technical risk assessment.

The Design Authority also works on instrumentation and control system architecture with a horizontal unit to define instrumentation and control system models and recommend a strategy.

The Generic Detailed Design (GDD) project for the Atmea1 reactor designed by AREVA and Mitsubishi Heavy Industries, launched in 2012, also falls under the responsibility of the Design Authority. This phase of the design ended in late April 2015, as planned. It was followed by a post-GDD phase, which ran until the end of 2015, enabling analysis of a few open points. The success of this development illustrates the strong spirit of partnership between the European and Japanese teams working on the design. It also points to the leading role that the Atmea1 reactor plays in the portfolio of generation III products offered by AREVA, as demonstrated by exchanges with the Turkish and Vietnamese authorities for the construction of reactors in those countries. During the first half of 2015, Products and Technology coordinated the conceptual design for the EPR NM project. In the second half, the operating division and Septen of EDF served as the joint design authority for the EPR NM project. This function consists of issuing advice and recommendations on the technical configuration of the ERP NM reactor to the EPR NM project manager.

### Technical Center

The Technical Center brings a wide range of skills, test facilities and laboratories to the development and testing of advanced solutions and methods.

The Technical Center's facilities are located in Erlangen and Karlstein, Germany, in Le Creusot and Chalon/St-Marcel in France, and in Lynchburg, Virginia in the United States. Among other missions, the American center tests the resistance of equipment to major earthquakes.

### Certification (Licensing)

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, in accordance with the ESPN order of December 12, 2005. To meet ASN requests for justifications and demonstrations to be provided in connection with this regulation, AREVA 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 order.

### Instrumentation and Control Systems and Electrical Products

Working cooperatively with representatives of the Reactors & Services Business Group's stakeholders, the Instrumentation and Control and Electrical Products entity develops technology-based products in the field of electrical systems and nuclear instrumentation and control systems to meet the needs of new builds projects and of the installed base. It handles their qualification and their long-term operating cycle.

### Manufacturing and human resources

The technical units are comprised of international teams and have experimental and engineering facilities in France (Paris, Chalon, Le Creusot and Montpellier), Germany (Erlangen, Offenbach and Karlstein) and the United States (Lynchburg, Charlotte and Cranberry).

## 6.4.4. BACK END BUSINESS GROUP

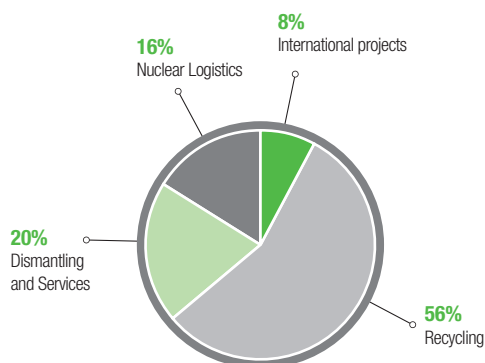
### KEY FIGURES

	2015	2014
Revenue* (in millions of euros)	1,593	1,531
Operating income (in millions of euros)	(184)	(495)
Workforce at year end**	11,050	11,265**

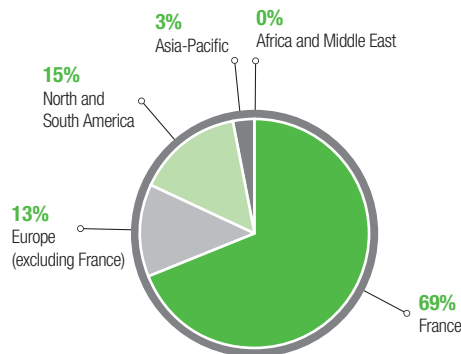
\* Contribution to consolidated revenue.

\*\* The workforce was restated to reflect the change in the financial consolidation scope.

### 2015 REVENUE BY BUSINESS AND GEOGRAPHICAL AREA



Source: AREVA.



Source: AREVA.

### OVERVIEW

The Back End Business Group, which represents 38% of the group's revenue and whose backlog is discussed in Section 9, offers efficient solutions for the responsible management of nuclear materials, facilities and waste.

It is organized into four operating departments: Recycling Operations, Nuclear Logistics Operations, Dismantling and Services Operations, and International Operations.

The Back End Business Group's mission is to:

- provide recycling solutions and in particular to recycle used fuel for reuse in the reactor;
- develop storage systems and organize and supervise the transportation of nuclear materials and waste;
- dismantle nuclear facilities at the end of the operating period and offer industrial operator services and services to operating power plants.

The Business Group is also contributing to the development of recycling around the world by drawing on its unique know-how. The Business Group plays a key role in reducing the nuclear industry's environmental footprint and in increasing its public acceptance.

The Back End Business Group's technology and industrial lead have enabled it to be a major player in markets for the back end of the nuclear cycle and to comply with the highest standards of nuclear safety and occupational safety.

### Responsible management of the end of the lifecycle

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. 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 considerably 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 that could be used in future generation IV reactors.

In addition to managing used fuel for the long term, the dismantling and cleanup of legacy nuclear facilities demonstrates the reversibility of nuclear power: as for any industrial activity, a nuclear site has a controlled service life. After rehabilitation, it can be returned to use for new operations. The success of the dismantling and rehabilitation of former nuclear facilities is a major technical, societal and industrial

challenge for the future of the nuclear industry. The reversibility of a nuclear site is the foundation for the long-term acceptance of nuclear power. Due to the size and complexity of the facilities to be decontaminated and dismantled, dismantling and cleanup operations represent major projects requiring the processing of large volumes of concrete and steel, asbestos removal, etc., sometimes in difficult conditions. The feasibility of the operations has been demonstrated by projects carried out over the past 15 years around the world.

### Positioning of activities

The Back End Business Group's operating departments are organized into three interrelated areas of activity:

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 **Nuclear Logistics business** designs and manufactures casks and other specialized equipment for the transportation and/or storage of nuclear materials and waste from the front end and back end of the cycle, and of sources used for scientific purposes. It also offers solutions to organize and carry out shipments of nuclear materials and waste and, as needed, manages the related equipment.

The **Dismantling and Services business** offers comprehensive nuclear services in France. It operates waste treatment facilities, decontamination facilities and facilities undergoing dismantling; provides logistics for maintenance at nuclear power plants; and performs specialized maintenance. It designs and supervises nuclear site dismantling and rehabilitation after production or manufacturing has been discontinued, for purposes of site reuse.

The **International Projects Department** brings the technical and industrial know-how developed in the Back End Business Group's facilities to international markets, together with dismantling know-how. In particular, it designs and builds new recycling plants in partnership with foreign countries seeking to acquire their own production capability.

### STRATEGY AND OUTLOOK

The Back End Business Group maintains the highest level of nuclear safety and occupational safety in its activities while minimizing its environmental impacts by aiming for zero waste.

The Back End Business Group has strong industrial expertise that builds on continuous improvement and technology development. Its six objectives are to:

- reestablish competitiveness by focusing as a priority on the cost basis of the plants;
- continue to innovate selectively to optimize and prolong the plant operating period and to develop new offers;
- support EDF in the replacement of its reactor fleet using MOX and promote the use of treatment and recycling to increase the use of the French facilities;
- support the development of international treatment and recycling platforms;
- strengthen AREVA's position in the logistics markets;
- develop dismantling operations in France and internationally (fuel cycle plants and reactors) and become the leader in critical dismantling operations.

6.4.4.1. **RECYCLING****Key figures**

	2015	2014
Revenue* (in millions of euros)	815	857
Workforce at year end	4,863	5,125

\* Contribution to consolidated revenue.

**Businesses**

After nuclear fuel has been used in a light water reactor, 95 to 96% of its content consists of recyclable materials: 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. The package is designed for high durability 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.

**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. In application of that framework agreement, AREVA and EDF laid the foundations for the 2013-2015 period. In keeping with the French recycling policy, a new contract for the 2016-2023 period is in the process of being signed. This agreement includes the transportation, treatment and recycling of used nuclear fuel. In particular, the agreement provides for an extension of the contract term from five years to eight years (2016-2023) and confirms EDF's choice of the recycling option.

In 2015, as part of its facilities' review, the Recycling business continued to implement the action plans submitted to the nuclear safety authority ASN in June 2012. These measures are intended to strengthen nuclear safety in the event of extreme circumstances at the La Hague and Melox sites.

**Manufacturing and human resources**

The Recycling business has two main industrial sites, the AREVA La Hague site in northern France and the Melox site in southern France.

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 also draws on the skills of the AREVA TEMIS entity.

**AREVA La Hague**

The La Hague site provides the first stage of recycling operations: recyclable materials and waste in used fuel from French and foreign power plants and research reactors are first separated, 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 2015, following a technical review process that lasted five years, the standing group of experts of the nuclear safety authority (ASN) stressed the considerable work carried out by the operator and gave a favorable opinion on the continued operation of UP3 (INB 116 regulated nuclear facility).

In 2015, the La Hague plant treated 1,205 metric tons of used fuel and produced 1,081 canisters of vitrified waste.

In addition, the commission for the public inquiry into the request to extend storage capacity for French vitrified waste at INB 116 rendered a favorable decision in June 2015. This decision is pursuant to the inquiry held from April 13 to May 18, 2015 in the towns surrounding the site concerning the proposed extension of storage capacity by an additional 12,000 canisters.

**AREVA Melox**

The AREVA Melox site is the global market leader for the fabrication of recycled nuclear fuel, or MOX.

In 2015, Melox produced 124.6 metric tons of MOX fuel for French and foreign customers and met all of its delivery commitments for the year.

In the international market, this was the year that saw the end of fabrication for German customers, while fabrication for the Netherlands continued.

Concerning the technology, the Melox process has successfully undergone two changes with the startup of a second powder blending line and the qualification of a new type of uranium powder.

**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 established in five sites located near the AREVA La Hague and AREVA Melox production sites.

In 2015, AREVA Temis began an initiative to strengthen its commercial prospects outside the subsidiaries of the AREVA group.

**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 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 multiyear contracts.

## Outlook and development goals

In 2016, 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 foreign partners.

### 6.4.4.2. NUCLEAR LOGISTICS

#### Key figures

	2015	2014
Revenue* (in millions of euros)	288	247
Workforce at year end	1,197	1,246

\* Contribution to consolidated revenue.

#### Businesses

The Nuclear Logistics business, known by the trade name of AREVA TN, has two main business lines:

- design and project management of the manufacturing of casks and specialized equipment to ship and/or store nuclear materials and waste;
- organization of nuclear materials and waste shipments and supply chain management as needed, including that of the related equipment.

It works both in the front end and the back end of the nuclear cycle for commercial customers as well as for research reactors and laboratories. It was also tasked with the supervision of transportation operations for the group and its customers to ensure that they are carried out according to the highest safety standards.

The Nuclear Logistics business also supplies nuclear fuel storage rack solutions for power plant cooling pools as well as neutron shield systems for reactors.

#### Operations and highlights

In the front end of the nuclear cycle, the Nuclear Logistics business continues to open up new maritime shipping lanes to China, in particular from Canada and from Niger. An important contract was signed for shipments of natural uranium in North America in 2014-2015. In September 2015, AREVA TN teams completely updated the logistics base in Niger.

In the back end of the cycle, a memorandum of understanding was signed in the first part of 2015 whose objective is to create a joint venture with Chinese partners in nuclear transportation and logistics. AREVA TN will bring know-how, experience and skills to the deployment of a used fuel transportation and logistics system in China.

In 2015, several shipments of used fuel and nuclear waste were carried out for French, Swiss, Italian and Dutch customers. In June 2015, AREVA TN performed the last MOX fuel shipment for its German customers. At the end of 2015, AREVA successfully carried out its first shipment of vitrified waste for its Australian customer. Business in Nuclear Logistics continued to be brisk, with as usual close to 200 used fuel shipments between EDF's power plants and AREVA's recycling plant at La Hague.

In used fuel storage, the Nuclear Logistics business continues to grow, delivering a record number of heavy casks to customers in Europe in 2015. In particular, at the end of 2015, AREVA TN delivered the first TN24E cask to its German customer.

In the United States, the Nuclear Logistics business continued its expansion with the delivery of several dozen NUHOMS® onsite used fuel storage casks and several new significant orders. A number of service contracts were also signed this year to load the Nuhoms systems and place them in service. In addition, an agreement was signed with WCS, the waste storage specialist in the United States, to provide development and licensing of the centralized used fuel site at their site in Texas.

#### Manufacturing and human resources

The Nuclear Logistics activity carries out nearly 6,000 shipments each year. It is based in several regions of the world:

- in Europe, the business offers expertise in every aspect of logistics, designs casks and manages the transportation of radioactive materials; its subsidiaries LMC and Mainco carry out road transportation projects (LMC) and provide industrial logistics services (Mainco);
- 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 three sites, in Columbia, Maryland, Aiken, South Carolina, and Greensboro, 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 conducts shipments of mining concentrates;
- in China, the entity operates in all of its business areas.

The Nuclear Logistics business has the necessary resources to manufacture shipping and storage casks. It owns transportation equipment, including casks and road equipment, and operates road, rail and sea terminals.

To accomplish its mission of supervising the group's transportation operations, the business has an organization that minimizes risks and establishes appropriate action plans to manage any emergency at any location. Its real-time transportation tracking center provides it with a continuous stream of information on transportation operations.

#### Relations with customers and suppliers

Customers are nuclear operators seeking solutions for the shipment of radioactive materials and for materials storage and supply chain management. Customers of the different entities of the Nuclear Logistics Operations Department include the majority of the world's utilities, research reactor operators, fuel cycle companies, and nuclear research centers, institutes and laboratories.

The business has developed 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 at the international level in every stage of the nuclear fuel cycle.

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 to the nuclear sites.

Activities related to the front end of the fuel cycle are deployed around the globe. In recent years, the Nuclear Logistics business strengthened its position in this market, in particular with shipments for AREVA's uranium mines and fuel fabrication plants, drawing 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 that have opted for recycling and certain research reactors;
- in the United States, the Nuclear Logistics business is leading market player in 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.

#### 6.4.4.3. DISMANTLING AND SERVICES (D&S)

##### Key figures

	2015	2014
Revenue* (in millions of euros)	325	306
Workforce at year end	4,408	4,333

\* Contribution to consolidated revenue.

##### Businesses

D&S offers customers a broad range of services covering two main areas:

- nuclear facility dismantling operations across the entire value chain: cleanup, legacy waste retrieval and processing, effluent treatment, facility operations and dismantling, land reclamation and building repurposing.

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 D&S business operates facilities that have been shut down, provides design studies and project management, and carries out dismantling operations;

- services to nuclear operators: nuclear logistics and on-site support, facility maintenance, and radiation protection expertise and measurements.

These operations involve nuclear facilities that are currently in operation and which must ensure the best nuclear safety performance at all times while complying with increasingly strict safety requirements, asset preservation, planning for the future and cost control.

### Operations and highlights

In 2015, D&S won several important contracts, underpinning its ranking as a market major player in dismantling and services to nuclear operators in France.

Commercially, D&S won several contracts from the CEA, EDF and ANDRA, particularly in the field of dismantling and waste management.

For example, D&S was the winning bidder to the CEA for radiological cleanliness and waste management at a former nuclear facility in Saclay.

The industrial partnership with the CEA for the Marcoule site was also renewed in 2015. D&S signed a series of contracts for the 2016-2020 period in several work areas, in particular to act as industrial operator of various facilities at the site. All of the services follow on from cleanup and dismantling operations conducted by D&S at the site for the CEA since 2005.

Other significant contracts won by D&S include the call for bids from EDF to dismantle the internals of the Superphénix reactor vessel. The D&S teams will thus be the first to dismantle this type of equipment in a reactor of more than 1,000 MWe in France.

### Manufacturing and human resources

The D&S Operations Department provides services to practically all of the French nuclear sites operated by AREVA, 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 for low-, medium- and high-level effluent and waste processing, volume reduction and safe packaging.

D&S has operated the Triade environmentally regulated facility (see *Glossary*) since 1994, which 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 2015, D&S led projects to retrieve legacy waste and dismantle legacy facilities operated by AREVA and owned by the group. These include the UP2 400 facilities at the La Hague plant, the ATPu plutonium technology facility and the LPC chemical purification laboratory at the Cadarache site, the SICN sites of Annecy and Veurey, the Eurodif uranium enrichment plant at Tricastin, and the Miramas site.

In addition, D&S brings its customers unique operating experience from the group's implementation of its end-of-lifecycle obligations in France.

### Relations with customers and suppliers

To improve the cost-competitiveness of its projects, D&S has set up a process for dialogue with its suppliers to strengthen their visibility on 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 new requirements of customers who turn to the group for its know-how. D&S is a leading player in France.

For facility dismantling, the net present value of provisions for the three main contracting authorities – 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 major player in this effort.

## Outlook and development goals

D&S's ambition is to assert its position as a leading player in the French market and to showcase its know-how to support the development of dismantling operations abroad. D&S personnel worked on international projects in 2015, particularly in China, where they participated in the steam generator decontamination for the Ling Ao power plant.

The D&S 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, two new intervention robots developed by D&S – the RIANA™ multipurpose platform and the DORICA™ flyover investigation drone – were presented in 2015.

### 6.4.4.4. INTERNATIONAL PROJECTS

#### Key figures

	2015	2014
Revenue* (in millions of euros)	164	121
Workforce at year end	582	561

\* Contribution to consolidated revenue.

## Businesses

The engineering and operating know-how developed by AREVA at its French sites is without equivalent in the world. All countries with nuclear operations must define and implement solutions to manage the back end of the cycle. The International Projects business offers its assistance to customers for the operation of existing sites or for the construction of new facilities to secure their management of the back end of the nuclear cycle and related waste management.

Numerous facilities built in the 1950s and 1960s have reached the end of their operating period. Their dismantling and the rehabilitation of the sites that host them is a major industrial challenge, especially to allow new projects, whether nuclear or conventional, to be located at these sites.

## Operations and highlights

The group is involved in projects in several key countries:

- in the United States, under the US Plutonium Disposition Program, a MOX fuel fabrication facility is under construction for the US Department of Energy (DOE) to recycle US defense plutonium (the MFFF project). As one of the two members of the consortium in charge of this project, AREVA is providing its know-how in engineering and technology. The facility is currently under construction, with civil works completed in 2013 and several process equipment items already installed (approximately 50%). This project directly supports the Non-Proliferation Agreement signed by the United States and Russia in 2000 and has substantial bipartisan support in the US Congress. In 2015, construction activities continued with an exceptional occupational safety record, with more than 23 million hours worked without a lost time injury. In addition, at the Idaho National Laboratory, AREVA completed the design of a low-level waste disposal site and began construction in June 2015. At the Hanford site, AREVA has just finished the studies for a facility cleanup and dismantling project. AREVA is participating in the project to operate the Hanford storage tanks as the principal subcontractor of Washington River Protection Solutions (WRPS). Within this framework, AREVA participated in the execution of a project involving the retrieval and transfer of high-level liquids and sludges. In addition, AREVA is conducting several technical studies in support of US utilities that have shut down some of their reactors;
  - in Japan, the group has had a major technical assistance program with its customers since 1987. This partnership culminated in the construction of a used fuel treatment plant at the Rokkasho-Mura site by Japan Nuclear Fuel Limited (JNFL), with support from AREVA. The plant is currently on hold pending a review of its report on compliance with new safety regulations for cycle facilities issued by the Nuclear Regulation Authority (NRA). In 2015, AREVA and JNFL continued their partnership with the extension of the operating support contract for the reprocessing plant. In addition, the partners signed two agreements for the J-MOX mixed oxide fuel fabrication plant currently under construction. AREVA is thus in a preferred partner position to support the restart of back-end operations as soon as an agreement has been reached between JNFL and the NRA;
  - in the United Kingdom, the government and the Nuclear Decommissioning Authority (NDA) announced in January 2015 their decision to change the management model for the Sellafield site. Consequently, Sellafield Ltd is to become a wholly owned subsidiary of the NDA on April 1, 2016, and the management and operation contract held by AREVA and its partners will be ended.
- In addition, as part of a consortium, AREVA was selected by Sellafield at the end of 2014 for the design and construction of an intermediate-level waste packaging facility at Sellafield. At the end of 2015, following a change in the management strategy for this waste, Sellafield determined that it no longer needed that facility and ended the contract. Elsewhere, AREVA had commercial successes with the NDA in the form of an umbrella agreement in partnership with Atkins to supply engineering services to various NDA sites, and an umbrella agreement for services related to the dismantling of Sellafield facilities in partnership with other suppliers. Moreover, AREVA continued its collaboration with the NDA to propose the CONVERT solution to manage the plutonium inventory and its reuse in the form of MOX fuel.
- AREVA continued its discussions with the NDA on the solution offered by the group to manage the existing plutonium inventory in the United Kingdom and submitted several reports:
- in Spain, phase 2 of the engineering contract for the design of a centralized used fuel and waste disposal center (the ATC project) was finalized. AREVA's services allowed the customer Enresa to accelerate the submittal of the preliminary safety analysis report for the ATC facility and associated facilities comprised of an irradiated fuel examination laboratory and a shipping cask maintenance shop.

### Manufacturing and human resources

The International Projects Department offers customized solutions to its clients and implements them by drawing on its industrial and human resources, located mainly at the La Hague and Melox sites in France, in the United States and in Germany.

For France, the La Hague, Melox and Marcoule sites and the Engineering & Projects Department provide teams of experts whose role is to bring technical support for the preparation of international bids and to implement the projects of the operating department. Customers are provided training materials to assist them in the operation of their recycling facilities.

Internationally, the International Projects Department has a commercial and technical network in direct contact with its customers. In the United Kingdom, operating managers and engineering specialists were embedded at the Sellafield site to provide their expertise in site operations. An Engineering & Operations entity is being staffed for this purpose. Specialists are also available in the United States and in Germany. In Japan, a team is available at all times at the Rokkasho-Mura site, bringing expertise and experience from the La Hague plant to the operator, JNFL.

### Relations with customers and suppliers

Relying on its local presence in the United Kingdom, Japan and the United States, the International Projects Department maintains close partnership relations with its customers. Its involvement in several international teams brings customers a wide variety of world-class skills.

### Market and competitive position

China, the United Kingdom and Japan are preferred customers, having opted in favor of the closed fuel cycle. The International Projects Department is able to offer solutions to all nuclear operators seeking to implement their back end projects, in particular in European countries and in the United States.

The International Projects Department is also responsible for offering solutions for the construction of new storage and disposal facilities in international markets.

In dismantling, more than a hundred of the world's nuclear power plants have reached the end of their operating period. Added to these are dozens of research facilities and fuel fabrication and recycling plants. Reclaiming these shut-down sites for future use adds up to a significant market. The biggest markets are in Europe and the United States. Japan is a special case because of the Fukushima accident and its related dismantling requirements. In the United Kingdom, although business is currently slow, the market represents significant potential and is a priority for the group. Significant growth is expected in Germany in a few years due to the shutdown of eight of its power plants in 2011.

### Outlook and development goals

In the recycling field, the department is still in technical negotiations with CNNC for the construction of a used fuel treatment and recycling plant in China. The construction of the MFFF will also be a major goal for the department.

In the dismantling field, the strategic objective is to consolidate its position as a major player in the management of dismantling projects and to bring solutions to its customers, particularly in the United States, the United Kingdom, Germany and Japan.

In the United States, the objective of International Projects Department is to maintain its activity with the US Department of Energy, particularly at the Hanford and Savannah River sites, despite the budget restrictions imposed on this government agency. In addition, the group wants to strengthen its presence with operators which have recently announced the closure of some of their power plants.

Lastly, in Japan, the department continued to develop industrial solutions, in particular for soil decontamination. In 2014, AREVA and the Japanese company ATOX created a joint venture called Anadec dedicated to the joint development of innovative solutions focused primarily on the rehabilitation of the Fukushima site and region. The Japanese Ministry of Energy selected three innovative projects proposed by AREVA to decontaminate Fukushima harbor, to develop filtration barriers and

decontaminate soil, and to develop scenarios for the dismantling of the damaged reactors. Tepco expressed its interest in drawing on AREVA's experience via cleanup solutions proposed by Anadec.

#### 6.4.4.5. WASTE MANAGEMENT METHODS

##### 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 the radioactive waste chain. 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 management method covers waste generation (aiming for minimization at the source), management of 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, the multiplicity of the related industrial sites, and the 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 solution integration skills allow an optimum technical and economic balance to be reached in the deployment of comprehensive waste management methods.

This unique know-how is brought to its customers through tailor-made solutions for the management of all or part of the waste they generate.

The management of radioactive waste 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 national radioactive materials and waste management plan (PNGMDR) led by the Ministry of Ecology, Sustainable Development and Energy, 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, gaps between them are identified, and areas for improvement and performance improvement actions to be taken are defined.

### Operations and highlights

#### Operations

In 2015, 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, including final disposal, are now operational for 90% of the waste generated each year in France. In 2015, AREVA also renewed its contract to transfer short-lived low- and medium-level waste (SL/ LMLW) to Andra for purposes of final disposal. This contract covers the 2015-2019 period and supplements the contract signed in 2014 related to the transfer of very-low-level waste.

In addition to adapting its production plants, AREVA continued to pursue its objectives of optimizing the performance of waste operations notably through waste reduction at the source, implementation of advanced waste characterization, sorting and decontamination solutions, waste volume reduction through the use of high-performance facilities, and packaging as early in the chain as possible.

These optimizations help minimize the environmental footprint of the group's operations and contribute to the company's economic performance: in 2015, they resulted in a reduction of operating expenses for waste management in relation to 2014.

### **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 waste management methods.

AREVA is in the process of expanding its current range of waste packages, which include the use of vitrification, cementation, encapsulation and compaction technologies.

In particular, AREVA is developing an innovative incineration/vitrification process called PIVIC aimed at processing and packaging alpha-contaminated organic waste in a single stage. More than 140,000 metric tons of metals could be recovered and recycled in connection with the dismantling of the Georges Besse I enrichment plant. AREVA has begun feasibility studies on the melting process to decontaminate these materials which could result in activity levels that are below radiation protection thresholds. In response to legal and regulatory requirements, particularly in connection with implementation of the 2013-2015 PNGMRD, AREVA submitted some twenty reports to the competent administrative authorities dealing with a range of topics, including the management of legacy situations and former mining

sites, the long-term management of waste and materials, the overall consistency of waste management methods, and the management of certain specific waste for which management methods have yet to be identified. Alongside Andra, AREVA, EDF and the CEA continued their cooperation in 2015 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.

### **Manufacturing and human resources**

AREVA has considerable experience in the management of all waste categories, from the lowest level to the highest level, and has all of the related operational skills and R&D resources. Though the center of gravity for the group's operations in radioactive waste and materials management is found in the Back End Business Group, the footprint for these operations encompasses all of the group's operations.

For implementation of the waste management methods, AREVA draws on:

- the operating entities of the different production or mining sites;
- the group's Radioactive Materials and Waste Department (RMWD).

## **6.4.5. RENEWABLE ENERGIES**

### **OPERATIONS AND HIGHLIGHTS**

The strategy followed since 2013 for the transformation and streamlining of the renewables businesses continued in 2015. Two approaches were selected, depending on the business:

- AREVA is remaining active in the most promising businesses, but through partnerships in order to share investments and benefit from the partners' expertise. This approach concerns the Wind Energy and Hydrogen Electrolysis businesses;
- the less promising businesses, or those for which the Business Group's competitive position is not sufficiently established, will be terminated upon the completion of ongoing projects, in compliance with AREVA's contractual commitments. This approach concerns the Solar Energy and Bioenergy businesses.

The implementation of this strategy resulted in a series of decisions for each of the Business Group's businesses:

- the Wind Energy operations were contributed to the Adwen joint venture created in partnership with the Spanish onshore wind specialist Gamesa. AREVA and Gamesa each hold a 50% interest in the joint venture. Final agreements creating the joint venture and closing the transaction were signed on March 9, 2015;
- the Hydrogen Electrolysis operations were contributed to the AREVA H2Gen joint venture held by AREVA, French company Smart Energies and the French Environment and Energy Management Agency ADEME (with funding related to the "Future Investments Program"). The joint venture was created on May 20, 2014 and had its first full year of operation in 2015;
- energy storage operations other than hydrogen electrolysis (fuel cells and flow batteries) were transferred to AREVA's Research, Development and Innovation Department for continued development in the framework of R&D partnerships;
- as was announced in August 2014, the Solar Energy business was to be terminated following the completion of ongoing projects, or sold if a full takeover

offer was received. Discussions conducted in 2015 with potential buyers did not result in an agreement. A decision was made in December 2015 in favor of early termination of the only project in execution in that business, and an agreement to achieve this was signed with the customer, leading to the de facto discontinuation of all operating activity. The organizational footprint of Solar Energy will gradually be dismantled over the course of 2016 in compliance with all contractual commitments;

- due to difficult market conditions, mainly in Europe, and an integrator/lead contractor model that is far from AREVA's main expertise, it was decided in March 2015 to sell the Bioenergy business if possible. This initiative was unsuccessful, and it was subsequently decided to exit this business with differing schedules depending on the geographic entity:
  - because of a weak market and no opportunity to sell the business, it was decided in April 2015 to terminate the Bioenergy Europe operations following the end of the construction of ongoing projects and AREVA's other contractual obligations, particularly as concerns warranties for operating projects. The personnel involved, located in France and Germany, were covered by a redeployment or departure plan, in compliance with local procedures (particularly through a "Employment Preservation Plan" for employees in France);
  - 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. Termination of these operations will be carried out gradually in 2016 as a function of the schedules for completion of ongoing projects and in compliance with AREVA's contractual commitments;
  - due to the non-emergence of the market and the need for further significant investments, the development of biomass torrefaction technology was terminated in September 2015 after an unsuccessful search for a buyer. The personnel involved, who are located in France, were covered by a redeployment or redundancy process as part of an "Employment Preservation Plan".

## KEY FIGURES

Due to the decisions described above and in application of IFRS 5, the Wind Energy, Solar Energy and Energy Storage businesses made no contribution to the Business Group's consolidated financial statements in 2015.

Despite the decisions to terminate or sell the Bioenergy business, it is still included in consolidated statements in 2015. This is because, the discontinuation of the business will not be completely effective until ongoing projects are completed and the entity's sites are closed.

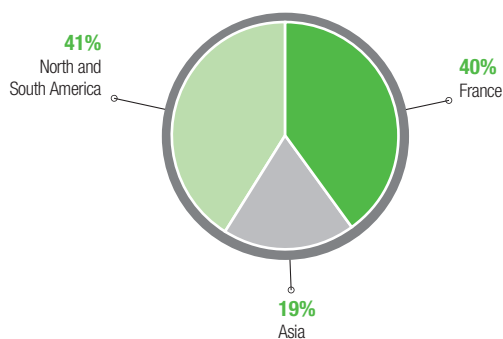
The Business Group's consolidation scope thus remains the same as in 2014. IFRS 5 had already been implemented for the Wind Energy, Solar Energy and Energy Storage businesses because plans for disposals and for the creation of joint ventures had already begun for these businesses.

	2015	2014
Revenue* (in millions of euros)	22	52
Operating income (in millions of euros)	(59)	(32)
Workforce at year end**	162	216

\* Contribution to consolidated revenue.

\*\* The workforce was restated to reflect the change in the financial consolidation scope.

## 2015 REVENUE BY GEOGRAPHICAL AREA



Source: AREVA.

## 6.4.5.1. BIOENERGY

	2015	2014
Revenue* (in millions of euros)	22	52
Workforce at year end	162	216

\* Contribution to consolidated revenue.

## Businesses

The Bioenergy Business Unit offers integrated technology solutions for the design, construction and start-up of biomass power plants. It also offers solutions for the construction of biomass torrefaction units for "green coal" production. Its principal customers are in Europe, South America and Asia. Carbon-neutral biomass power plants convert organic residues (wood, bagasse, straw, etc.) into energy.

## Operations and highlights

Bioenergy Europe

In 2015, the main operating activity of the Bioenergy Europe entity was the continuation of the turnkey construction of the Commeny biomass cogeneration power plant for the independent French energy producer Neoen. Completion of construction is planned in June 2016. The power plant will generate 15 MWe of electrical power and 50 MWe of thermal power.

The Bioenergy Europe entity was unable to secure any new orders since the signature of the Commeny contract in November 2012, and this difficult market trend continued in 2015. The future prospects for the market in Europe are highly uncertain. The market is already relatively saturated, the regulatory framework and tariff structure have deteriorated in several countries, and the industry is biomass overall plant engineer supply difficulties and a high biomass costs.

In addition to this difficult market situation, the business model of the Bioenergy entity as overall plant engineer and lead contractor (Engineering, Procurement, and Construction contractor), with no proprietary technology, is far from the AREVA group's core expertise focused on process engineering and proprietary technology supply. In addition, most of the competitors in the segment have a wider offer than AREVA's:

- they either offer services that go beyond power plant construction alone, including operations and maintenance;
- or they also supply one or more components of the power plant in addition to engineering and lead contractor services.

In this context, it has proven difficult for AREVA to maintain a competitive offer in this geographic area, where the market is also very limited, explaining the absence of new orders since 2012.

In view of this situation, and in the more general context of the group's refocusing on its core businesses, it was decided in 2015 to terminate the Bioenergy Europe business after completion of the Commeny project and in compliance with 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.

Bioenergy Asia

In 2015, the Bioenergy Asia entity completed the turnkey delivery of the 9.9-MWe Nakhon Patom biomass power plant in Thailand. The entity also provided turnkey construction of a 12-MWe biomass power plant on the Island of Luzon in the Philippines, with startup slated for the third quarter of 2016. Both of these power plants are fueled with biomass from agricultural waste, mainly rice husks and bagasse.

Unlike the European market, the Asian market for bioenergy could enjoy promising future growth, mainly in Southeast Asia (Thailand, Cambodia, the Philippines and Indonesia). These countries benefit from widely available agricultural waste (bagasse, rice husks, palm oil waste, etc.), which is an attractively priced fuel for biomass power plants.

However, projects in Southeast Asia are most frequently small capacity plants (often less than 10 MWe) devoted exclusively to electricity production, not steam. Generally, projects are ordered by small local operators and not by large regional or international power companies. AREVA is not accustomed to this type of customer, which is not well suited to the group's sales network.

In addition, the business model of the Bioenergy entity in this region as overall plant engineer and lead contractor, with no proprietary technology, is far from AREVA's process engineering skills.

Faced with a potentially promising market but a customer type and business model unsuited to AREVA's expertise, the decision was made in 2015 to look for a buyer better matched to value this business and ensure its development. However, after a period of discussions with several partners in 2015, no agreement was reached with a potential buyer. Consequently, it was decided on February 22, 2016 to terminate these operations. Shutdown will be gradual in 2016 and in compliance with AREVA's contractual commitments, particularly as concerns warranty obligations on completed projects.

### **Bioenergy Brazil**

In 2015, the operating activities of the Bioenergy Brazil entity were concentrated on two projects:

- completion of the construction of the Vista Alegre project for customer Energisa, which began production on June 30, 2015;
- the start of engineering activities and component orders for the construction of the 150-MWe Campo Grande power plant for the customer Atico/Bolt, for which the order had been signed in September 2014. However, in light of the customer's difficulties to secure project financing due to the Brazilian economic situation (project funding stopped by the public bank BNDES), AREVA notified the customer in October 2015 of the project's suspension. The suspension was executed in accordance with the terms of the contract in order to preserve AREVA's economic interests and commitments to its suppliers.

Like the Asian market, the Brazilian biomass market has better development potential than in Europe. More than 70% of the biomass power plant projects consume bagasse, which is agricultural waste from the production of sugar and ethanol. Due to the very low cost of this widely available resource, biomass is the most competitive thermal energy in Brazil.

In addition, as in the other regions, the business position of the Bioenergy entity as a plant engineer and lead contractor, with no proprietary technology, is far from AREVA's core process engineering skills. In addition, this model presents specific risks in Brazil, where contract terms are often unfavorable to lead contractors.

In view of this context, a buyer or partner better able to develop this business was sought in 2015. This search was unsuccessful and it was therefore decided on February 22, 2016 to terminate this business. The phase-out will be gradual, based on the schedule for the completion of AREVA's contractual commitments, particularly as concerns warranty obligations on operating power plants.

### **Biomass torrefaction**

AREVA had chosen to invest in the biomass torrefaction technology in 2012 with the objective of entering the market for torrefied biomass ("green coal") co-firing in coal-fired power plants. However, detailed studies conducted in 2015 concluded that green coal would not be significantly more attractive in this market than the raw biomass pellets ("white pellets") currently used by the power companies.

However, other less mature markets could be interested in torrefied biomass, for example for residential heating, collective heating and fabrication of particle boards. However, these new markets are far removed from AREVA's traditional markets. Moreover, the emergence of these markets for torrefied biomass remains uncertain due to the absence of operating experience with the use and actual performance of green coal in these processes.

Given this situation, coupled with the decision to refocus on the group's core businesses, the decision was made in September 2015 to terminate this business after an unsuccessful search for a potential buyer. The employees involved, who are based in Bordeaux, were covered by an "Employment Preservation Plan" with possibilities for redeployment in the group or departure with support measures.

### **6.4.5.2. SOLAR ENERGY**

The Solar Energy entity deploys its concentrated solar power solutions (CSP) based on Compact Linear Fresnel Reflector (CLFR) technology.

The solar entity's principal operating activity in 2015 was the completion of the construction of a concentrated solar power plant in the state of Rajasthan, India, for customer Reliance Power, one of India's leading private energy operators. In December 2015, an agreement was reached between AREVA and Reliance in anticipation of the termination of the project and to officially record the transfer of the solar field in as-is condition to Reliance along with responsibility for 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 the backlog, this decision marks the end of AREVA's involvement in any solar energy operation and the termination of that business.

As a reminder, in view of the very unfavorable market situation, AREVA had decided in August 2014 to terminate this business at the completion of engineering projects, 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 terminate these operations completely.

### **6.4.5.3. WIND ENERGY**

#### **Operations and highlights**

##### **Creation of the Adwen joint venture with Gamesa**

Final agreements for the creation of the Adwen joint venture and the closing of the transaction were signed on March 9, 2015. Adwen is held in equal shares by AREVA and Gamesa. By combining their strengths, AREVA and Gamesa will enable the joint venture to become a major player in the global offshore wind market.

From the start, the joint venture was awarded contracts by several customers, including Iberdrola <sup>(1)</sup>, which selected the 5-MWe AD 5-135 turbine for the Wikinger offshore wind farm in Germany and the 8-MWe AD 8-180 turbine for the Saint-Brieuc offshore wind farm in France.

##### **Operations and highlights of the Adwen joint venture**

In the summer of 2015, Adwen finished the progressive start-up of its first two large-scale projects in the German North Sea: the offshore wind farms of Trianel Borkum and Global Tech 1.

On July 17, 2015, Adwen completed the start-up of 40 5-MWe AD 5-116 turbines installed at the Trianel Borkum wind farm in the North Sea, 45 kilometers off the coast of Borkum Island and close to the Alpha Ventus pilot site, where 6 Adwen turbines have been in operation since 2009. Trianel Borkum will cover the annual electricity requirements of close to 200,000 German households.

On September 2, 2015, operations progressively began for the Global Tech I wind farm, which has 80 5-MWe AD 5-116 turbines. With a capacity of 400 MWe, Global Tech I is one of the largest offshore wind projects completed in Germany. It is also the furthest from the German coastline, 100 kilometers away. For this operation, Adwen mobilized up to 4 vessels and 400 people. The wind farm will produce the equivalent of the average annual consumption of 445,000 households.

The manufacturing of the components for the 70 AD 5-135 wind turbines earmarked for Iberdrola's Wikinger wind farm in the Baltic Sea is slated to begin in the first quarter of 2016 in Adwen's German plants. The blades will be manufactured in Stade and the nacelles will be assembled at the Bremerhaven site, which has been upgraded to optimize the production of 5- and 8-MWe wind turbines.

(1) Iberdrola holds 20% of the capital of Gamesa.

In France, where the joint venture's project pipeline has reached 1.5 GWe, Adwen is pursuing commitments initiated by AREVA for the deployment of a comprehensive wind turbine industrial base. Adwen signed a contract with the consortium consisting of Egis, Auxitec and Enia Architectes for project management of its two plants to be built on land in the Port of Le Havre, where blades and nacelles will be manufactured for its wind turbines. Under the terms of the contract, the consortium will prepare the design studies and detailed layout drawings of the plants together with the application for a license and construction permit. Adwen's 8-MWe AD 8-180 turbine, devoted to the French projects, will be manufactured in the Le Havre plants starting in 2018, in accordance with the schedule for the start-up of the Saint-Brieuc, Dieppe Le Tréport and Yeu-Noirmoutier projects.

On October 23, 2015, the Ailes Marines consortium consisting of Iberdrola, Eole Res and Caisse des Dépôts filed the necessary license applications for the Saint-Brieuc wind farm project. The Dieppe, Le Tréport and Yeu Noirmoutier projects were the subject of public debates held in the spring and summer of 2015. The contracting authority, which brings together Engie, EDP and Neoen Marine, confirmed in December 2015 that it planned to pursue both projects based on the principal conclusions of the public debates.

In the United Kingdom, Adwen has a dedicated sales team and is participating in major ongoing tenders, in particular for Round 3 development projects.

Development of the AD 8-180 wind turbine is in the final phase involving a series of validation and testing stages, including a crucial stage that will begin in the first quarter of 2016 with tests of the turbine drive system on the IWES Dynalab test bench in Bremerhaven, Germany. Installation of the first AD 8-180 prototype, with the first installation to occur on land to conduct the qualification test sequence, is scheduled to take place by the end of 2016.

#### 6.4.5.4. ENERGY STORAGE

##### Hydrogen electrolysis with PEM technology

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), had its first full year of operation in 2015. 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. In 2015, it inaugurated 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 refueling stations. Other applications, such as "power-to-gas", offer additional promising prospects for this business.

##### Transfer of other energy storage operations to the Research, Development and Innovation Department

On January 1, 2015, energy storage operations other than PEM electrolysis were transferred to AREVA's Research, Development and Innovation Department to speed up their development under joint technology programs. These activities relate to two main programs:

##### Development of continuous flow battery technology

In 2014, AREVA Energy Storage launched a joint R&D development program with Schneider Electric and ENStorage to develop a new energy storage solution: the continuous flow battery. This technology combines hydrobromic acid and hydrogen to produce and store electricity.

System design, manufacturing of peripherals and containerization were carried out successfully throughout 2015. On-site delivery to the Port of Marseille-Fos, final assembly, testing and the start of energy storage cycles are planned for the first half of 2016.

##### Ongoing development of fuel cells via partnerships

The key objective of the Myrte project in Corsica is to design hydrogen-based energy storage to manage intermittent renewable energies and integrate them into the power grid. The project reached the final stage with the operation of the complete system in real operating conditions. In late 2015, the hydrogen line of the facility had operated a total of 6,300 hours, injecting 43 MWh of electrical energy into the grid, and 4,000 kilograms of hydrogen had been produced by the electrolyzers. In 2016, operation of the installation will continue for purposes of technical and economic optimization.

As part of the HyResponse Project – a European training project on hydrogen risks for first responders (fire departments, industrial companies, etc.) – AREVA is designing and building a 2,500 m<sup>2</sup> operational training platform on land owned by the national school of firefighter officers (ENSOSP). Finished in December 2015, the platform will be used to train more than 70 first responders from 18 countries in 2016 using 50 scenarios involving high-pressure gaseous hydrogen as well as natural gas for vehicles and liquefied petroleum gas.

### 6.4.6. OTHER OPERATIONS

#### 6.4.6.1. ENGINEERING & PROJECTS ORGANIZATION (E&P)

The integrated model created by AREVA to carry out its projects successfully is founded on the know-how of close to 5,000 professionals in the Engineering & Projects team, a staff unparalleled in size in the nuclear field. Backed by 50 years of experience in nuclear engineering and major projects, the Engineering & Projects Organization (E&P) is actively contributing to the success of AREVA's integrated business model. The objective of this crosscutting organization, which among others designed and built AREVA's main plants, is to guarantee the reliable, safe and competitive performance of AREVA customer facilities. Its international teams are armed with standardized tools, methods and procedures that capitalize on operating experience from more than 3,000 projects led every year in every aspect of the fuel cycle: mining, enrichment, fuel fabrication, reactors, used fuel recycling and dismantling operations. Depending on the risk-sharing requirements of its customer in the Business Groups, the Engineering & Projects Organization commits to completing turnkey projects or work packages under cost-plus or fixed-price contracts, either as a sole contractor or as an integrator of different partners on a local or international level. To that end, and to support AREVA's customers in integrating local resources into the projects while ensuring the global competitiveness of AREVA's offering, the Engineering & Projects Organization develops strategic partnerships with engineering firms and construction companies across the globe.

The project execution capabilities of the Engineering & Projects Organization together with the technical expertise of its teams, who are familiar with the technologies developed by the group as well as with those of its competitors, give AREVA a major advantage. Skills management, adjusting the skills mix to meet market demand, and offering attractive careers are the core mission of Engineering & Project's four centers of competence in project management, design and engineering, construction and testing, and inspection. They also draw on AREVA's global network of experts, who contribute to the success of the projects by developing innovative technologies, transferring know-how and training technical contributors to the projects.

#### 6.4.6.2. AREVA MED

##### Alpha therapy

AREVA Med is the medical subsidiary of AREVA. It was created in 2009 to develop innovative therapies to fight cancer. Based on an R&D program started in 2005, AREVA Med developed a unique process for producing high-purity lead-212 ( $^{212}\text{Pb}$ ), a rare isotope. AREVA Med's lead-212 is currently the focus of promising research projects in nuclear medicine, and new cancer treatments are currently being developed. This innovative approach is also known as radioimmunotherapy when combined with the use of an antibody.

##### Activities

AREVA Med's ambition is to develop effective targeted therapies to fight cancer and the company has three main goals:

- produce high-purity lead-212 to meet clinical development needs;
- extend the reach of innovative lead-212 treatments through clinical development;
- provide lead-212 to the scientific community (academic and pharmaceutical partners).

AREVA Med built the Maurice Tubiana Laboratory in Bessines-sur-Gartempe, in the Limousin region, to produce highly pure lead-212 for clinical development needs. Production began in 2013. In 2015, to extend its industrial footprint, AREVA Med launched the construction of a new production unit near Dallas, Texas in the United States. Dubbed the domestic distribution and production unit (DDPU), it will also house the operations of its subsidiary Macrocyclics and will be operational in the second quarter of 2016.

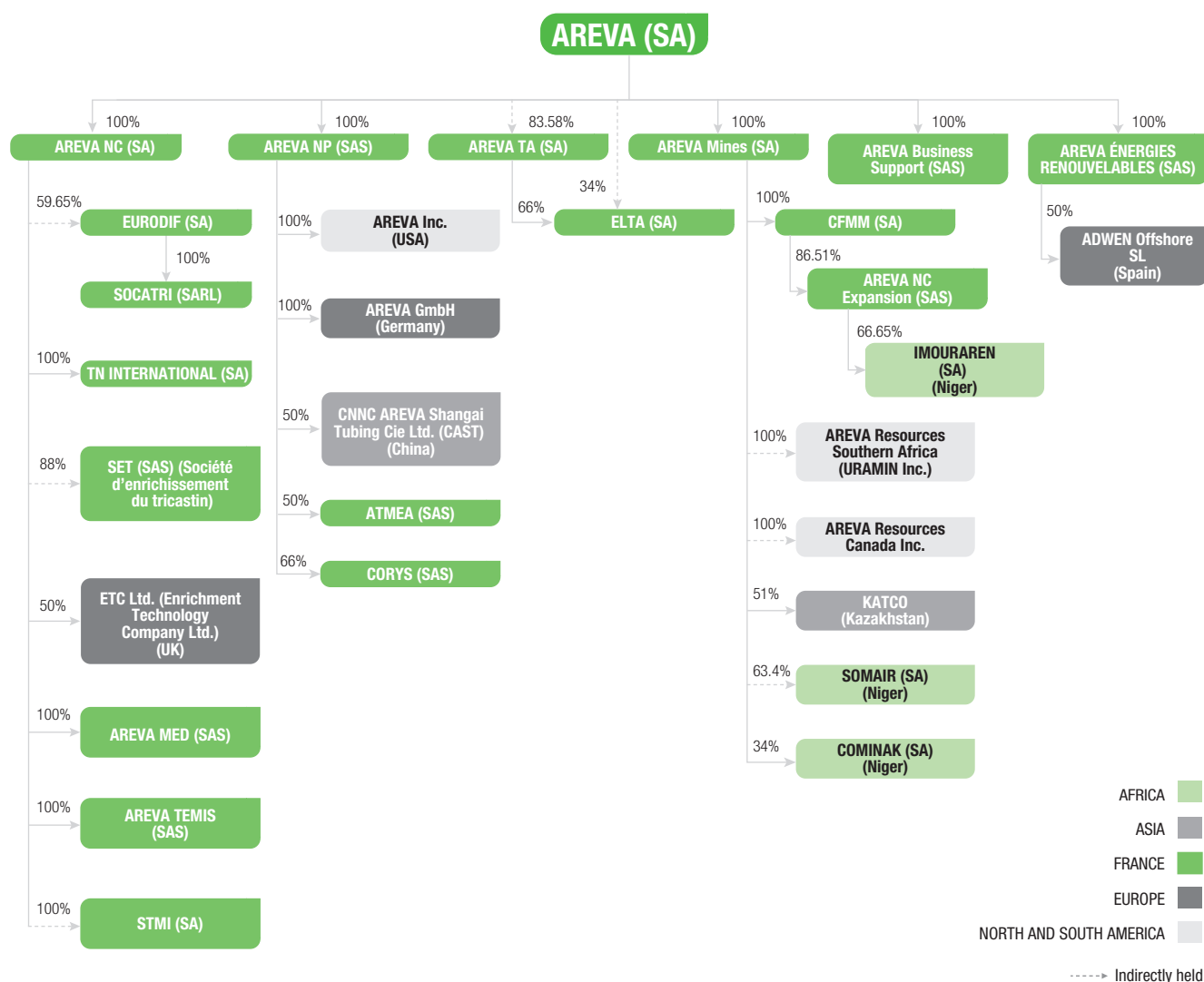
In 2012, AREVA Med entered into a strategic alliance with Roche to create a new advanced platform for alpha radio-immunotherapy. This alliance focuses its efforts on the development of treatments for cancers with high unmet medical needs. As part of their partnership, Roche and AREVA Med built a joint research laboratory called ARCoLab (AREVA Med Roche Common Laboratory). Located in France (Limousin region), this lab has been operational since 2013 and partners' efforts have continued in 2015.

In 2015, AREVA Med also signed a new partnership with RadioMedix to co-develop a new alpha therapy treatment against neuroendocrine tumors.

In 2012, AREVA Med launched the first Phase 1 clinical trial with lead-212, targeting intra-abdominal HER-2 expressing cancers (such as ovarian cancer). Patient enrolment for this unprecedented clinical trial was completed in 2014; complete scientific results have been fully analysed in 2015 and will be published in 2016.

Finally, in 2015, the CARAT project (Consortium pour des Applications en Radio Alpha Thérapie) aiming at developing a French sector of excellence in nuclear medicine using lead-212 received about 10 million euros in financing under the French future investment program managed by the Commissariat Général à l'Investissement (CGI). Coordinated by AREVA Med, CARAT unites the companies EVEON and Triskem International, the Limoges university hospital, the CRIBL laboratory at Limoges university and Subatech.

## SIMPLIFIED ORGANIZATION CHART OF THE GROUP AT DECEMBER 31, 2015



The organization chart above reflects in particular the main consolidated companies of the group at December 31, 2015 appearing in Note 36 to the consolidated financial statements. The percentages mentioned for each entity correspond to the share of interest in the capital.

# PROPERTY, PLANT AND EQUIPMENT

08

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## 8.1. PRINCIPAL SITES OF THE GROUP

Pursuant to Appendix I, 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, 2015 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. 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 (92) France	Offices (registered office)	Lease	No	93,457 m <sup>2</sup>
33, rue La-Fayette – Paris (75) France	Offices	Lease	No	13,312 m <sup>2</sup>
1-5, rue du Débarcadère – Colombes (92) France	Offices	Lease	No	13,477 m <sup>2</sup>

## 8.1.2. MINING BUSINESS GROUP

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	146.55 ha	Uranium concentrates
<b>Akoka</b> Niger	Offices + production and storage facilities	Long-term concession/ Full ownership	No	17.34 ha	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	Long-term concession/ Full ownership	No	37,367 ha	Care and maintenance
<b>Trekkopje</b> Namibia	Desalination plant	Full ownership	No	Land: 20 ha Building: 12,945 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/</b> Gartempe (France)	Offices + production and storage facilities	Full ownership	No	162.7 ha	Research laboratory and U308 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	103.43 ha	Eluates + uranium concentrates (U <sub>3</sub> O <sub>8</sub> )

### 8.1.3. FRONT END BUSINESS GROUP

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: 625.64 ha Building: 109.24 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)	Mill	Full ownership	No	Land: 144.68 ha Building: 31,192 m <sup>2</sup>	UF <sub>4</sub> conversion services
<b>Romans-sur-Isère</b> (26) France (regulated nuclear facility)	Mill	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)	Mill	Full ownership	No	Land: 64,366 m <sup>2</sup> Building: 18,170 m <sup>2</sup>	Zirconium tubes for fuel assemblies
<b>Jarrie</b> (38) France (environmentally regulated facility)	Mill	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)	Mill	Full ownership	No	Land: 73,491 m <sup>2</sup> Building: 12,630 m <sup>2</sup>	Zirconium products
<b>Ugine</b> (73) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 56,465 m <sup>2</sup> 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)	Mill	Full ownership	No	Land: 10.39 ha Building: 17,851 m <sup>2</sup>	Site undergoing dismantling
<b>Richland</b> Washington – United States (nuclear facility)	Mill	Full ownership	No	Land: 134.42 ha Building: 36,900 m <sup>2</sup>	Powder and pellet production (UO <sub>2</sub> , Gad & BLEU), Assemblies and various components.
<b>Lingen</b> Germany (nuclear facility)	Mill	Full ownership	No	Land: 44.13 ha Building: 14,260 m <sup>2</sup>	Fuel assemblies for BWRs and PWRs

### 8.1.4. REACTORS & SERVICES BUSINESS GROUP

Location	Type of asset	Lease/full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Saint-Marcel (71)</b> France (environmentally regulated facility)	Mill	Full ownership	No	Land: 18,54 ha Building: 56,814 m <sup>2</sup>	Heavy components (reactor vessel, vessel head, steam generator, pressurizer)
<b>Jeumont (59)</b> France (environmentally regulated facility)	Mill	Full ownership	No	Land: 92,057 m <sup>2</sup> Building: 40,408 m <sup>2</sup>	Reactor coolant pump sets, control rod drive mechanisms
<b>Maubeuge (59)</b> France (nuclear regulated, environmentally regulated facility)	Mill	Full ownership	No	Land: 96,390 m <sup>2</sup> Building: 11,429 m <sup>2</sup>	Services related to contaminated component maintenance: reactor coolant pump assembly & testing
<b>Le Creusot (71)</b> France (environmentally regulated facility)	Plant, offices, workshop	Full ownership/ Lease	No	Land: 12,48 ha Building: 73,131 m <sup>2</sup>	Forgings and machining of large parts for the nuclear and petrochemicals industries Technical center - testing
<b>Chalon-sur-Saône (71)</b> France (environmentally regulated facility)	Offices, Cedem, Cemo, Cetic (50/50 JV with EDF)	Full ownership/ Lease	No	Land: 25,41 ha Building: 60,606 m <sup>2</sup>	Robotics, tooling, decontamination, storage of tooling (contaminated/decontaminated)
<b>Cadarache (13)</b> France (INBS)	Production plant, offices	CEA host site	No	Land: 15,31 ha Building: 53,954 m <sup>2</sup>	Nuclear fuel
<b>Aix-en-Provence (13)</b> France	Offices	Full ownership	No	Land: 10,6 ha Building: 12,053 m <sup>2</sup>	Design/Engineering
<b>Saclay (91)</b> France	Offices	Full ownership/ Lease	No	Land: 1,5 ha Building: 7,298 m <sup>2</sup>	Design/Engineering
<b>Loches (37)</b> France (environmentally regulated facility)	Production and services site	Full ownership	No	Land: 16,844 m <sup>2</sup> Building: 4,800 m <sup>2</sup>	Standard products
<b>Lyon (69)</b> France	Offices	Lease	No	Building: 14,079 m <sup>2</sup>	Engineering
<b>Deyang</b> Sichuan, China	Mill	JV 50 JSPM/ 50 Dongfang Electric Machinery	No	Land: 36,729 m <sup>2</sup> Building: 16,116 m <sup>2</sup>	Reactor coolant pumps
<b>Lynchburg</b> Virginia – United States (nuclear facility)	Offices, hot facilities, Training Center	Full ownership/ Lease	No	Land: 99,636 m <sup>2</sup> Building: 23,172 m <sup>2</sup>	Decontamination Hot maintenance facility
<b>Meriden</b> Connecticut – United States	Production and services site	Full ownership	No	Building: 16,200 m <sup>2</sup>	Standard products, systems
<b>Canberra Oak Ridge</b> Tennessee – United States	Production and services site	Full ownership	No	Land: 9,915 m <sup>2</sup> Building: 3,160 m <sup>2</sup>	Crystal growth
<b>Olen</b> Belgium	Production and services site	Full ownership	No	Land: 9,400 m <sup>2</sup> Building: 2,494 m <sup>2</sup>	Standard detectors
<b>Harwell</b> United Kingdom	Production and services site	Lease	No	Land: 8,665 m <sup>2</sup> Building: 2,262 m <sup>2</sup>	Standard products, systems
<b>Erlangen</b> Germany	Offices, facilities	Lease	No	Building: 69,715 m <sup>2</sup>	Robotics/tooling, Technical Center – testing, Engineering

**8.1.5. BACK END BUSINESS GROUP**

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: 384.2 ha Building: 771,097 m <sup>2</sup>	Used fuel treatment
<b>Valognes</b> (50) France	Offices, Warehouse	Full ownership	No	Land: 39,023 m <sup>2</sup> Building: 12,900 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>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)	Mill	Full ownership	No	Land: 31.3 ha Building: 19,910 m <sup>2</sup>	Site undergoing cleanup
<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
<b>Bollène</b> (84) France (environmentally regulated facility)	Mill	Full ownership	No	Land: 19,483 m <sup>2</sup> Building: 9,644 m <sup>2</sup>	Machine maintenance, waste processing, equipment recertification

**8.1.6. RENEWABLE ENERGIES BUSINESS GROUP**

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
<b>Chennai</b> India	Offices	Lease	No	Building: 1,142 m <sup>2</sup>	Offices

### 8.1.7. ENGINEERING & PROJECTS

Location	Type of asset	Lease/Full ownership	Existence of encumbrances on the real estate	Surface area	Products manufactured
<b>Saint-Quentin-en-Yvelines</b> (78) France	Offices	Lease	No	Building: 27,472 m <sup>2</sup>	Engineering
<b>Lyon</b> (69) 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: 53,632 m <sup>2</sup>	Engineering
<b>Offenbach</b> Germany	Offices	Lease	No	Building: 27,580 m <sup>2</sup>	Engineering

### 8.1.8. SCHEDULED INVESTMENTS

Please refer to Section 5.2. *Investments*, and to the appropriate sections of Chapter 6. *Business overview* for more detailed information on scheduled investments by Business Group.

## 8.2. ENVIRONMENTAL ISSUES THAT MAY AFFECT THE ISSUER'S USE OF PROPERTY, PLANT AND EQUIPMENT

Please refer to Section 4. *Risk factors*.

# ANALYSIS OF AND COMMENTS ON THE GROUP'S FINANCIAL POSITION AND PERFORMANCE

09

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## 9.1. OVERVIEW

The following comments are based on financial information for financial years 2014 and 2015 and must be read in conjunction with AREVA's consolidated financial statements for the years ended December 31, 2014 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, 2015.

AREVA's information by business segment is presented for each operating Business Group (Business Group), which is the level at which information is examined by the group's governance bodies, as per the requirements of IFRS 8.

### 9.1.1. BUSINESS TRENDS

#### CHANGE IN THE GROUP'S CONSOLIDATION SCOPE

The reorientation of the group's operations will translate in particular into the sale of a majority share of AREVA NP to EDF and by the refocusing of AREVA on management of the nuclear fuel cycle. Consequently, the operations of AREVA NP (excluding the OL3 contract), Nuclear Measurements, and Propulsion and Research Reactors are treated as "operations sold, discontinued or held for sale" in the consolidated financial statements, pursuant to the IFRS 5 accounting rule. The Wind Energy and Solar Energy operations are also recognized according to IFRS 5, the group having continued to restructure its Renewables operations in 2015.

#### MARKET TRENDS

Recurring activities represent approximately 95% of AREVA's consolidated revenue. Government programs, particularly in China, India, the United Kingdom and the United States, provide considerable stimulus to the nuclear market.

In 2015, AREVA's markets in nuclear power were affected by:

- a reduction of long-term price levels in the natural uranium market and a drop in spot and long-term price levels in the conversion and enrichment markets;
- delays in the schedule for restart of Japanese reactors, notwithstanding the restart of the first two units in the second half of 2015;
- revised schedule assumptions for the start of export contracts in recycling and international projects (Back End).

### 9.1.2. KEY FEATURES OF AREVA'S BUSINESS MODEL

The group's continuing operations will be represented by three Business Groups – Mining, Front End and Back End – supplemented by the “Corporate and other operations” segment.

The **Mining Business Group** is characterized by relatively long contract terms. This multiyear contractual approach is necessary given the significant amount of capital expended to develop new mines, which are operated over very long periods of time.

The **Front End Business Group**, which covers the operations of uranium chemistry and enrichment, is also characterized by multiyear contracts equivalent to an average backlog of more than 5 years (depending on customer requests, contracts may cover a period of more than 15 years for Enrichment and contain standard price escalation clauses).

The **Back End Business Group** manages all of the operations associated with used nuclear fuel recycling and value development of nuclear facilities through their cleanup and dismantling, and offers transportation solutions for each segment of the nuclear cycle. It is characterized by multiyear contracts with a limited number of customers. The Back End Business Group's operations are carried out in industrial

facilities which must be kept in operational readiness through regular and heavy capital expenditure financed by customers through long-term contracts. In addition, the Business Group provides industrial know-how to international projects involving the creation of or support to other treatment and recycling platforms. In parallel, the Business Group continues to deploy know-how in the dismantling and cleanup of nuclear sites.

The **Corporate and other operations** segment includes, in addition to the Corporate functions, the Olkiluoto 3 EPR reactor construction project in Finland (OL3) and the Bioenergy operations, the latter being based on a mature technology and a fragmented market. The group supplies turnkey design, construction and commissioning services to customers for biomass power plants.

### 9.1.3. HIGHLIGHTS OF THE PERIOD

The information provided in this section concerns the group as a whole. Highlights related to contracts recorded over the period are described in business segment review.

#### CONCERNING BUSINESS STRATEGY AND CAPITAL EXPENDITURES

- On March 4, during the publication of the group's financial results for 2014 showing a net loss of 4.8 billion euros and negative equity, AREVA announced:
  - the development of a strategic road map with three objectives: refocus on core nuclear processes, redefine the partnership with EDF and reinforce the development of the group's presence in China;
  - the implementation of a competitiveness plan targeting 1 billion euros in savings by 2017;
  - the establishment of dialogue between management and employees;
  - the preparation of a financing plan for 2015-2017 by the time the half-year financial statements are published.
- On March 9, 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, 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 May 7, AREVA announced the opening of negotiations with the labor unions on the social components of its competitiveness plan. The group is aiming for a reduction of its payroll expenses of some 15% in France and 18% for the group as a whole.
- On June 3, the President of the French Republic announced a series of guidance for the redefinition of the French nuclear industry, including the following points in particular:
  - subject to the signature of a global strategic partnership agreement with AREVA, EDF would become the majority shareholder of the joint AREVA NP subsidiary, which brings together the industrial operations of reactor

construction, fuel assembly and services to the installed base. AREVA will retain a strategic interest in the company through a shareholders' agreement;

- this plan should also allow discussions between EDF and AREVA aimed at reducing the risks of large projects in progress carried out by AREVA NP, in the interests of all participants in the French nuclear industry;
  - combining of the design, project management and marketing operations for new reactors of EDF and AREVA in a specialized company;
  - a capital increase in which the French State will participate.
- 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, AREVA announced the signature of a proposed agreement on employment by the CFDT, CFE-CGE, FO and UNSA-SPAEN labor unions.
  - On October 20, AREVA announced the presentation by management of documents describing the reorganization plans for the 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, AREVA announced that, following analysis of offers, the AREVA Board of Directors had selected the Mirion-Charterhouse offer to acquire its subsidiary Canberra.

#### IN THE FIELD OF GOVERNANCE

- Highlights regarding changes in the group's governance are mentioned in Section 14.1. *Board of Directors*.

**IN THE COMMERCIAL ARENA**

- The group's commercial highlights are mentioned in Section 9.2.8. *Business Review*.

**IN THE NUCLEAR FIELD**

- On January 30, during the visit to China of Manuel Valls, Prime Minister of France, AREVA and CNNC signed a memorandum of understanding to establish a joint venture in nuclear logistics and transportation.
- On February 18, AREVA announced the suspension of the design certification process for the US EPR reactor.
- On April 7, AREVA and EDF informed the nuclear safety authority ASN (Autorité de sûreté nucléaire) of a new testing campaign starting in April 2015 for qualification of the Flamanville EPR vessel closure head and bottom head. This campaign follows chemical and mechanical tests carried out on a representative piece of the closure and bottom heads.
- On April 10, on the occasion of the visit to France of Narendra Modi, Prime Minister of India, AREVA signed two industrial agreements with Indian partners, signaling progress on the Jaitapur EPR project.

- On April 21, AREVA announced the continuation of its quality analyses at the Creusot forge.
- AREVA and EDF reached an agreement in June 2014 on the main financial terms of the treatment and recycling contract for the 2013-2020 period. On May 27, 2015, AREVA and EDF agreed on the application of this agreement to the years 2013-2015. Discussions concerning an agreement for the 2016-2023 period ended in December 2015 and the contract was formally signed on February 5, 2016 following approval by the governing bodies of each group.
- On June 26, AREVA announced that it had decided to temporarily reduce its activities at the Angra 3 nuclear reactor of ETN in Brazil. This temporary reduction is due to a delay in the financing of the remainder of the activities to be carried out to complete the project. As soon as ETN has firmed up a long-term financing solution, AREVA will resume all of its project-related activities.
- On June 30, on the occasion of the visit to France of the Prime Minister of China, AREVA signed three agreements with CNNC, CGN and EDF pursuant to the joint statement of the Prime Ministers of France and China on increasing Franco-Chinese cooperation on civilian nuclear energy.
- On December 15, AREVA presented its quality improvement plan for its equipment manufacturing plants to the College of the Nuclear Safety Authority during a hearing.

## 9.2. SITUATION AND ACTIVITIES OF THE COMPANY AND ITS SUBSIDIARIES BY BUSINESS SEGMENT DURING THE YEAR

In accordance with IFRS 5, the statement of income and the statement of cash flows for the year ended December 31, 2014 were restated to present pro forma information using a consolidation scope comparable to that of the year ended December 31, 2015; net income from operating activities whose disposal is under negotiation is presented on a separate line, "net income from discontinued operations".

The following operations meet the criteria of IFRS 5 for classification as "discontinued operations" at December 31, 2015:

- AREVA NP (excluding the OL3 project);
- Nuclear Measurements;
- Propulsion and Research Reactors;
- Solar Energy;
- Wind Energy.

Details on adoption of the IFRS 5 accounting rule are given in Section 9.2.3 and in Note 9 to the consolidated financial statements.

The year of 2015 saw the implementation of measures announced on March 4, 2015 during the publication of the financial statements for the year ended December 31, 2014, and guidance for the transformation of the French nuclear industry announced on June 3, 2015 by the President of the French Republic. Important milestones were met in 2015 and in the first weeks of 2016, in particular for the following items:

- advanced discussions with EDF for the sale of at least 75% of AREVA NP's share capital, excluding the OL3 contract;
- refocusing of AREVA on nuclear fuel cycle operations with the announced termination or sale of operations that are not part of its core business;
- a competitiveness plan aiming for 1 billion euros in cost reductions by 2017, including a restructuring plan;

- a 2015-2017 financing plan.

**Discussions with EDF for the sale of AREVA NP**

AREVA and EDF continue their discussions for the sale of at least 75% of AREVA NP to EDF.

- The two companies signed a preliminary memorandum of understanding on July 29, 2015 presenting the principal terms and conditions of the project with a view to finalizing definitive agreements.
- The next milestone was met during the AREVA Board of Directors meeting of January 27, 2016, which was favorable to the convergence of negotiations entered into with EDF concerning the valuation of AREVA NP's operations and gave the Chief Executive Officer authority to finalize the negotiations. AREVA reached an agreement with EDF on an indicative value of 2.5 billion euros for 100% of the share capital at the closing date of the transaction, excluding the OL3 project, with a price supplement mechanism as a function in particular of AREVA NP's performance over the 2017-2018 period, and which could reach a maximum amount of 350 million euros. This proposal is likely to be adjusted upwards or downwards as a function of the financial statements drawn up at the closing date of the transaction.
  - AREVA would keep a strategic interest in AREVA NP of at least 15%, with which governance rights would be associated suited to AREVA's status as a strategic minority shareholder.
  - Finalization of the transaction remains subject in particular to (i) the favorable outcome of verifications in progress concerning the compliance of the Flamanville 3 reactor vessel and (ii) the definition of procedures for transferring the OL3 contract from AREVA NP to AREVA SA.
  - The parties' objective is to carry out this transaction in 2017, after consultation with the employee representative bodies, receipt of regulatory authorizations and the lifting of the other conditions precedent of the transaction.

In this context, AREVA considers that the sale of a controlling interest in AREVA NP to EDF is highly probable and that the conditions for implementing IFRS 5 accounting rules concerning operations held for sale have been met. The OL3 project is not part of the scope held for sale (see Section 20.2, Note 9).

### Refocusing on nuclear fuel cycle operations

The sale, termination or transformation into a joint venture of operations that are not part of the new AREVA's core business, refocused on the nuclear fuel cycle, have been announced or carried out in 2015:

- Offshore Wind: On March 9, 2015, AREVA and Gamesa finalized the creation of the Adwen joint venture;
- Solar Energy: Discussions with potential buyers were not successful, and the last project in execution was the subject of an agreement with the customer on January 16, 2016 to terminate the contract;
- Nuclear Measurements: Following a call for offers issued in June 2015 aimed at selling its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in nuclear measurement instrumentation and systems, AREVA selected the Mirion proposal on December 24, 2015;
- AREVA TA: The principle of an acquisition by the Agence des participations de l'État of a majority interest in AREVA TA was announced in a press release on December 17, 2015 and confirmed on January 27, 2016.

These operations were classified under operations sold, discontinued or held for sale at December 31, 2015, pursuant to IFRS 5 (see Section 20.2, Note 9).

### Restructuring plan

The group announced a personnel expense reduction target of 18% worldwide (15% in France) based on renegotiation of compensation, the organization of working time, and manpower adjustments leading to the elimination of 5,000 to 6,000 jobs, including 3,000 to 4,000 in France, by the end of 2017.

In France, a group agreement was signed on October 19, 2015 between management and labor. Measures are based on voluntary action. The consultation procedures with employee representative bodies are in progress and, subject to approval by the labor administration, the voluntary departure plans will enter into force in early April 2016.

In Germany, the closing of the Offenbach site and the transfer of the personnel to the Karlstein and Erlangen sites was announced. These activities will be finalized in mid-2016.

Provisions for restructuring were recognized at December 31, 2015 in this regard (see Section 20.2, Note 24).

### Capital increase

The Board of Directors, meeting on January 27, 2016, approved the principle of a capital increase in the amount of 5 billion euros designed to restore a sound balance sheet to the group. On that same day, the President of the French Republic announced that the State, as leading shareholder, would subscribe to this capital increase, to which minority third-party investors would be invited, and would ensure its full success, in compliance with regulations and European procedures applicable to such transactions.

### Liquidity situation and business continuity

At December 31, 2015, the liquidity risk was covered for the year of 2016 by:

- a positive gross cash position of 0.8 billion euros (versus 1.7 billion euros at December 31, 2014). Gross cash was maintained at this level through a combination of optimization actions taken during the year (strengthened cash management, implementation of the competitiveness plan, factoring transactions and the sale of tax credit receivables). These cash optimization measures will continue in 2016;
- an unused balance of confirmed lines of credit in the approximate amount of 2.1 billion euros, including a syndicated line of credit and bilateral lines of credit.

Since December 31, 2015:

- as it announced on January 27, 2016, AREVA drew the full amount of these lines of credit, including a syndicated line of credit and bilateral lines of credit totaling 2.045 billion euros, on January 4 and 5, 2016;
- a bridge loan of 1.1 billion euros provided by a banking pool was negotiated and will supplement these resources to ensure the group's business continuity.

At December 31, 2015, current financial debt totaled 1.440 billion euros, consisting in particular of:

- the last installment in the amount of 200 million euros of a loan granted by the European Investment Bank, paid in January 2016;
- the scheduled repayment of 964 million euros of a bond issue in September 2016;
- scheduled repayments of the redeemable loan for structured financing of Georges Besse II in the amount of 36 million euros;
- accrued interest on bond issues in the amount of 56 million euros in September 2016;
- commercial paper in the amount of 26 million euros; and
- current bank credit facilities and positive credit balances in the amount of 91 million euros.

Beyond 2016, and up to the end of 2018, significant debt repayments include repayment of the bond issue expiring in October 2017 in the nominal remaining amount of 798 million euros, reimbursement of the bridge loan of 1.1 billion euros in January 2017, assuming it is used in 2016, repayment of the bilateral lines of credit in the amount of 795 million euros in 2017, repayment of the syndicated line of credit in the amount of 1.250 billion euros in January 2018, and a private placement in yen equivalent to 60 million euros in September 2018. Over that timeframe, business continuity will be ensured by taking the measures set forth in the group's financing plan, whose objective of the financing plan is to give the company the means to implement its transformation plan and to present a financial profile enabling it to refinance in the markets on a long-term basis. These measures include among others the capital increase, the sale of the majority of AREVA NP to EDF, and the other subsidiary sales described in the preceding paragraphs.

**Contract for construction of the Olkiluoto 3 EPR**

Over the course of 2015, the Olkiluoto 3 EPR project made progress, meeting critical path milestones.

Discussions have begun with TVO with the objectives of jointly laying the foundations for cooperation to complete the project and settle the dispute. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

However, the loss at completion of the project was raised by 905 million euros to reflect (i) extra operating costs, (ii) an increase in costs and contingencies for the test phases, and (iii) the probable outcome of discussions begun with TVO.

All amounts are expressed millions of euros unless otherwise indicated. Due to rounding adjustments, some totals may not be strictly accurate. Financial indicators are defined in the *Financial Glossary*.

**9.2.1. SUMMARY OF KEY DATA**

<i>(in millions of euros, except workforce)</i>	2015	2014*	Change 2015/2014
<b>Income</b>			
Reported revenue	4,199	3,954	+246
Gross margin	(288)	(579)	+291
<i>Percentage of reported revenue</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>
Operating income	(1,388)	(2,115)	+727
Net financial income	(313)	(299)	-14
Share in net income of joint ventures and associates	(21)	(14)	-7
Net income from discontinued operations	(190)	(1,678)	+1,488
Consolidated net income	(2,038)	(4,833)	+2,795
Comprehensive income attributable to equity owners of the parent	(1,825)	(5,155)	+3,330
<b>Cash flow</b>			
EBITDA	685	471	+214
<i>Percentage of reported revenue</i>	<i>16.3%</i>	<i>11.9%</i>	<i>+4.4 pts</i>
Change in operating working capital requirement	246	(76)	+322
Net operating Capex	(631)	(991)	+359
Operating cash flow	297	(579)	+876
<b>Miscellaneous</b>			
Backlog	28,990	32,103	-3,113
Net cash (debt)	(6,323)	(5,809)	-514
Equity attributable to owners of the parent	(2,516)	(691)	-1,825
Workforce (end of period, including operations held for sale)	39,761	41,847	-5.0%
Dividend per share	-	-	-

\* Adjusted for adoption of IFRS 5.

**9.2.2. SUMMARY DATA BY BUSINESS SEGMENT****2015**

<i>(in millions of euros)</i>	<b>Mining</b>	<b>Front End</b>	<b>Back End</b>	<b>Corporate and other operations</b>	<b>Total</b>
<b>Income</b>					
Contribution to consolidated revenue	1,447	1,097	1,593	62	4,199
Operating income	183	101	(184)	(1,488)	(1,388)
Percentage of contribution to consolidated revenue	12.7%	9.2%	ns	ns	ns
<b>Cash flow</b>					
EBITDA	604	389	315	(624)	685
Percentage of contribution to consolidated revenue	41.7%	35.5%	19.8%	ns	16.3%
Change in operating WCR	(63)	(197)	300	207	246
Net operating Capex	(184)	(272)	(165)	(10)	(631)
Operating cash flow	351	(78)	450	(425)	297
<b>Miscellaneous</b>					
PP&E and intangible assets (including goodwill)	3,862	4,330	2,256	114	10,562

**2014**

<i>(in millions of euros)</i>	<b>Mining</b>	<b>Front End</b>	<b>Back End</b>	<b>Corporate and other operations</b>	<b>Total</b>
<b>Income</b>					
Contribution to consolidated revenue	1,297	988	1,531	137	3,954
Operating income	(73)	(497)	(495)	(1,050)	(2,115)
Percentage of contribution to consolidated revenue	ns	ns	ns	ns	ns
<b>Cash flow</b>					
EBITDA	451	245	232	(457)	471
Percentage of contribution to consolidated revenue	34.8%	24.8%	15.2%	ns	11.9%
Change in operating WCR	(29)	(62)	25	(8)	(76)
Net operating Capex	(440)	(371)	(142)	(37)	(991)
Operating cash flow	(14)	(189)	114	(490)	(579)

<i>(in millions of euros)</i>	<b>Mining</b>	<b>Front End</b>	<b>Reactors &amp; Services</b>	<b>Back End</b>	<b>Renewable Energies</b>	<b>Corporate</b>	<b>Total</b>
<b>Miscellaneous</b>							
PP&E and intangible assets (including goodwill)	4,244	5,730	2,299	2,246	48	85	14,653

**SUMMARY OF REVENUE BY REGION AND BUSINESS GROUP**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>	<b>Change 2015/2014</b>
<b>France</b>	<b>1,660</b>	<b>1,587</b>	<b>+4.6%</b>
Mining	252	220	+14.5%
Front End	274	313	-12.7%
Back End	1,098	957	+14.7%
Corporate and other operations	36	96	-62.6%
<b>Europe (excluding France)</b>	<b>703</b>	<b>648</b>	<b>+8.4%</b>
Mining	225	188	+19.6%
Front End	258	170	+51.7%
Back End	209	283	-26.2%
Corporate and other operations	11	7	+50.5%
<b>North and South America</b>	<b>833</b>	<b>213</b>	<b>+2.5%</b>
Mining	273	260	+4.9%
Front End	318	326	-2.6%
Back End	236	205	+14.8%
Corporate and other operations	6	21	-69.3%
<b>Asia-Pacific</b>	<b>906</b>	<b>859</b>	<b>+5.5%</b>
Mining	620	598	+3.6%
Front End	232	166	+39.4%
Back End	46	81	-43.6%
Corporate and other operations	8	12	-37.5%
<b>Africa and Middle East</b>	<b>98</b>	<b>48</b>	<b>+106.5%</b>
Mining	77	30	+152.7%
Front End	16	12	+33.1%
Back End	5	5	-5.7%
Corporate and other operations	1	-	ns
<b>TOTAL</b>	<b>4,199</b>	<b>3,954</b>	<b>+6.2%</b>

Additional information on Germany and Japan at December 31, 2015:

<i>(in millions of euros)</i>	<b>Revenue by customer location</b>	<b>Percentage of the group's consolidated revenue</b>
Germany	76	2%
Japan	375	9%

Additional information on Germany and Japan at December 31, 2014:

<i>(in millions of euros)</i>	<b>Revenue by customer location</b>	<b>Percentage of the group's consolidated revenue</b>
Germany	147	4%
Japan	382	10%

### 9.2.3. COMPARABILITÉ DES COMPTES

#### 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 2015 and 2014 revenue, the group calculates what the 2014 revenue of the different operations would have been when average exchange rates for 2015 are applied;
- the resulting revenue is then adjusted for the consolidation effect, and the group calculates what the 2014 revenue from the different businesses would have been based on the applicable consolidation scope at year-end 2015.

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 "discontinued operations" at December 31, 2015:

#### ■ Wind Energy

Adwen's results are recognized using the equity method as from March 9, 2015, the date of creation of this joint venture. The results from January 1 to March 8, 2015 and the income from deconsolidation are presented in "net income of operations sold".

#### ■ Solar Energy

The Solar operations were treated as "discontinued operations" at December 31, 2015, there being no further operations and discussions with potential buyers not having succeeded.

#### ■ AREVA NP (excluding the OL3 project)

The scope of AREVA NP operations classified as "operations held for sale" at December 31, 2015 was determined based on discussions underway between AREVA and EDF, and may still change. The OL3 project is not part of the scope held for sale.

#### ■ Nuclear Measurements

In June 2015, AREVA began the process of disposing of its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in nuclear measurement instrumentation and systems. After examining the offers, the AREVA Board of Directors selected the Mirion proposal (supported by the Charterhouse investment capital fund) on December 24, 2015. The objective is to finalize the transaction by the end of 2016. Consequently, the Nuclear Measurements business is treated as an "operation held for sale" at December 31, 2015.

#### ■ Propulsion and Research Reactors

The transformation plan led by AREVA calls for the group to refocus on nuclear cycle processes. The Agence des participations de l'État plans to take a majority share of AREVA TA's capital. The principle of this transaction was confirmed in a press release in December 2015. In that situation, AREVA began the process of disposing of AREVA TA; the objective is to complete the transaction by the end of 2016.

Detailed information on the impacts of IFRS 5 is provided in Note 37 to the consolidated financial statements.

#### Estimated impact of changes in consolidation scope, exchange rate and accounting methods and standards on revenue for financial year 2014

The table below presents the estimated impact of changes in exchange rate, the group's consolidation scope, and valuation methods for 2015 compared with 2014.

(in millions of euros)	2014 revenue	Exchange rate impact	Consolidation scope impact	Changes in valuation method	Recalculated 2014 revenue
Mining	1,297	144	-	-	1,441
Front End	988	28	-	-	1,016
Back End	1,531	42	-	-	1,573
Corporate and other operations	137	(2)	(45)	-	90
<b>TOTAL CONTINUING OPERATIONS</b>	<b>3,954</b>	<b>212</b>	<b>(45)</b>	<b>-</b>	<b>4,121</b>

**9.2.4. BACKLOG**

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014
<b>Backlog</b>	<b>28,990</b>	<b>32,103</b>	<b>-3,113</b>
Mining	9,115	9,539	-424
Front End	10,341	12,496	-2,155
Back End	9,157	9,665	-508
Corporate and other operations	377	402	-26

The group had close to 29 billion euros in backlog at December 31, 2015, compared with 32.1 billion euros at December 31, 2014. This represents nearly seven years of revenue. Some 2.5 billion euros in orders were taken in 2015, compared to

6.7 billion euros in 2014, when the treatment and recycling agreement with EDF was added to the backlog.

**9.2.5. STATEMENT OF INCOME****9.2.5.1. REVENUE**

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014
<b>Consolidated revenue</b>	<b>4,199</b>	<b>3,954</b>	<b>+246</b>
Mining	1,447	1,297	+150
Front End	1,097	988	+109
Back End	1,593	1,531	+61
Corporate and other operations	62	137	-75

The group had consolidated revenue of 4.199 billion euros at December 31, 2015, an increase of 6.2% compared with 2014 (1.9% like for like). Foreign exchange had a positive impact of 212 million euros, mainly in Mining. Consolidation scope had a negative impact of 45 million euros over the period due to the transfer of the information systems subsidiary Euriware to Capgemini in May 2014.

In 2015, revenue in France amounted to 1.660 billion euros, an increase of 4.6% in relation to 2014. Revenue from international operations totaled 2.539 billion euros over the same period, an increase of 7.3% in relation to 2014.

**9.2.5.2. GROSS MARGIN**

The group's gross margin amounted to 288 million euros, compared with -579 million euros in 2014.

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014
<b>Gross margin</b>	<b>(288)</b>	<b>(579)</b>	<b>+291</b>
<i>Percentage of consolidated sales</i>	<i>ns</i>	<i>ns</i>	<i>ns</i>

9.2.5.3. **RESEARCH AND DEVELOPPEMENT**

The group's Research and Development expenses represented 112 million euros in 2015, or 2.7% of consolidated revenue. This indicator is down compared with 2014, when they totaled 134 million euros, or 3.4% of revenue, due to greater selectivity in R&D programs.

9.2.5.4. **MARKETING AND SALES, GENERAL AND ADMINISTRATIVE EXPENSES**

The group's marketing, sales, general and administrative expenses totaled 216 million euros in 2015, down from 272 million euros in 2014.

In particular, general and administrative expenses totaled 165 million euros in 2015, in contrast to 213 million euros in 2014. In terms of the ratio to revenue for the period, they fell from 5.4% to 3.9%, reflecting cost reductions efforts connected with the performance plan.

9.2.5.5. **OTHER OPERATING INCOME AND EXPENSES**

Other operating income and expenses represented a net expense of 772 million euros in 2015, compared with a net expense of 1.129 billion euros in 2014. This

change is explained by the lower amounts for impairment of property, plant and equipment and intangible assets and for goodwill impairment.

Goodwill impairment in 2014 and 2015 is described in Note 10 to the consolidated financial statements. Impairment of intangible assets and property, plant and equipment in 2014 and 2015 is described in Notes 11 and 12 respectively to the consolidated financial statements.

9.2.5.6. **OPERATING INCOME**

The group had an operating loss of 1.388 billion euros in 2015, compared with a loss of 2.115 billion euros in 2014. In 2015, it was impacted by the recognition of exceptional items totaling 1.9 billion euros, compared with 2.1 billion euros in 2014, particularly an additional provision for the Cigéo project, an additional loss at completion for the Olkiluoto 3 EPR, and a provision for restructuring connected with social measures undertaken for the entities concerned of New AREVA.

9.2.5.7. **NET FINANCIAL INCOME**

The net financial loss of 313 million euros in 2015 was down slightly compared with the previous period (-299 million euros in 2014).

<i>(in millions of euros)</i>	2015	2014
<b>Net borrowing costs [(expense)/ income]</b>	<b>(185)</b>	<b>(185)</b>
<b>Other financial income and expenses</b>	<b>(129)</b>	<b>(115)</b>
Of which share related to end-of-lifecycle operations	122	30
Of which share not related to end-of-lifecycle operations	(250)	(145)
<b>NET FINANCIAL INCOME</b>	<b>(313)</b>	<b>(299)</b>

9.2.5.8. **INCOME TAX**

The net tax expense reached -124 million euros in 2015, compared with a net tax expense of -739 million euros in 2014, which included a write-down of previously recognized deferred tax assets (in the amount of 600 million euros).

9.2.5.10. **MINORITY INTEREST**

In 2015, minority interests in the group's net income represented 2 million euros, as contrasted with -12 million euros in 2014. This share mainly includes the contribution of minority shareholders in the mining and enrichment businesses.

9.2.5.9. **SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES**

The share in net income of joint ventures and associates was -21 million euros in 2015, compared with -14 million euros in 2014.

9.2.5.11. **NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT**

The net loss attributable to owners of the parent was 2.038 billion euros in 2015, compared with a loss of 4.833 billion euros in 2014.

The net loss after tax of operations sold, discontinued or held for sale in the amount of 190 million euros in 2015, compared with a loss of 1.678 billion euros in 2014, is broken down as follows:

- The net loss of AREVA NP (excluding the OL3 contract) amounted to 20 million euros, compared with a loss of 930 million euros in 2014. It was impacted by restructuring costs (including provisions) in the amount of 184 million euros and by a provision for losses at completion on an export contract in the amount of 41 million euros. An additional provision for losses at completion on a modernization contract in the amount of 155 million euros had been taken in 2014, along with write-downs of capitalized R&D expenses in the amount of 362 million euros and a write-down of previously recognized deferred tax assets in the amount of 338 million euros;

<i>(in millions of euros)</i>	2015	2014
ETC	4	(17)
Adwen	(26)	-
Other	1	3
<b>TOTAL</b>	<b>(21)</b>	<b>(14)</b>

- The net loss in the Wind Energy and Solar Energy operations totaled 296 million euros, compared with a loss of 642 million euros last year. This change is due to a reduction of impairment and provisions over the period:
  - in the Wind Energy operations, income was affected by 216 million euros of provisions for additional losses at completion and warranties concerning projects in execution or already executed when Adwen was created;
  - in the Solar Energy operations, net income was impacted by previously underlying currency translation differences in the amount of 78 million euros imposed by the termination of the operations. The agreement signed on January 16 to transfer the solar field built in Rajasthan, India, in as-is condition to the customer effectively ended AREVA's operational involvement in its solar operations.

- The net loss of the Nuclear Measurements and Propulsion and Research Reactors operations was 126 million euros, compared with a loss of 106 million euros in 2014, which had been impacted by the recognition of a provision for contingencies on the Jules Horowitz Reactor construction project.

#### 9.2.5.12. COMPREHENSIVE INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT

Comprehensive income attributable to owners of the parent was -1.825 billion euros in 2015, compared with -5.155 billion euros in 2014. This change is primarily due to the improvement in net income described above.

### 9.2.6. CASH FLOW

#### 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>	2015
Reported net debt at beginning of period (December 31, 2014)	(5,809)
Operating cash flow	297
Cash flow from end-of-lifecycle operations	(147)
Cash flow from financing activities	(309)
Cash flow net of company operations sold, discontinued or held for sale	(181)
Income tax paid	(140)
Impact of the application of IFRS 5	108
Impact of currency translation	(70)
Other items	(73)
<b>At December 31, 2015</b>	
<b>(NET DEBT)/ NET CASH AT THE END OF THE PERIOD (INCLUDING PUT OPTIONS OF MINORITY INTERESTS)</b>	<b>(6,323)</b>
<b>CHANGE IN NET DEBT IN 2015</b>	<b>- 514</b>

The change in net debt for the year ended December 31, 2015 thus amounted to -514 million euros, compared with -1.340 billion euros in 2014.

Net cash flow from company operations amounted to -590 million euros in 2015, compared with -1.282 billion euros in 2014. This amount consists mainly of the following items:

- net cash flow from company operations that were sold, discontinued or held for sale (AREVA NP excluding the OL3 project, Canberra, AREVA TA, Wind Energy and Solar Energy) in the amount of -181 million euros;
- cash from financing activities in the amount of -309 million euros;
- cash related to end-of-lifecycle operations in the amount of -147 million euros;
- dividends paid to minority interests of -132 million euros;
- tax disbursements of -140 million euros;
- partly offset by positive operating cash flow in the amount of 297 million euros.

## 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 2015.

<i>(in millions of euros)</i>	Operating	End-of-lifecycle operations <sup>(1)</sup>	Other <sup>(2)</sup>	Total
EBITDA (i)	685			
Income from the sale of non-current operating assets and other non-cash operating items (ii)	(2)			
<b>Cash flow from operations after interest and taxes (i + ii)</b>	<b>682</b>	<b>(122)</b>	<b>(521)</b>	<b>40</b>
Change in working capital requirement (iii)	246	-	76	322
<b>Net cash flow from operating activities (i + ii + iii)</b>	<b>928</b>	<b>(122)</b>	<b>(444)</b>	<b>362</b>
Cash from (used in) investing activities, net of disposals (iv)	(631)	(25)	(51)	(708)
Net cash from (used in) financing activities (v)	-	-	(825)	(825)
Impact of changes in consolidation scope, rates and securities held for trading (vi)	-	-	29	29
Net cash generated by operations sold, discontinued or held for sale (vii)	-	-	331	331
<b>Cash flow (i + ii + iii + iv + v + vi + vii)</b>	<b>297</b>	<b>(147)</b>	<b>(960)</b>	<b>(811)</b>

(1) Includes expenses for end-of-life-cycle operations incurred on-site and for final waste disposal, flows relating to the financial asset portfolio earmarked for end-of-life-cycle operations, and flows resulting from the signature of agreements with third parties for the funding by such parties of a share of end-of-life-cycle operations.

(2) That is, non-operating flows not relating to end-of-life-cycle operations and primarily corresponding to financing flows, including exceptional flows relating to external growth operations, dividends paid, and tax flows.

## 9.2.6.3. OPERATING CASH FLOW

**2015 AND 2014**

	EBITDA		Change in operating working capital requirement (WCR)		Net operating Capex		Reported operating cash flow	
<i>(in millions of euros)</i>	2015	2014	2015	2014	2015	2014	2015	2014
Mining	604	451	(63)	(29)	(184)	(440)	351	(14)
Front End	389	245	(197)	(62)	(272)	(371)	(78)	(189)
Back End	315	232	300	25	(165)	(142)	450	114
Corporate and other operations	(624)	(457)	207	(8)	(10)	(37)	(425)	(490)
<b>TOTAL GROUP</b>	<b>685</b>	<b>471</b>	<b>246</b>	<b>(76)</b>	<b>(631)</b>	<b>(991)</b>	<b>297</b>	<b>(579)</b>

**EARNINGS BEFORE INCOME TAX, DEPRECIATION AND AMORTIZATION (EBITDA)**

EBITDA rose in relation to 2014, going from 471 million euros in 2014 to 685 million euros in 2015.

**CHANGE IN OPERATING WORKING CAPITAL REQUIREMENT (WCR)**

The change in operating WCR was strongly positive, reaching 246 million euros in 2015 compared with -76 million euros in 2014 (+322 million euros), which is not a normative level. This reflects in particular:

- a customer payment in the Back End settling previous services;
- a positive change in WCR on the OL3 project connected with the acceleration of work;
- cash optimization actions taken at the group level (factoring transactions, monetization of tax credit receivables for research and employment competitiveness, strengthened cash management and implementation of the competitiveness plan) whose impact may be maintained but not renewed;
- offset in part by increased inventories in the Front End, destined to recur in the future due to the industrial transition at Tricastin.

**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>	2015	2014	Change 2015/2014
Cash flow from operations before interest and taxes	356	181	+175
Interest expense and taxes paid	(316)	(273)	-43
<b>Cash flow from operations after interest and taxes</b>	<b>40</b>	<b>(92)</b>	<b>+132</b>
Change in working capital requirement	322	56	+266
<b>Cash from operating activities</b>	<b>362</b>	<b>(36)</b>	<b>+398</b>
Cash used in investing activities	(708)	(889)	+181
Cash from (used in) financing activities	(825)	116	-941
<i>Changes in securities held for sale</i>	35	(2)	+37
<i>Change in Consolidated group, foreign exchange adjustments, etc.</i>	(6)	44	-50
Cash from operations sold, discontinued or held for sale	331	740	-409
<b>INCREASE/(DECREASE) IN NET CASH</b>	<b>(811)</b>	<b>(26)</b>	<b>-785</b>
Net cash at the beginning of the period	1,556	1,582	-26
<b>NET CASH AT THE END OF THE YEAR</b>	<b>745</b>	<b>1,556</b>	<b>-811</b>

**CASH FLOW FROM OPERATING ACTIVITIES**

Net cash from operating activities went from -36 million euros in 2014 to 362 million euros in 2015. This increase reflects the combined improvement in cash provided by operations and in the change in the working capital requirement.

**CASH USED IN INVESTING ACTIVITIES**

Net cash from investing activities amounted to -708 million euros in 2015 compared with -889 million euros in 2014, connected with the maturity of the principal strategic investment projects in progress (Georges Besse II and Cigar Lake in particular).

**NET OPERATING CAPEX**

The group's net operating Capex totaled 631 million euros in 2015, compared with 991 million euros in 2014. This decrease of 359 million euros is due in particular to the startup of the Cigar Lake mine in Canada, the mothballing of the Imouraren mining project in Niger, and the reduction of capital expenditure on the Georges Besse II plant, which is nearing completion, having reached 97% of its installed capacity at the end of 2015.

**OPERATING CASH FLOW**

Operating cash flow rose 876 million euros in relation to 2014 (297 million euros in 2015 versus -579 million euros in 2014).

**9.2.6.4. CASH FLOWS RELATED TO END-OF-LIFECYCLE OPERATIONS**

In 2015, cash flows for end-of-lifecycle operations totaled -147 million euros, compared with 12 million euros in 2014.

**CASH PROVIDED BY FINANCING ACTIVITIES**

Cash provided by financing activities totaled -825 million euros in 2015, a significant deterioration in comparison with 2014 (116 million euros), when two major financing transactions were completed.

**9.2.7. BALANCE SHEET ITEMS****CONDENSED BALANCE SHEET**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
<b>Assets</b>		
Net goodwill	1,272	3,667
Net property, plant and equipment and intangible assets	9,290	10,986
End-of-lifecycle assets (third party share)	178	188
Assets earmarked for end-of-lifecycle operations	6,122	6,015
Investments in joint ventures and associates	100	143
Other non-current assets	573	273
Deferred taxes (assets – liabilities)	112	370
Operating working capital requirement	(2,718)	(3,133)
Assets of discontinued operations	7,076	375
<b>Shareholders' equity and liabilities</b>		
Equity attributable to owners of the parent	(2,516)	(691)
Minority interests	235	447
Provisions for end-of-lifecycle operations (AREVA share)	6,743	6,797
Provisions for end-of-lifecycle operations (third party share)	178	188
Other current and non-current provisions	5,683	5,975
Net borrowings	6,323	5,809
Liabilities of discontinued operations	5,320	392
Other assets and liabilities	39	(31)
<b>TOTAL – CONDENSED BALANCE SHEET</b>	<b>22,005</b>	<b>18,885</b>

**9.2.7.1. NON CURRENT ASSETS****Net goodwill**

Net goodwill went from 3.667 billion euros at December 31, 2014 to 1.272 billion euros at December 31, 2015, a net decrease of 2.395 billion euros, mainly attributable to the adoption of IFRS 5 for new operations, in particular those of AREVA NP. In addition, the goodwill of the Bioenergy operations was written down in full in 2015, in the amount of 26 million euros.

**Net property, plant and equipment and intangible assets**

Property, plant and equipment (PP&E) and intangible assets went from 10.986 billion euros at December 31, 2014 to 9.290 billion euros at December 31, 2015, a net decrease of 1.696 billion euros.

**Other non-current assets**

"Other non-current assets" went from 273 million euros in 2014 to 573 million euros in 2015, essentially due to an increase in loans to associates, including in particular a shareholder loan granted to Adwen in the amount of 227 million euros.

**9.2.7.2. OPERATING WORKING CAPITAL REQUIREMENT**

The group's operating working capital requirement (operating WCR) was negative (resource), at -2.718 billion euros at December 31, 2015, compared with -3.133 billion euros a year earlier.

**9.2.7.3. NET CASH DEBT**

The group's net financial debt totaled 6.323 billion euros at December 31, 2015, compared with 5.809 billion euros at December 31, 2014. The increase in net debt is mainly attributable to negative net cash flow from operating activities (-590 million euros).

**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>	2015	2014	Change 2015/2014
<b>Net cash per statement of cash flows</b>	<b>745</b>	<b>1,556</b>	<b>-811</b>
Short-term bank facilities and non-trade current accounts (credit balances)	91	122	-31
<b>Net cash from (used in) operations held for sale</b>	<b>(32)</b>	<b>(9)</b>	<b>+41</b>
Financial instruments and margin calls	217	0	+217
Borrowings	(7,344)	(7,494)	+150
<b>NET CASH (DEBT)</b>	<b>(6,323)</b>	<b>(5,809)</b>	<b>-514</b>

**SCHEDULE OF BORROWINGS**

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014
Interest-bearing advances from customers	96	93	+3
Borrowings from lending institutions and commercial paper	894	1,259	-365
Bond issues	5,974	5,994	-20
Short-term bank facilities and other credit balances	91	122	-31
Financial derivatives	235	5	+230
Other financial liabilities (including finance lease obligations)	55	22	+33
<b>TOTAL BORROWINGS</b>	<b>7,344</b>	<b>7,494</b>	<b>-150</b>

**9.2.7.4. EQUITY**

Equity attributable to owners of the parent totaled -2.516 billion euros at December 31, 2015, compared with -691 million euros at December 31, 2014. This change mainly reflects the effect of comprehensive income attributable to owners of the parent for 2015 in the amount of -1.825 billion euros. The group did not pay dividends to its shareholders in 2015 for 2014.

**9.2.7.5. ASSETS AND PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS**

The change in the balance sheet from December 31, 2014 to December 31, 2015 with regard to assets and liabilities for end-of-lifecycle operations is summarized in the table below.

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>Assets</b>		
<b>End-of-lifecycle assets</b>	<b>500</b>	<b>533</b>
AREVA share (to be amortized in future years)	322	345
Third-party share	178	188
<b>Assets earmarked for end-of-lifecycle operations</b>	<b>6,122</b>	<b>6,015</b>
<b>Shareholders' equity and liabilities</b>		
<b>Provisions for end-of-lifecycle operations</b>	<b>6,921</b>	<b>6,985</b>
Provisions to be funded by AREVA	6,743	6,797
Provisions to be funded by third parties	178	188

At December 31, 2015, earmarked assets covered 95% of the provisions for end-of-lifecycle operations.

The change in assets and provisions for end-of-lifecycle operations is described in Note 13 to the consolidated financial statements

## 9.2.7.6. CAPITAL EMPLOYED AND RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)

Given the major change in scope of consolidation between 2014 and 2015, capital employed and ROACE at December 31, 2015 was not significant. The data reported at December 31, 2014 are presented hereunder for the record.

**CAPITAL EMPLOYED**

The following table shows the determination of average capital employed by year:

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014 reported
Net intangible assets	NA	2,266
Goodwill	NA	3,667
Net property, plant and equipment	NA	8,719
Prepayments and borrowings funding non-current assets	NA	(1,293)
Operating working capital requirements, excluding advances to fund non-current assets	NA	(1,830)
Provisions for contingencies and losses	NA	(5,965)
<b>Total capital employed</b>	<b>NA</b>	<b>5,564</b>
<b>AVERAGE CAPITAL EMPLOYED OVER THE PERIOD</b>	<b>NA</b>	<b>6,611</b>

Note: The method used takes into account a definition of capital employed after deduction of all provisions for contingencies and losses.

**RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)**

The following table presents changes in the group's ROACE by year:

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014 reported
Average capital employed	NA	6,611
Net operating income	NA	(1,761)
ROACE	NA	-26.6%

## 9.2.8. BUSINESS REVIEW

## 9.2.8.1. MINING

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014	Change 2015/2014 like for like
<b>Backlog</b>	<b>9,115</b>	<b>9,539</b>	<b>-4.4%</b>	<b>-</b>
<b>Contribution to consolidated revenue</b>	<b>1,447</b>	<b>1,297</b>	<b>+11.6%</b>	<b>+0.4%</b>
<b>EBITDA</b>	<b>604</b>	<b>451</b>	<b>+33.8%</b>	<b>-</b>
<i>Percentage of contribution to consolidated revenue</i>	<i>41.7%</i>	<i>34.8%</i>	<i>6.9 pts</i>	<i>-</i>
<b>Operating income</b>	<b>183</b>	<b>(73)</b>	<b>+350.3%</b>	<b>-</b>

**2015 performance**

The Mining business had 9.115 billion euros in backlog at December 31, 2015.

Mining revenue amounted to 1.447 billion euros at December 31, 2015, an increase of 11.6% in relation to 2014 (+0.4% like for like). This change was chiefly due to a positive foreign exchange impact of 144 million euros over the period, the growth of volumes sold (+3.9%) having been offset by the slight downturn in the average contract sales price for uranium.

EBITDA in Mining increased, reaching 604 million euros in 2015 compared with 451 million euros in 2014 due to a more favorable resource production cost (production mix) over the period and to the impacts of the competitiveness plan.

Operating income in Mining totaled 183 million euros, compared with a loss of 73 million euros in 2014, an increase of 256 million euros. It was affected by impairment in the amount of 194 million euros taken on certain dedicated assets

of the Imouraren mine in Niger, which will start up when uranium market conditions permit. In 2014, operating income had been impacted by a partial write-down of the Mining CGU goodwill in the amount of 200 million euros and by write-downs of Somair and Trekkopje assets in the amount of 100 million euros.

#### 9.2.8.2. FRONT-END

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014	Change 2015/2014 like for like
<b>Backlog</b>	<b>10,341</b>	<b>12,496</b>	<b>-17.2%</b>	-
<b>Contribution to consolidated revenue</b>	<b>1,097</b>	<b>988</b>	<b>+11.1%</b>	<b>+8.0%</b>
<b>EBITDA</b>	<b>389</b>	<b>245</b>	<b>+59.2%</b>	-
<i>Percentage of contribution to consolidated revenue</i>	<i>35.5%</i>	<i>24.8%</i>	<i>+10.7 pts</i>	-
<b>Operating income</b>	<b>101</b>	<b>(497)</b>	<b>+120.2%</b>	-

#### 2015 performance

The Front End had 10.341 billion euros in backlog at December 31, 2015, a reduction of 2.155 billion euros in relation to December 31, 2014. In fact, despite a significant order uptake in the amount of 604 million euros during the year, corrections were made to the backlog for quantities to be taken by customers in consequence of the downturn in market indicators.

Front End revenue totaled 1.097 billion euros, an increase of 11.1% year on year (+8.0% like for like). This change is due to an increase in enrichment volumes and  $U_3O_8/UF_6$  sold internationally. Foreign exchange had a positive impact of 28 million euros over the period.

EBITDA in the Front End was 389 million euros in 2015, compared with 245 million euros in 2014. This strong upturn is explained by higher production volumes, particularly in the enrichment operations, together with cost reductions connected with the competitiveness plan launched at the beginning of the year.

Operating income in the Front End totaled 101 million euros, compared with a loss of 497 million euros in 2014, an increase of 598 million euros. In 2014, it included impairment in the amount of 599 million euros for the Comurhex II project. In 2015, operating income was impacted by write-downs of inventories and by provisions for contingencies in the amount of 198 million euros connected with the decline of market indicators over the period.

#### 9.2.8.3. BACK-END

<i>(in millions of euros)</i>	2015	2014	Change 2015/2014	Change 2015/2014 like for like
<b>Backlog</b>	<b>9,157</b>	<b>9,665</b>	<b>-5.3%</b>	-
<b>Contribution to consolidated revenue</b>	<b>1,593</b>	<b>1,531</b>	<b>+4.0%</b>	<b>+1.2%</b>
Recycling	815	857	-4.9%	-4.9%
Dismantling & Services	325	306	+6.3%	+6.3%
Nuclear Logistics	288	247	+16.5%	+5.9%
International Projects	164	121	+35.5%	+18.6%
<b>EBITDA</b>	<b>315</b>	<b>232</b>	<b>+35.8%</b>	-
<i>Percentage of contribution to consolidated revenue</i>	<i>19.8%</i>	<i>15.2%</i>	<i>4.6 pts</i>	-
<b>Operating income</b>	<b>(184)</b>	<b>(495)</b>	<b>+62.9%</b>	-

**2015 performance**

The Back End had 9.157 billion euros in backlog at December 31, 2015. The order uptake for the year was 1.227 billion euros.

Revenue in the Back End came to 1.593 billion euros, an increase of 4.0% in relation to 2014 (+1.2% like for like), due in particular to an upturn in the International Projects operations and to a positive foreign exchange impact of 42 million euros.

The Back End recorded EBITDA of 315 million euros, an increase compared with 2014 (232 million euros), due in particular to the results of the competitiveness plan.

The recorded an operating loss of 184 million euros in 2015, an improvement in comparison with 2014 (-495 million euros), which had reflected the temporary negative impact of the treatment and recycling agreement with EDF (105 million euros) and additional provisions for end-of-lifecycle obligations in the amount of 289 million euros. In 2015, it was affected in particular by an additional provision of 250 million euros for the Cigéo project, including an impact on operating income of 208 million euros after factoring in the order of January 15, 2016 from the Ministry of Ecology, Sustainable Development and Energy setting a target cost for that project of 25 billion euros at 2011 economic conditions.

9.2.8.4. **CORPORATE AND OTHER OPERATIONS<sup>(1)</sup>**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>	<b>Change 2015/2014</b>	<b>Change 2015/2014 like for like</b>
<b>Backlog</b>	<b>377</b>	<b>402</b>	<b>-6.4%</b>	<b>-</b>
<b>Contribution to consolidated revenue</b>	<b>62</b>	<b>137</b>	<b>-54.8%</b>	<b>-31.7%</b>
<b>EBITDA</b>	<b>(624)</b>	<b>(457)</b>	<b>-36.4%</b>	<b>-</b>
<b>Operating income</b>	<b>(1,488)</b>	<b>(1,050)</b>	<b>-41.7%</b>	<b>-</b>

**2015 performance**

Corporate and other operations had 377 million euros in backlog at December 31, 2015.

EBITDA in Corporate and other operations, which now includes the OL3 project, amounted to -624 million euros compared with -457 million euros in 2014. This change is explained by a higher level of activity on the Olkiluoto 3 EPR project, in accordance with the critical path defined in 2014. Over the course of 2015, important project milestones were met, most notably as concerns platform tests of the instrumentation and control systems and delivery of the cabinets, enabling on-site tests to start in the first half of 2016.

Corporate and other operations had an operating loss of 1.488 billion euros in 2015, compared with a loss of 1.050 billion euros in 2014, which had included an additional loss at completion for the OL3 project of 720 million euros as well as goodwill impairment in Bioenergy in the amount of 14 million euros.

In 2015, it was impacted by:

- an additional loss at completion of 905 million euros for the Olkiluoto 3 EPR. This additional loss reflects in particular (i) extra operating costs, (ii) increased costs and contingencies for the test phases, and (iii) the probable impact of discussions begun with the customer to jointly lay the foundations for cooperation necessary to the completion of the project and to the settlement of the dispute;
- a provision in the amount of 180 million euros related to estimated legal and financial restructuring costs;
- social restructuring costs (including provisions) of approximately 254 million euros, in particular for social measures taken in the entities of the continuing operations;
- impairment of goodwill and intangible assets in the amount of 34 million euros in Bioenergy.

(1) Includes the Corporate, AREVA Med and Bioenergy operations and the OL3 project.

## 9.3. EVENTS SUBSEQUENT TO YEAR-END CLOSING FOR 2015

In early January 2016, AREVA started to use confirmed lines of credit in the amount of 2.045 billion euros made available by its banking pool. The lines of credit now drawn represent 795 million euros maturing in 2017 and 1.250 billion euros maturing in January 2018.

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

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; the expenses relating to programs funded wholly or partly 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. All research and development costs, whether capitalized or expensed during the period, are combined to determine the group's total research and development expenditure.

Research and development expenses, excluding operations meeting the criteria set by IFRS 5 for classification as "operations sold, discontinued or held for sale" at December 31, 2015 and excluding mining research and mineral exploration, represented 77 million euros in 2015, 1.82% of the contribution to revenue. This indicator is down compared with 2014, when Research and Development expenses excluding mineral exploration and mining studies at constant consolidation scope were 97 million euros, or 2.45% of revenue.

(in millions of euros)	2015	Percentage of sales	2014 <sup>(1)</sup>	Percentage of sales
<b>Research and development recognized as expenses under gross margin, after RTC <sup>(2)</sup></b>	<b>112</b>	<b>2.66%</b>	<b>134</b>	<b>3.4%</b>
Of which expenses for mineral exploration and mining studies	35		38	
<b>Research and development recognized as expenses under gross margin, excluding expenses for mining studies and mineral exploration, after RTC <sup>(1)</sup></b>	<b>77</b>	<b>1.82%</b>	<b>97</b>	<b>2.45%</b>
CIR <sup>(2)</sup>	29		29	
<b>Research and development recognized as expenses under gross margin, excluding expenses for mining studies and mineral exploration, before RTC <sup>(1)</sup></b>	<b>106</b>	<b>2.52%</b>	<b>126</b>	<b>3.19%</b>
Capitalized research and development costs	40	0.95%	65	1.65%
<b>TOTAL</b>	<b>146</b>	<b>3.47%</b>	<b>192</b>	<b>4.85%</b>
<b>Number of registered patents</b>	<b>33</b>			

(1) Pursuant to IFRS 5, research and development expenses at December 31, 2014 were restated to present pro forma data at comparable consolidation scope at December 31, 2015.

(2) Research tax credit.

Taking into account capitalized development costs, the total Research and Development expenditure was 146 million euros in 2015, or 3.47% of revenue for the period, down from 2014, when it represented 4.85% of revenue.

This amount reflects continuing long-term projects, including:

- development and modernization of production capabilities in the front end of the cycle and the development of advanced fuel;
- launch 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, methods and products to support the 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);
- performance improvement in equipment manufacturing;
- 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.

In addition, the EPR reactor certification initiative in the United States was suspended, but could resume in the event of positive signs from the market.

### 11.1.2. OVERALL ORGANIZATION OF RESEARCH AND DEVELOPMENT

AREVA has a single Research and Development function shared by all subsidiaries. By functioning in integrated mode, the group is able to share best practices across all entities and boost the effectiveness of research and development in areas as wide-ranging as technology management, knowledge and expertise management, intellectual asset protection, innovation, and leadership of a portfolio of research and development projects. It also helps initiate and ultimately manage and fund projects at the corporate level when they serve several group subsidiaries or are longer term.

The R&D project portfolio is a key contributor to controlling operational performance, as it facilitates the management of investments, the allocation of resources, and planning. Management of the overall R&D project portfolio was redefined to meet the following goals:

- align the projects with the strategy defined by the group;
- rank the R&D projects to facilitate selection and decision-making;
- achieve efficient overall budget control and allocate resources based on priorities;
- provide a comprehensive view of the R&D project portfolio to facilitate internal and external communications.

R&D projects cover a broad spectrum of technological fields, from uranium ore extraction to renewable energy production. All R&D projects help to improve existing products, services and processes, or to create new ones.

#### AREVA'S INNOVATION INITIATIVE

##### InnovAction project

The internal "InnovAction" project relies on an extensive network of contacts within the operational and functional entities to achieve a common goal: "Transform our employees' innovative ideas into drivers for performance and differentiation, and to catalyze new activities for AREVA."

InnovAction is organized around five major goals:

- reinforce our culture of innovation;
- encourage employees to propose innovative ideas and help them to develop them;
- speed up the time-to-market for innovative technical and non-technical solutions to boost development and ensure business continuation;

- help develop disruptive technology solutions and new businesses for AREVA;
- strengthen AREVA's ties with external partners – laboratories, small businesses, start-ups, venture capital funds, etc. – to develop innovative solutions.

The project's main actions are to:

- involve our customers more in our innovation processes (e.g. customer workshops on unmet needs);
- create networks of employees engaged in innovation (network coordination, collaborative platforms, etc.);
- strengthen the processes for generating and capturing innovative ideas (training sessions, suggestion boxes, etc.);
- foster the incubation of ideas through to their implementation (business incubators);
- deploy tools to forge ties with external partners (AREVA Innovation PME, venture capital funds, etc.).

### Focus on the Open Innovation initiative, an AREVA portal for small and medium business innovation

The AREVA Innovation PME initiative seeks to foster collaborative innovation between AREVA and small and medium businesses and start-ups 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 small and medium businesses and start-ups that may be able to meet certain challenges facing AREVA and its customers. AREVA Innovation PME is built on a win-win approach for small and medium businesses and start-ups, 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 requirements for innovation. 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.

At the end of 2015, some 15 AREVA challenges were posted, more than 850 small and medium businesses registered on the dedicated portal and submitted more than 200 innovative solutions, and a hundred of them made the short list for evaluation. Some fifteen contracts were signed at the end of 2015 and areas of collaboration have already been identified, such as assistance for inspection and measurement in difficult-to-access areas using indoor drones, virtual-on-actual projection, an inflatable robotic arm, a miniature wireless sensor, etc. Another area of collaboration is in work planning and worker assistance with a contactless three-dimensional examination tool for complex shapes, a hybrid laser welding head, knowledge collection and transmission, connected neon and other innovations.

### Expertise

The AREVA Experts appointment campaign was conducted in 2015, as it is every two years.

The corps of AREVA experts representing the group's scientific and technical knowledge, whose importance will grow in the future, now has 1,105 members, 25 more than in 2013. In 2015, a total of 276 experts were appointed or promoted.

The experts are divided into 3 levels, depending on the influence they exert from their operating entity to the international scientific community, and into 14 areas of expertise covering most engineering sciences and techniques (materials, engineering calculations, biology, facility operations, etc.).

Today, AREVA has:

- 755 Level 1 experts;
- 318 Level 2 senior experts;
- 32 Level 3 fellows.

## 11.1.3. PARTNERSHIPS

AREVA is positioned as an international group with a solid base of operations on three major continents. Scientific and technical partnerships reflecting the group's international dimension will be a cornerstone of its continued growth.

The Research and Development Department works closely with the regional Research and Development Centers in France, Germany and the United States on the following main tasks:

- developing and ensuring long-term partnerships with major research organizations by finding the best external partners for the group's research and development projects, and drawing up cooperative programs;
- providing support for the group's internal research and development initiatives by identifying additional appropriate external partners;
- reviewing external research and development capabilities and the possibilities for participating in externally funded cooperative projects (government agencies, European Commission, etc.).

AREVA already has a broad network of partnerships with the world's leading 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, etc.);

- in Poland: the Warsaw University of Technology (WUT) together with EDF, the CEA and Andra;
- in Germany: the University of Zittau and the Karlsruhe, Rossendorf and Jülich research centers;
- in the United States: the Massachusetts Institute of Technology (MIT), the California Institute of Technology (CalTech), the Universities of Florida and Berkeley (Center for Advanced Engineering and Research), the Universities of Idaho, Texas and Virginia, and the Department of Energy's national laboratories (Sandia, Idaho, etc.);
- in China: Tsinghua University in Beijing and Xi'an Jiaotong University;
- in Russia: the Kurchatov, VNIINM and Khlopin research institutes;
- in Australia: the Ian Wark Research Institute and the University of South Australia;
- in India: IIT Bombay and the University of Jadavpur in Calcutta.

Via the CEA (representing the French parties), AREVA is a participant 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. AREVA is keenly interested in this initiative, alongside its French, European and international partners, especially as concerns fast spectrum reactors, which push the envelope of resource conservation. AREVA is participating in design studies and R&D for the Astrid fast neutron reactor under the agreement signed between France and Japan in May 2014.

### 11.1.4. FUTURE DIRECTIONS IN TECHNOLOGY

The group's research and development programs seek to develop competitive power generation technologies with low CO<sub>2</sub> emissions meeting our customers' requirements. The programs' main goals are to continuously improve nuclear safety, reduce capital costs and operating costs, and minimize environmental impacts. They include resources for responsible waste management, conservation of natural resources and the development of future generations of technologies in the nuclear energy field.

A summary of 2015 research and development projects and results is presented below.

#### R&D ACTIVITIES IN MINING

R&D in the mining operations covers the four key areas: 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 effort was also devoted to mineral operations based on 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 – byproducts of uranium ore – is another area for research.

#### Mineral exploration and outlook

AREVA continued its mineral exploration efforts in 2015. 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 accelerate development work near 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, Gabon and Australia.

##### Medium- and long-term outlook

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, Central Asia and Australia. These projects will be launched when the technical, economic and regulatory conditions are right.

#### R&D ACTIVITIES IN THE FRONT END FIELD

Research and development efforts for the Front End Business Group focus in particular on modernizing production plants in the conversion and enrichment operations to improve safety and productivity and reduce the environmental footprint of the processes, and on optimizing nuclear fuel performance.

#### Development and modernization of production resources in the front end of the fuel cycle

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 enhanced control 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 the new Comurhex II units continues. Experiments on volume reduction of effluents also began.

R&D in the field of conversion 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.

As part of the Enrichment Technology Company (ETC), the AREVA-Urenco joint venture, new improvements to the centrifugation enrichment technology are gradually being integrated into the plants.

#### Improving nuclear fuel performance

AREVA has ongoing, ambitious research and development programs to adapt its products to its customers' requirements in the areas of mechanical, thermal-hydraulic and thermo-mechanical performance up to high burnup levels. At the same time, the group continues to improve fuel reliability and to guarantee the highest level of safety. Research and development is being carried out to:

- adapt to changes in operating conditions, both for the cladding or structural materials (new alloys for better resistance to corrosion and deformation) and the fuel itself (advanced microstructures to reduce the release of fission gases at high burnups);
- develop new fuel assemblies, and in particular study new, more accident-tolerant fuel concepts;
- respond to questions from safety authorities about fuel performance in accidental situations, keeping in mind the changing post-Fukushima nuclear safety benchmarks;
- work with scientific partners, in particular the CEA, to improve the modeling of physical phenomena occurring in the fuel during irradiation, and to integrate 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 third irradiation cycle in the core of the Gundremmingen reactor in Germany (RWE), irradiation continues on other demonstration 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 power company in Sweden completed their third irradiation cycle in the Ringhals 3 reactor core;
- work to supply Gaia test assemblies to the 14ft EDF reactor at the end of 2017 (N4, 1,300 MWe) continued in 2015;
- rollout of the Gaia and Atrium™ 11 technologies in the United States began with the loading of demonstration assemblies by two utilities in the United States in 2015.

In a worldwide post-Fukushima environment of enhanced accident-tolerant fuel (EATF) development, AREVA is exploring potentially innovative solutions with its partners the CEA, DOE, EDF, EPRI and the operator of the Goesgen power plant in Switzerland.

## R&D ACTIVITIES IN THE REACTORS & SERVICES FIELD

### 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 finished 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. In partnership with EDF, this basis was used to define a version suited to the utility's requirements for fleet replacement, leading to the launch in early 2015 of the basic design for the new version, called the "EPR NM", which features certain simplifications (single containment, etc.). The certification process with the US Nuclear Regulatory Commission (NRC) has been suspended in view of the lack of market prospects in the United States. The procedure could resume if positive signs are received from the market.

#### Atmea1 reactor

AREVA is developing the Atmea1 reactor within the framework of Atmea, a joint venture established in 2007 by AREVA and Mitsubishi Heavy Industries (MHI). This 1,100 MWe pressurized water reactor (PWR) combines the know-how of both companies. Atmea1 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 in 2015, providing a model ready for construction in 2015 depending on construction prospects (see Sinop site in Turkey).

#### SMR (Small Modular Reactor)

AREVA 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. Potential sources of funding and partnerships for the development of this technology continue to be reviewed together with AREVA's customary partners.

Also noteworthy was AREVA's selection by NuScale Power in connection with its 50 MWe modular reactor project supported by the DOE to carry out a certain number of studies and tests in AREVA's technical centers and to design and supply the fuel for this reactor.

#### Research reactor

AREVA continued to set up its configuration program (nuclear safety configuration plan, 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.

#### 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 design studies for the nuclear island of the Generation IV demonstration reactor, Astrid (Advanced Sodium Technological Reactor for Industrial Demonstration). This is a sodium-cooled fast reactor (SFR) that will be used for technology and industrial demonstrations.

The second phase of the preliminary design of the Astrid reactor ended in late 2015 with the submittal of the preliminary design report and the nuclear safety design basis documents. 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 with JAEA, CEA, AREVA, Mitsubishi Heavy Industries (MHI) and its subsidiary MFBR. An extension to the agreement with the CEA was signed at the end of 2015 to continue cooperation on the basic design of Astrid over the 2016-2019 period, with a milestone for design basis validation set for the end of 2017.

#### High temperature reactor (HTR)

AREVA is validating its 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 industrial process heat and electricity. AREVA also continues to follow through with its commitments with regard to European HTR projects.

#### International Thermonuclear Experimental Reactor (ITER)

Following a contract awarded by the Iter organization, construction was started on a prototype module of the first Iter wall panel. The panel is a highly technical component made of beryllium tiles directly facing the plasma and therefore subjected to intense heat flow.

### Increasing the cost-competitiveness of our products and methods and matching them to operator requirements

AREVA continues to improve products and services for operators of all types of nuclear power plants (PWRs as well as BWRs, VVERs and CANDU reactors), particularly in the following areas:

- safety control and instrumentation systems (TELEPERM® XS), measurement and diagnostic products, safety-related sensors and backup electrical systems;
- services to operators to extend operating periods (diagnostics and demonstration of the service period of components and structures, component maintenance and replacement, 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 all types of reactor containment filters, hydrogen risk management, improved cooling safety for the core or the used fuel storage pools, new leak-proof systems for primary coolant pump seals, instrumentation and situation management tools, etc.); 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 performance, flexibility and load following, new products that give customers increased operational savings and performance as well as 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;
- development of new radiation monitoring systems (RMS), systems providing comprehensive control around the reactor designed to monitor effluents and to make power plant operation safer, continued development of Canberra's range of advanced radiological protection and nuclear measurement systems.

### Participating in advanced research programs

AREVA participates in different European projects or projects cofounded by the French national research agency ANR in the fields of safety enhancement (with IRSN) and assessment of the potential of innovative reactors with the French national scientific research center CNRS (molten salts, etc.), and it contributes to the development of nuclear generators for European solar system exploration missions with the European Space Agency and the French national space study center CNES.

AREVA's nuclear measurement subsidiary Canberra develops products and provides expertise by participating in major international research projects: detection and measurement of weak nuclear particle interaction to better understand the model of fundamental matter.

## R&D ACTIVITIES IN THE FRONT END FIELD

### Developing sustainable solutions for the back end of the fuel cycle

#### Supporting and adapting manufacturing and production facilities

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 for treatment and recycling facilities worldwide. Research and development programs are defined based on these facilities and operating experience from the daily operation of these plants, with the goal of continuously improving the platform's performance and flexibility.

Programs are in progress 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. In that frame of reference, R&D programs enabled new, faster and more efficient preventive rinsing procedures for head-end equipment at the La Hague plant which are now routinely implemented. Ongoing efforts seek to optimize rinsing operations in other facilities and to save time from the start.

Equipment and process design and development are making good progress, in particular to adapt the facilities to the treatment of new types of fuel (high-burnup UOx fuels, MOX fuels, fuels from research reactors, etc.). This technology development will enable AREVA to diversify its commercial offering and further broaden the range of products that may be treated.

Research also focuses 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.

A program to develop a new thermal treatment technology for long-lived waste continues in partnership with Andra and the CEA. The initial technology tests on a full-scale mockup were successful.

R&D also continues on the cold crucible technology in commercial operation at La Hague to ensure a fully optimized industrial tool and to broaden the range of solutions processed.

In addition, R&D is being carried out on the development of models, particularly in the field of vitrification, to optimize laboratory-scale and full-scale testing programs.

#### Improving used fuel shipping and storage

AREVA develops casks for the shipment of nuclear materials and waste. The development work keeps up 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<sup>®</sup>G3 is still under development and will eventually replace the current TN<sup>®</sup>12/13 shipping casks. These new casks will ship used fuel that has a higher burnup and a shorter cooling time, giving our customers greater flexibility.

To support the development of used fuel storage solutions, in particular in the United States, a new Extended Optimized Storage (EOS) canister is being developed. Its optimized design helps meet greater utility demand for disposal capacities.

These new product designs are based on the development and qualification of new materials and their use to fulfill the functions of containment, neutron and radiation protection, heat dissipation and protection against the risk of cask drops.

#### Proposing management solutions for nuclear facilities at the end of their operating lives – Cleanup, Dismantling and Decommissioning (D&D)

Research and development programs in this field seek solutions that will enhance nuclear and occupational safety or improve performance in every phase of a project, from initial characterization to facility decommissioning, whether those operations are carried out at AREVA's facilities or those of its customers. They are designed to gain a competitive advantage over strong competitors in this segment, in France and internationally.

They also seek to position AREVA in new businesses, in particular for the treatment of waste that is difficult to package and for which there is currently no disposal method, where a number of solutions for its stabilization, encapsulation, destruction, decontamination and recycling are being developed: mercury waste, asbestos waste, organic waste that cannot be processed in the Centraco incinerator, acidic waste, reagent waste, powdery waste, etc.

In the field of nuclear safety, tests of the all-stainless cleanable filtration unit continue, with the objective of finding a definitive solution to the fire hazard in ventilation systems during hot cutting. To limit bodily injuries such as repetitive strain injuries and operator fatigue, which constitute a risk for operating safety, assistance equipment was selected and will be tested in real conditions shortly.

In the investigation field, AREVA continues to industrialize its Manuela tool used to reconstruct coupled radiological and spatial maps. New investigation machines, both on land (modular Riana™ platform) and in the air (Dorica™ drone) were developed and delivered to the customer CEA at Marcoule.

Development work continues on solutions to manage contaminated soils, in particular radiological sorting and decontamination, with prospects in Japan (land around Fukushima), China and Belgium for soils contaminated with cesium or uranium. The knowledge and know-how acquired via R&D on mineral exchangers supported the positioning of the permeable reactive barriers solution proposed with a partner. The results drew Tepco's attention and could lead to a feasibility study for full-scale tests at the Fukushima site.

The integration of digital tools into operations related to the management of nuclear facilities at the end of their operating period or undergoing dismantling is an important area for improvement in the industrialization of these activities. Illustrations include the development of a product lifecycle management tool (PLM) to manage the configuration of the facilities undergoing dismantling, the use of touch tablets to monitor projects or to collect items of operating experience, and the development of tools to simulate the operation of equipment.

## CROSSCUTTING RESEARCH AND DEVELOPMENT ACTIVITIES

### Improving fuel and reactor design tools

AREVA puts considerable effort into 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 are designed to cover the state of the art in terms of knowledge on PWR and BWR extended validity ranges, to broaden the architectures for modular applications, and to develop the human-engineered graphical interfaces used. Such evolutions help to improve the accuracy of code-based predictions, reduce cask and reload design costs, and improve design quality. The ultimate goal of this research is to design and validate fuels and reactors that deliver even better performance.

### Understanding and forestalling aging

AREVA carries out large-scale research and development programs with the CEA and EDF to gain a better understanding of and greater control over the aging of equipment and materials in the reactor environment, where radiation, pressure, high temperatures and mechanical loads are factors. The end result will be more accurate predictions of materials capabilities and solutions for extending the operating period of reactors and reactor components that meet the needs of power generation companies.

## R&D ACTIVITIES IN THE RENEWABLES FIELD

The strategy followed since 2013 for the transformation and streamlining of the renewables businesses continued in 2015. Two approaches were selected, depending on the business:

- the most promising businesses continue, but through partnerships in order to share investments and benefit from the partners' expertise. This approach concerns the Wind Energy and Hydrogen Electrolysis businesses;
- the less promising businesses, or those for which the Business Group's competitive position is not sufficiently established, will be discontinued or sold upon the completion of ongoing projects, in compliance with AREVA's contractual commitments. This approach concerns the Solar Energy and Bioenergy businesses.

### Wind Energy

Final agreements for the creation of the Adwen joint venture and the closing of the transaction were signed on March 9, 2015. Adwen is held in equal shares by AREVA and Gamesa. By uniting their strengths, AREVA and Gamesa will enable the joint venture to become a leading player in the global offshore wind market while contributing to the development of this fast growing segment, in particular through expertise, innovation and investment in R&D to develop reliable and competitive technologies for the future.

Adwen is developing a comprehensive portfolio of products and services to provide solutions targeting the requirements of each project:

- the AD 8 MWe, an 8 MWe technology platform initiated by AREVA and developed by Adwen, will be mass-produced in 2018. With 1 GWe of projects now awarded and unrivaled energy production, this showcase product is destined to play a leading role in the market;
- a 5-MWe technology platform with two immediately available, interrelated products: the AD 5-135 and the AD 5-132 wind turbines. The AD 5-135 turbine, previously called the M5000-135, is the AREVA turbine for which the installed base of 650 MWe will soon rise to 1 GWe with the installation of the Wiking project in the Baltic Sea. The AD 5-132 turbine, a competitive turbine formerly called the G132 developed by Gamesa, rounds out the product portfolio;
- development of the AD 8-180 wind turbine is in the final phase involving a series of validation and testing stages, including a crucial stage that began in December 2015 for tests of the turbine drive system on the IWES Dynalab test bench in Bremerhaven, Germany. Installation of the first AD 8-180 prototype will begin in the summer of 2016 at the Smola site in Norway operated by Statkraft, the largest producer of renewable energies in Europe.

### Energy storage

On January 1, 2015, energy storage operations other than PEM electrolysis were transferred to AREVA's Research, Development and Innovation Department to speed up their development under joint technology programs. These activities relate to two main programs.

### Development of continuous flow battery technology

In 2014, AREVA Energy Storage launched a joint R&D development program with Schneider Electric and ENStorage to develop a new energy storage solution: the continuous flow battery. This technology combines hydrobromic acid and hydrogen to produce and store electricity. The prospects for technical performance, cost

reduction and market opportunities have been confirmed, and European financing was secured for the development of a 150-kW pilot.

System design, manufacturing of peripherals and containerization were carried out successfully throughout 2015. On-site delivery to the Port of Marseille-Fos, final assembly, testing and the start of energy storage cycles are planned for the first half of 2016.

#### **Ongoing development of fuel cells via partnerships**

The key objective of the Myrte project in Corsica is to design hydrogen-based energy storage to manage intermittent renewable energies and integrate them into the power grid. The project reached the final stage with the operation of the complete system in real operating conditions. Major results at the end of 2015 worthy of note are 6,300 cumulative hours of operation of the H<sub>2</sub> line, 43 MWh of electrical energy produced by the fuel cells injected into the power grid, and 4,000 kilograms of H<sub>2</sub> produced by the electrolyzers. In 2016, the installation's operation will continue for purposes of technical and economic optimization of this storage method.

As part of the HyResponse Project (2013-2016, 1.8 million euros) – a European training project on hydrogen risks for first responders (fire departments, industrial companies, etc.) – AREVA is designing and building a 2,500 m<sup>2</sup> operational training platform on land owned by the French national school of firefighter officers (ENSOSP). Finished in December 2015, the operational training platform will be used to train more than 70 first responders from 18 countries in 2016 using more

than 50 scenarios involving very high-pressure gaseous hydrogen (700, 350 and 200 bars) as well as natural gas for vehicles (200 bars) and liquefied petroleum gas (20 bars).

#### **R&D ACTIVITIES BY THE ENGINEERING & PROJECTS ORGANIZATION: SUPPORTING THE RESEARCH AND DEVELOPMENT ACTIVITIES OF AREVA'S BUSINESS GROUPS**

Engineering & Projects (E&P) is a key partner in the Business Groups' research and development programs. Specifically, E&P brings in the expertise and engineering skills needed in the phases that precede the industrial roll-out of processes and products resulting from the Business Groups' R&D: feasibility and preliminary studies for innovative installations, final development and qualification of simulation tools and of processes, products and equipment for use in AREVA's facilities or its customers' facilities, and operational support.

The Beaumont-Hague development and testing laboratory (HRB), an E&P technical center located near the La Hague recycling plant, houses the activities for 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/packaging processes (cementation, vitrification, drying, etc.), for AREVA's different Business Groups.

## **11.2. INTELLECTUAL PROPERTY**

Intellectual property, licenses, patents, trademarks and technical expertise in general play an important part in the group's daily operations and thus in the production and protection of AREVA 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 to negotiating successful technology transfer 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 8,000 patents derived from more than 1,300 inventions pertaining to the nuclear fuel cycle, nuclear reactors, renewable energies and related services. The group in its consolidation scope registered 33 new patents in 2015 (91 patents registered including operations held for sale).

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 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.

As the group's activities develop, it files for new trademarks.

The communication program undertaken to support and accompany the group's development is based on deployment of the AREVA trademarks  and .

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.

AREVA identifies its products and protects them with registered trademarks (e.g. the mark .

### 11.2.3. LEGAL ACTIVITIES

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In 2015, 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 protect its intellectual property rights in all agreements with third parties, particularly license agreements and technology transfer contracts, to optimize the management of its intellectual property and prevent unauthorized use.

To protect its industrial property rights, AREVA's policy is both proactive and reactive.

### 11.2.4. IN 2016

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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

AREVA anticipates net cash flow from company operations in 2016 in the range of -2.0 billion euros and -1.5 billion euros. This sharp decline is explained by the impact of the remedial measures taken, by expenses to be incurred on the large projects, and by the unfavorable change in WCR. This range takes into account the uncertainties related to operating contingencies and to the implementation of the contemplated capital structuring plans.

Not applicable.

# ADMINISTRATIVE, MANAGEMENT AND SUPERVISORY BODIES AND SENIOR MANAGEMENT

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On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance, composed of a Supervisory Board and an Executive Board, into a single structure with a Board of Directors. It also changed the company's articles of association to implement the new provisions of order no. 2014-948 of August 20, 2014 on governance and transactions involving the capital of publicly owned companies.

This section reports on the composition of the Board of Directors set up on January 8, 2015. Information on the composition of the Supervisory Board and of the Executive Board appears in the 2014 Reference Document (Section 14 and Appendix 1).

## 14.1. BOARD OF DIRECTORS

### 14.1.1. COMPOSITION OF THE BOARD OF DIRECTORS

Following the change of governance and in accordance with article 15 of the articles of association, the company is governed by a Board of Directors comprised of twelve members, including three members elected by company personnel, one director representing the French State appointed by ministerial order and two 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 of decree no. 2014-949 of August 20, 2014.

AREVA directors all have French nationality.

First name, last name, age, powers or duties exercised in the company	Terms in progress/principal duties exercised outside the company	Terms expired exercised outside the company during the last five years
<b>Directors appointed (or coopted <sup>(2)</sup>) by the General Meeting of Shareholders on January 8, 2015</b>		
<b>Philippe Varin</b> Age 63 Director Chairman of the Board of Directors Chairman of the Strategy and Investments Committee	<ul style="list-style-type: none"> <li>• Director of EDF <sup>(1)</sup>;</li> <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> </ul>	<ul style="list-style-type: none"> <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 <sup>(2)</sup></b> Age 61 Director Vice Chairman of the Board of Directors Member of the Strategy and Investments 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>Sophie Boissard</b> Age 45 Director Chairman of the Audit and Ethics Committee Member of the Nominating and Compensation Committee Member of the Ad Hoc Committee	<ul style="list-style-type: none"> <li>• CEO of the Korian Group <sup>(1)</sup> since 01.26.2016;</li> <li>• Director of Sanef;</li> <li>• Chairman of the ICF Habitat Group (SNCF) (term expired 01.25.2016);</li> <li>• Chairman of Espaces Ferroviaires (SNCF) (term expired 02.01.2016);</li> <li>• Director of eurostar International Limited (SNCF) (term expired 05.28.2016).</li> </ul>	<ul style="list-style-type: none"> <li>• General Manager in charge of organizing SNCF Immobilier;</li> <li>• Chairman of SNCF Participations;</li> <li>• Director of GIAT Industries;</li> <li>• Director of AREP;</li> <li>• Chairman and Chief Executive Officer of A2C;</li> <li>• Vice Chairman of the Union des Transports publics.</li> </ul>
<b>Claude Imauven</b> Age 58 Director Chairman of the Nominating and Compensation Committee Member of the Strategy and Investments Committee Member of the Ad Hoc Committee	<ul style="list-style-type: none"> <li>• Chief Operating Officer of Saint-Gobain (since 01.01.2016);</li> <li>• Director of Banque CIC Est;</li> <li>• Director of Artelia Holding SAS;</li> <li>• Chairman of the Board of Directors of the Institut Mines-Télécom (EPST) (since 02.15.2016);</li> <li>• Chairman of Saint-Gobain Matériaux de Construction SAS and Saint-Gobain Produits pour la Construction SAS (Saint-Gobain) (term expired 12.31.2015);</li> <li>• Director and Chairman of the Board of Directors of Saint-Gobain PAM (Saint-Gobain) (term expired 12.31.2015);</li> <li>• Director and Chairman of the Board of Directors of Saint-Gobain Isover (Saint-Gobain) (term expired 12.31.2015);</li> <li>• Member of the Supervisory Board and Chairman of Saint-Gobain Weber (Saint-Gobain) (term expired 12.31.2015).</li> </ul>	<ul style="list-style-type: none"> <li>• Chief Executive Officer and Director of BPB Limited;</li> <li>• Chairman of the Board of SG Rakennustuote Oy;</li> <li>• Director of Inversiones BPB Chile Ltda.</li> </ul>

(1) Publicly traded company.

(2) Mr. Daniel Verwaerde was appointed to the Board of Directors and named as its Vice Chairman on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to these functions on January 8, 2015.

First name, last name, age, powers or duties exercised in the company	Terms in progress/principal duties exercised outside the company	Terms expired exercised outside the company during the last five years
<b>Philippe Knoche</b> Age 47 Director Chief Executive Officer	<ul style="list-style-type: none"> <li>Chairman, Chief Executive Officer and director of AREVA NC (AREVA);</li> <li>Chairman of the Board of Directors of AREVA Mines (AREVA) (since 02.18.2016);</li> <li>Chairman of AREVA NP SAS (AREVA);</li> <li>Member of the Supervisory Board of AREVA GmbH (AREVA);</li> <li>Chairman of the Board of Canberra Industries Inc. (AREVA);</li> <li>Permanent representative of AREVA SA to the Board of Directors of AREVA TA (term expired 02.11.2016) (AREVA);</li> <li>Member of the Executive Board of AREVA (term expired 01.08.2015).</li> </ul>	<ul style="list-style-type: none"> <li>Chairman of the Board of Directors of AREVA Inc. (AREVA).</li> </ul>
<b>Christian Masset</b> Age 59 Director (proposed by the French State) Member of the Strategy and Investments Committee	<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 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 Board of the l'Institut du monde arabe (Arab World Institute);</li> <li>Director of Agence pour l'enseignement du français à l'étranger ;</li> <li>Director of France expertise international;</li> <li>Director of the Institut Français;</li> <li>Director of the Agence française de développement (French Development Agency);</li> <li>Director of the France-Israel Foundation;</li> </ul>
<b>Denis Morin</b> Age 60 Director (proposed by the French State) Member of the Audit and Ethics Committee	<ul style="list-style-type: none"> <li>Director of Budget at the French Ministry of Economy and Finance;</li> <li>Director of SNCF <sup>(1)</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Director of EDF.</li> </ul>

(1) Publicly traded company.

First name, last name, age, powers or duties exercised in the company	Terms in progress/principal duties exercised outside the company	Terms expired exercised outside the company during the last five years
<b>Pascale Sourisse</b> Age 53 Director Chairman of the Ad Hoc Committee Chairman of the End-of-Lifecycle Obligations Monitoring Committee Member of the Audit and Ethics Committee	<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 of Sitac SAS (formerly 181 Centelec SAS);</li> <li>• Member of the Board of Directors of the Institut Télécom;</li> <li>• Chairman and Chief Executive Officer of Thales 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 Thales UK Ltd. (United Kingdom);</li> <li>• Director of Thales Electronics Ltd. (United Kingdom);</li> <li>• Member of the Supervisory Board of Thales Nederland BV (Netherlands);</li> <li>• Director of Thales USA Inc. (USA);</li> <li>• Director of ADI Engineering &amp; Vehicles Pty Ltd (Australia);</li> <li>• Director of ADI Group Holdings Pty Ltd (Australia);</li> <li>• Director of ADI Group Pty Ltd (Australia);</li> <li>• Director of ADI Lithgow Pty Ltd (Australia);</li> <li>• Director of ADI Munitions Pty Ltd (Australia);</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, powers or duties exercised in the company	Terms in progress/principal duties exercised outside the company	Terms expired exercised outside the company during the last five years
<b>Director appointed by the French State by ministerial order of January 7, 2015</b>		
<b>Alexis Zajdenweber</b> Age 39 Director (representing the French State) Member of the Audit and Ethics Committee Member of the Strategy and Investments Committee Member of the End-of-Lifecycle Obligations Monitoring Committee Member of the Nominating and Compensation Committee	<ul style="list-style-type: none"> <li>Director of Eramet <sup>(1)</sup>;</li> <li>Member of the Supervisory Board of ERDF;</li> <li>Director of the French Geological Survey (BRGM).</li> </ul>	<ul style="list-style-type: none"> <li>Director of La Monnaie de Paris.</li> </ul>
<b>Directors representing the employees elected on October 31, 2014</b>		
<b>Françoise Pieri</b> Age 48 Director (representing the employees) Member of the Audit and Ethics Committee	<ul style="list-style-type: none"> <li>Integrated management system specialist (AREVA NC).</li> </ul>	<ul style="list-style-type: none"> <li>None.</li> </ul>
<b>Jean-Michel Lang</b> Age 53 Director (representing the employees) Member of the End-of-Lifecycle Obligations Monitoring Committee Member of the Nominating and Compensation Committee	<ul style="list-style-type: none"> <li>Expert to the head of the department that handles product quality deviations (AREVA NC).</li> </ul>	<ul style="list-style-type: none"> <li>Member of the Board of Directors of MELOX.</li> </ul>
<b>Odile Matte</b> Age 56 Director (representing the employees) Member of the Strategy and Investments Committee	<ul style="list-style-type: none"> <li>Project administrator at AREVA TA;</li> <li>Director elected by the employees of AREVA TA (AREVA);</li> <li>Managing Director of SCI Les Cèdres.</li> </ul>	<ul style="list-style-type: none"> <li>None.</li> </ul>

(1) Publicly traded company.

Pursuant to article 18 of the company's articles of association, the Board of Directors appointed Mr. Pascal Faure and the CEA, represented by Mr. Christophe Gégout, as censors <sup>(2)</sup> in order to assist the Board in exercising its duties and 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 company's general economic and financial control board. They may also attend meetings of committees reporting to the Board of Directors.

Mr. Pierre Charreton, General Counsel and Chief Administrative Officer of AREVA, served as Secretary of the Board of Directors. Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities & Finance, served as Deputy Secretary of the Board of Directors.

(2) Renewal on February 2, 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 a graduate of Polytechnique and of 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 Chevalier in the Ordre national du Mérite, Officier in the Ordre national de la Légion d'Honneur, and Commander of the British Empire.

He has chaired the Board of Directors of AREVA since January 8, 2015.

##### SOPHIE BOISSARD

Born July 11, 1970 in Paris, France, Mrs. Sophie Boissard is an alumna of École normale supérieure de Paris (1989) and a graduate of the Institut d'études politiques de Paris (1992) and of École nationale d'administration.

She occupied various positions in the public sector, at the Conseil d'État from 1996 to 2004 (reporting judge), at the Ministry of Labor and Employment as the Minister's Chief of Staff, in the office of the Prime Minister (Center for Strategic Analysis) and at the Ministry of Economy, Finance and Industry from 2007 to 2008 (member of the Minister's cabinet).

In 2008, Mrs. Sophie Boissard joined the Executive Committee of the SNCF group to create and develop Gares & Connexions, a business involving the management and development of train stations, then, in 2014, SNCF Immobilier, a division devoted to the development of property and land assets. She was also in charge, from 2012 to 2014, of strategy and development for the SNCF Group, where she focused in particular on diversification of the Group's operations, particularly internationally, strategic partnerships and innovation, and, in France, leadership for the plan to merge with RFF.

Mrs. Sophie Boissard is Chevalier in the Ordre national du Mérite.

Mrs. Sophie Boissard has been Chief Executive Officer of the Korian Group since January 26, 2016.

Mrs. Sophie Boissard was a member of the Supervisory Board of AREVA from 2011 to 2015.

She has been a member of 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, especially as part of the Minister's staff (Foreign 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 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 a graduate of École polytechnique, where he received a Master's of Science in Materials Science; he also holds a degree from 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 the AREVA group 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**

Born January 23, 1957 in Sète, France, Mr. Christian Masset is an alumnus of École nationale d'administration and a graduate of the Institut d'études politiques de Paris and of 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, in 1989, the Economic Affairs Directorate of the Ministry of Foreign Affairs in Paris. 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 Chevalier of the Ordre national de la Légion d'honneur and 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.

The Shareholders appointed him as a member of the Board of Directors on January 8, 2015 on the proposal of the French State.

**DENIS MORIN**

Born December 15, 1955 in Paris, France, Mr. Denis Morin is a graduate of École des hautes études commerciales de Paris (HEC) and of Institut d'Études Politiques de Paris and an alumnus of École nationale d'administration, "Solidarity" class.

He began his career at the Department of Budget in 1983, continuing there as Technical Advisor to the Minister Delegate of the Budget Michel Charasse in 1988 then as Deputy Chief of Staff to the Minister of the Budget Martin Malvy in 1992.

In 1993, he was appointed Under-director of Employment, Training and Social Security at the Department of the Budget.

From 1997 to 2000, he held the positions of Chief of Staff to Martine Aubry and Christian Sautter, of Deputy Chief of Staff to Dominique Strauss-Kahn and of Advisor to Elisabeth Guigou.

From 2001 to 2007, he joined the Cour des Comptes (Court of Audit) as Senior Auditor to the 6<sup>th</sup> Chamber in charge of social security.

From April 2007 to October 2009, he held the positions of deputy to the Delegate General of the Technical Center of Pension Funds (CTIP), Senior Auditor to the 1<sup>st</sup> chamber of the Cour des Comptes, and chargé de mission to the Secretary General of Social Ministries.

In October 2009, he became Director Elect and subsequently Director General of the Agence regional de santé (ARS, the regional health agency) in the Rhône-Alpes region.

In October 2011, he was named Section President to the first Chamber of the Cour des Comptes, and rapporteur-general of the Inter-chamber Group, in charge of public finances.

In October 2012, he was appointed Secretary General of the Social Ministries before becoming Chief of Staff for Madame Touraine.

Mr. Denis Morin has been Director of Budget at the French Ministry of Economy and Finance since November 27, 2013.

Mr. Denis Morin was appointed to the Board of Directors on January 8, 2015 by the Shareholders, on a proposal from the State.

**PASCALE SOURISSE**

Born March 7, 1962 in Nantes, France, Mrs. Pascale Sourisse is a graduate of École polytechnique and 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 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 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 École centrale of Paris and auditor of the 32<sup>nd</sup> 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 at École centrale of Paris since 1981, where he teaches numerical analysis, becoming Professor in 1991.

Mr. Daniel Verwaerde is Officier in the Ordre national de la Légion d'honneur and 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 CE 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 Zajdenweber is a graduate of the Institut d'études politiques de Paris. He is an alumnus of 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 did master's-level accounting and finance studies.

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 Socrat.

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

A single change was made to the composition of the Board of Directors in 2015, which was the appointment of Mr. Daniel Verwaerde to the Board of Directors and to the position of Vice Chairman of the Board on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to that function on January 8, 2015.

First name, last name, age, powers or duties exercised in the company	Terms in progress/principal duties exercised outside the company	Terms expired exercised outside the company during the last five years
<b>Bernard Bigot</b> Age 65 From January 8, 2015 to February 2, 2015: Director Vice Chairman of the Board of Directors	<ul style="list-style-type: none"> <li>• Director-General of Iter Organization (since 03.05.2015);</li> <li>• Chairman of the Fondation de la Maison de la chimie ;</li> <li>• Chairman of the Université de Lyon Foundation (since 12.08.2015);</li> <li>• Vice Chairman of the Fondation Jean Dausset – Centre d'études du polymorphisme humain ;</li> <li>• Vice Chairman of the Association Laboratoires des énergies du Sud Rhône-Alpes ;</li> <li>• Chairman of the Association de l'École supérieure de chimie électronique de Lyon (CPE) and of its Board of Directors;</li> <li>• Chairman of the Board of Directors of École nationale supérieure d'électricité et de mécanique/Université de Lorraine - School of Energy;</li> <li>• Director representing the French State, on behalf of the minister of Industry, to the Board of Directors of AREVA NC (AREVA) (term expired 03.16.2015).</li> </ul>	<ul style="list-style-type: none"> <li>• Chairman of the Board of Directors of the Institut national de recherche pédagogique.</li> </ul>

## 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 and 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.

The committee examines and discusses all matters pertaining to the group's operations and strategy. In principle, it meets each week.

As of the date of filing of this Reference Document, the composition of the Executive Committee is as follows:

Name	Title
Rémy Autebert	Senior Executive Vice President, Asia Region, Executive Director for the reorganization of the international commercial function
Eric Chassard	Senior Executive Vice President, Engineering & Projects
Anne-Marie Choho	Senior Executive Vice President of Operations Support, responsible for the corporate transformation project
Guillaume Dureau	Senior Executive Vice President, Back End Business Group
Bernard Fontana	Chief Operating Officer of AREVA NP and Senior Executive Vice President of the Reactors & Services Business Group
Stéphane Lhopiteau	Chief Financial Officer
François Nogué	Senior Executive Vice President, Human Resources
Olivier Wantz	Senior Executive Vice President, Mining and Front End Business Groups

Magali Smets is Secretary of the Executive Committee.

## 14.3. LEGAL INFORMATION, CONFLICTS OF INTEREST AND SERVICE CONTRACTS

As of the date of this Reference Document and to the best of AREVA's knowledge:

- there are no potential conflicts of interest concerning AREVA between the duties of the members of the Board of Directors and the company's senior management on the one hand, and their private interests or other duties on the other. The Board of Directors' rules of procedure include a procedure for preventing conflicts of interest applicable to all directors.

In addition:

- the company has set up a specific procedure to prevent and settle situations which might generate conflicts of interest for the Chairman of the Board of Directors due to his service as a director on the Board of Directors of EDF;
- as part of the negotiations between EDF and AREVA concerning the proposed strategic and industrial partnership between the two groups, the Chairman of the Board of Directors decided to suspend his participation in the EDF Board of Directors in order to devote himself to his duties as Chairman of the Board of Directors of AREVA;
- Mr. Christian Masset, who also sits on the EDF Board of Directors, indicated in a letter addressed to the Chairman of the AREVA Board of Directors that he would take the customary measures to avoid any potential conflict of interest when the AREVA Board and its committees deal with relations between AREVA and EDF.

- 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 professional organizations officially appointed. 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, nor from participating in the management or business operations of an issuer;
- no member of the Board of Directors or senior management has been retained as a corporate officer or board member of a major shareholder, customer or supplier pursuant to an arrangement or an agreement;
- no service agreement contemplating any benefit has been concluded 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 SHARES CARRIED OUT BY OFFICERS

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 AMF and to the company <sup>(2)</sup> within five days of completion of the trade when the total amount of transactions carried out over the calendar year exceeds 5,000 euros. In addition, the AREVA Board of Directors must report above-mentioned transactions declared in the last financial year to the

shareholders in its annual report. No transaction on AREVA shares was declared to the AMF or to the company during the 2015 financial year by members of the Board of Directors or of the company's Executive Committee.

(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.

# COMPENSATION AND BENEFITS

15

<b>15.1. COMPENSATION OF OFFICERS AND DIRECTORS</b>	<b>139</b>	<b>15.2. STOCK OWNED BY OFFICERS AND DIRECTORS</b>	<b>148</b>
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On January 8, 2015, AREVA's General Meeting of shareholders decided to change the company's governance from one of a Supervisory Board and an Executive Board into one with a single Board of Directors (See Section 14 and Appendix 1 of this Reference Document).

## 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 AREVA defers (see Appendix 1 of this Reference Document).

Until the change of governance, the Supervisory Board set compensation for the Chairman and the members of the Executive Board on the proposal of the Nominating and Compensation Committee, and the shareholders set the amount of attendance fees paid to and subsequently divided among the members of the Supervisory Board.

Since the change of governance, the Board of Directors sets the compensation for the Chairman and the Chief Executive Officer on the proposal of the Nominating and Compensation Committee, and the shareholders set the amount of attendance fees paid to and subsequently divided among members of the Board of Directors.

The components of compensation are subject to the approval of the Minister of Economy pursuant to the decree no. 53-707 of August 9, 1953, as amended, on State control of national public sector companies and certain organizations serving an economic or social purpose.

In addition, as provided in article 3 of the decree, the gross annual compensation of officers and directors is capped at 450,000 euros.

In accordance with applicable regulations, the tables below include the compensation and benefits of any kind paid to each of the officers and directors in 2014 and 2015 by AREVA. No compensation or benefits are paid to said officers and directors by companies controlled by AREVA.

### 15.1.1. COMPENSATION OF MEMBERS OF THE EXECUTIVE BOARD UNTIL THE CHANGE OF GOVERNANCE

Until the change of governance, the compensation of the members of the Executive Board had consisted of a fixed component and, for some members, a variable component.

In 2015, the gross fixed annual compensation of Messrs. Philippe Knoche, Olivier Wantz and Pierre Aubouin was unchanged in relation to 2014, at 420,000 euros, 360,000 euros and 300,000 euros respectively, prorated for the remaining duration of their terms until the change of governance.

Only Messrs. Olivier Wantz and Pierre Aubouin benefited from annual variable compensation for the duration of their terms, capped respectively at 60,000 euros and 120,000 euros, subject to the achievement of quantitative and qualitative objectives which were not identified in 2015 due to the change of governance on January 8, 2015.

With regard to the company's financial situation, no variable component to which the former members of the Executive Board may possibly have been entitled was paid for 2014.

AREVA does not have any system for performance-based share allotments, or any stock option or stock purchase plan, either for employees or for officers.

Messrs. Philippe Knoche and Pierre Aubouin did not have employment contracts for the duration of their terms, nor did Mr. Luc Oursel, who died on December 3, 2014. Mr. Olivier Wantz elected to have his employment contract suspended while he served as a member of the Executive Board.

#### 15.1.1.1. SUMMARY OF COMPENSATION AND BENEFITS OF EXECUTIVE BOARD MEMBERS

(euros) AREVA directors and officers	Compensation due in 2014 <sup>(1)</sup>	Compensation paid in 2014 <sup>(2)</sup>	Compensation due in 2015 <sup>(3)</sup>	Compensation paid in 2015 <sup>(4)</sup>
Luc Oursel, Chief Executive Officer	417,718	415,658 <sup>(5)</sup>	NA	NA
Philippe Knoche, Chief Operating Officer	420,000	420,976 <sup>(6)</sup>	9,846	9,846
Olivier Wantz, Senior Executive Vice President, Mining Business Group	360,000	415,650	8,524	8,524
Pierre Aubouin, Chief Executive Financial Officer	300,000	412,260 <sup>(7)</sup>	7,043	7,043

(1) Sum total of compensation due for the year, including the variable component, if applicable, regardless of the date of payment.

(2) Sum total of compensation paid during the year, including the variable component for the previous year, if applicable, paid in 2014.

(3) Sum total of compensation due until the change of governance on January 8, 2015, including the variable component, if applicable.

(4) Sum total of compensation paid until the change of governance, i.e. January 8, 2015. With regard to the company's financial situation, no variable component to which the former members of the Executive Board may possibly have been entitled was paid for 2014.

(5) Sick leave beginning October 17, 2014 (impact of the payment of daily Social Security allowances) and death on December 3, 2014.

(6) The difference of 976 euros was reversed.

(7) The difference of 300 euros for fixed compensation was reversed.

#### 15.1.1.2. SUMMARY OF COMPENSATION AND BENEFITS OF EACH EXECUTIVE BOARD MEMBER

(euros) AREVA directors and officers	Summary of compensation and benefits for Luc Oursel			
	2014		2015	
	Amounts due <sup>(1)</sup>	Amounts paid <sup>(2)</sup>	Amounts due	Amounts paid
Fixed compensation	413,206 <sup>(3)</sup>	411,146 <sup>(4)</sup>	NA	NA
Variable compensation	NA	NA	NA	NA
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car)	4,512	4,512	NA	NA
<b>TOTAL</b>	<b>417,718</b>	<b>415,658</b>	<b>NA</b>	<b>NA</b>

(1) Sum total of compensation due for the year, including the variable component, regardless of the date of payment.

(2) Sum total of compensation paid during the year, including that paid for the previous year.

(3) In view of Mr. Oursel's death on December 3, 2014.

(4) Sick leave beginning October 17, 2014 (impact of the payment of daily Social Security allowances) and death on December 3, 2014.

Exceptional compensation in the amount of 112,500 euros, equivalent to one quarter of his 2014 gross annual compensation, was allocated to Mr. Luc Oursel by the Supervisory Board on December 17, 2014, to be paid to his widow in 2015. This consideration was approved by ministerial decision on January 12, 2015.

(euros)

Summary of compensation and benefits for Philippe Knoche

	2014		2015 <sup>(1)</sup>	
	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>
<b>AREVA directors and officers</b>				
Fixed compensation	417,060	417,060	9,478	9,478
Variable compensation	NA	NA	NA	NA
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car)	2,940	3,916 <sup>(4)</sup>	368	368
<b>TOTAL</b>	<b>420,000</b>	<b>420,976 <sup>(5)</sup></b>	<b>9,846</b>	<b>9,846</b>

(1) Until the change of governance, i.e. January 8, 2015 (see Section 15.1.3.1 for the full year of 2015).

(2) Sum total of compensation due for the year, regardless of the date of payment.

(3) Sum total of compensation paid during the year, including that paid for the previous year.

(4) Adjustment of the company vehicle benefit in kind in May 2014.

(5) The difference of 976 euros was reversed.

(euros)

Summary of compensation and benefits for Olivier Wantz

	2014		2015 <sup>(1)</sup>	
	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>
<b>AREVA directors and officers</b>				
Fixed compensation	354,360	354,360	8,053	8,053
Variable compensation	0 <sup>(4)</sup>	55,650	0	0
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car)	5,640	5,640	471	471
<b>TOTAL</b>	<b>360,000</b>	<b>415,650</b>	<b>8,524</b>	<b>8,524</b>

(1) Until the change of governance, i.e. January 8, 2015.

(2) Sum total of compensation due for the year, including the variable component, if applicable, regardless of the date of payment.

(3) Sum total of compensation paid during the year, including that paid for the previous year.

(4) With regard to the company's financial situation, no variable component to which the former members of the Executive Board may possibly have been entitled was paid for 2014.

(euros)

Summary of compensation and benefits for Pierre Aubouin

	2014		2015 <sup>(1)</sup>	
	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>
<b>AREVA directors and officers</b>				
Fixed compensation	296,400	296,700 <sup>(4)</sup>	6,743	6,743 <sup>(4)</sup>
Variable compensation	0 <sup>(5)</sup>	111,960	0	0
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car)	3,600	3,600	300	300
<b>TOTAL</b>	<b>300,000</b>	<b>412,260</b>	<b>7,043</b>	<b>7,043</b>

(1) Until the change of governance, i.e. January 8, 2015.

(2) Sum total of compensation due for the year, including the variable component, if applicable, regardless of the date of payment.

(3) Sum total of compensation paid during the year, including that paid for the previous year.

(4) The difference of 300 euros was reversed.

(5) With regard to the company's financial situation, no variable component to which the former members of the Executive Board may possibly have been entitled was paid for 2014.

## 15.1.1.3. SEVERANCE AND NON-COMPETITION PAYMENTS

**Severance payments**

No severance and non-competition payments were made to the members of the Executive Board at the end of their terms, related to the change in method of governance.

Mr. Philippe Knoche was appointed Chief Executive Officer of AREVA in the framework of the new governance.

Mr. Olivier Wantz's employment contract was reactivated.

Mr. Pierre Aubouin was covered by an employment contract until he left the group on July 8, 2015.

Executive officers	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
Luc Oursel, Chairman of the Executive Board	NA	NA	NA	NA	NA	NA
Philippe Knoche, COO		X		X	X <sup>(1)</sup>	
Olivier Wantz, SEVP Mining	X <sup>(2)</sup>			X		X
Pierre Aubouin, SEVP Finance	X <sup>(3)</sup>			X	X	

(1) Exceptions apart (cf. section 15.1.3.2).

(2) Employment contract suspended during the term and reactivated at the end of his term.

(3) Mr. Pierre Aubouin was covered by an employment contract from the end of his term until he left the group on July 8, 2015.

**Non-competition payments**

The Supervisory Board did not grant any payment to members of the Executive Board in consideration of a non-competition clause.

## 15.1.1.5. UNEMPLOYMENT INSURANCE

Effective December 1, 2011, the company subscribed to an unemployment insurance plan sponsored by Medef and underwritten by Garantie sociale des chefs et dirigeants d'entreprise (GSC) in favor of officers and directors without an employment contract. Membership guarantees 12 months of severance payments to the officers and directors, with a payment level of 70% of net revenue from employment received for the calendar year preceding the membership in the case of tax brackets A and B, and 55% for tax bracket C. Insurance coverage is subject to a waiting period of 12 months. AREVA pays 65% of the insurance premium and the beneficiary pays 35%.

## 15.1.2. COMPENSATION OF MEMBERS OF THE SUPERVISORY BOARD UNTIL THE CHANGE OF GOVERNANCE

The members of the Supervisory Board received attendance fees during their terms, except for the Chairman of the Supervisory Board, the representatives of the French State, and Messrs. Béhar, Bigot and Gégout (the latter representing the CEA), who had waived them.

In addition, the Chairman of the Supervisory Board received gross fixed annual compensation of 120,000 euros for these duties.

The General Meeting of shareholders of January 8, 2015 set the maximum total amount of attendance fees allocated to the members of the Supervisory Board \* at 50,000 euros for the period beginning January 1, 2015 and ending January 8, 2015.

The Supervisory Board decided on January 8, 2015 to distribute attendance fees in the amount of 2,000 euros per eligible member of the Supervisory Board and per meeting, provided the member was effectively present (physically or by electronic means). For members residing outside Europe, that sum was doubled in the event of the member's physical presence at the meetings.

In accordance with article 3 of the decree no. 53-707 of August 9, 1953, these decisions were approved by ministerial decision on April 7, 2015.

\* For the total amount of attendance fees and their distribution for 2014, please refer to the 2014 Reference Document (Section 15.1.2).

15.1.2.1. SUMMARY OF ATTENDANCE FEES PAID DURING THE YEAR

Members of the Supervisory Board <sup>(1)</sup>	2014 <sup>(2)</sup>	2015 <sup>(3)</sup>
Sophie Boissard	48,400	2,000
François David	44,000	0
Agnès Lemarchand	42,000 <sup>(4)</sup>	2,000
Jean-Michel Lang	48,000	2,000
Françoise Pieri	48,800	2,000
Philippe Pinson	45,600	2,000
Guylaine Saucier	76,400	2,000
<b>TOTAL</b>	<b>353,200</b>	<b>12,000</b>

(1) List of members of the Supervisory Board who received attendance fees.

(2) Attendance fees allocated in 2014, including the balance for December 2013.

(3) Attendance fees allocated in 2015 until the change of governance on January 8, 2015.

(4) In 2014, Mrs. Agnès Lemarchand received an adjustment for her presence during a Supervisory Board meeting held in 2013.

15.1.2.2. SUMMARY OF COMPENSATION PAID TO MEMBERS OF THE SUPERVISORY BOARD DURING THE YEAR (GROSS COMPENSATION AND ATTENDANCE FEES)

Pursuant to applicable regulations, the following information is provided:

- the total gross compensation of Pierre Blayau corresponds to the contractual compensation that had been paid by AREVA for his service as Chairman of the Supervisory Board. He did not receive attendance fees;
- the total gross compensation of Bernard Bigot, Christophe Béhar and Christophe Gégout (the latter representing the CEA) corresponds to the compensation (including bonuses and exceptional payments) paid by the CEA for their duties

with the CEA, which controls AREVA. They received no attendance fees from AREVA for their services as members of the Supervisory Board. Bernard Bigot received no compensation from AREVA for his service as Vice Chairman of the Supervisory Board;

- the total gross compensation of Jean-Michel Lang, Françoise Pieri and Philippe Pinson, members elected by company personnel in 2012, corresponds to the compensation (including profit-sharing) paid by the AREVA subsidiary that employed them during their terms and to the attendance fees for their services as members of the Supervisory Board. At their request, their attendance fees may be paid by AREVA to the labor organizations to which they belong.

(euros)	2014			2015 <sup>(1)</sup>		
	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>Supervisory Board</b>						
Pierre Blayau	120,000	-	120,000	10,000	-	10,000
Bernard Bigot	236,274	-	236,274	77,002	-	77,002
Christophe Béhar <sup>(2)</sup>	156,205	-	156,205	NA	-	NA
Sophie Boissard	-	48,400	48,400	-	2,000	2,000
François David	-	44,000	44,000	-	-	-
Christophe Gégout	169,810	-	169,810	18,298	-	18,298
Agnès Lemarchand	-	42,000	42,000	-	2,000	2,000
Jean-Michel Lang	46,356	48,000	94,356	1,083	2,000	3,083
Françoise Pieri	46,074 <sup>(3)</sup>	48,800	94,874	975	2,000	2,975
Philippe Pinson	133,653	45,600	179,253	2,869	2,000	4,869
Guylaine Saucier	-	76,400	76,400	-	2,000	2,000
Philippe Varin <sup>(4)</sup>	-	-(5)	-	-	-(5)	-

(1) Period from January 1 to 8, 2015.

(2) Resigned November 26, 2014.

(3) Excluding the 13<sup>th</sup> month, taken in time.

(4) Coopted by the Supervisory Board on November 26, 2014.

(5) Philippe Varin did not receive attendance fees for 2014 and 2015.

### 15.1.3. COMPENSATION OF THE CHIEF EXECUTIVE OFFICER

#### 15.1.3.1. COMPENSATION OF THE CHIEF EXECUTIVE OFFICER

For 2015, the gross fixed annual compensation of Mr. Philippe Knoche did not change in comparison with 2014, remaining at 420,000 euros by decision of the Board of Directors meeting on April 29, 2015, on the recommendation of the Nominating and Compensation Committee of April 23, 2015. This compensation was approved by ministerial decision on May 19, 2015.

Mr. Philippe Knoche does not receive variable compensation.

AREVA does not have any system for performance-based share allotments, or any share option or stock purchase plan, either for employees or for officers.

Mr. Philippe Knoche does not have an employment agreement.

The table below shows Mr. Philippe Knoche's compensation from January 1, 2015, including the period up to January 8, 2015, in his capacity as a member of the Executive Board.

Mr. Philippe Knoche holds 100 shares of the company.

(euros)

Summary of compensation and benefits for Philippe Knoche

AREVA directors and officers	2014 <sup>(1)</sup>		2015 <sup>(2)</sup>	
	Amounts due <sup>(3)</sup>	Amounts paid <sup>(4)</sup>	Amounts due <sup>(3)</sup>	Amounts paid <sup>(4)</sup>
Fixed compensation	417,060	417,060	417,060	417,060
Variable compensation	NA	NA	NA	NA
Exceptional compensation	NA	NA	NA	NA
Attendance fees	NA	NA	NA	NA
Non-cash benefits (company car)	2,940	3,916 <sup>(5)</sup>	2,940	3,375
<b>TOTAL</b>	<b>420,000</b>	<b>420,976 <sup>(6)</sup></b>	<b>420,000</b>	<b>420,435 <sup>(7)</sup></b>

(1) Compensation for his service as a member of the Executive Board.

(2) Compensation due for the year, regardless of the date of payment or the status of Mr. Philipp Knoche.

(3) Compensation due for the year, regardless of the date of payment.

(4) Sum total of compensation paid during the year, including that paid for the previous year.

(5) Adjustment of the company vehicle benefit in kind in May 2014.

(6) The difference of 976 euros was reversed.

(7) The difference of 435 euros was reversed.

#### 15.1.3.2. 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 position, including payments related 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		X		X	X <sup>(1)</sup>	
Date of end of term: 2019 Annual General Meeting						

(1) Exceptions below apart.

#### Severance payments

On the recommendation of the Nominating and Compensation 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 the dismissal of Mr. Philippe Knoche, except in the event of dismissal for just cause, in particular in the event of a change of control or strategy, and will be subject to performance conditions as follows:

- the severance payment will be automatically made if the rate of achievement of quantitative and qualitative objectives was more than 60% on average for the two previous accounting years;
- if the rate of achievement of quantitative and qualitative objectives was less than 60% on average for the two previous accounting years, the Board of Directors will assess the performance of the party concerned with regard to circumstances which affected the company's business during the accounting year.

Meeting on May 21, 2015, the Board of Directors, on the recommendation of the Nominating and Compensation Committee meeting on that same day, decided on said objectives for 2015 as follows:

- 60% are quantitative objectives to be met, which are a function of net cash flow, the competitiveness plan, the Olkiluoto 3 EPR reactor and Safety-Health-Security objectives;
- 40% are qualitative objectives to be met concerning the financing plan, to relations with EDF and to the Flamanville EPR reactor.

The principle of the severance payment, subject 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 to Mr. Philippe Knoche a payment 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 approved by the Minister of the Economy in application of the above-mentioned decree no. 53-707 of August 9, 1953.

#### 15.1.3.3. PENSIONS AND RETIREMENT BENEFITS

The company did not subscribe to any supplemental retirement plan with defined benefits for the CEO. He participates in the supplemental retirement plans applicable to the company's executive employees.

#### 15.1.3.4. UNEMPLOYMENT INSURANCE

The company subscribed to an unemployment insurance plan sponsored by Medef and underwritten by Garantie sociale des chefs et dirigeants d'entreprise (GSC) in favor of the Chief Executive Officer. Membership guarantees 12 months of severance payments to the officers, with a payment level of 70% of net revenue from employment received for the calendar year preceding the membership in the case of tax brackets A and B, and 55% for tax bracket C. Premiums for this insurance are paid 70% by AREVA and 30% by the beneficiary.

### 15.1.4. COMPENSATION OF THE CHAIRMAN AND MEMBERS OF THE BOARD OF DIRECTORS SINCE THE CHANGE OF GOVERNANCE

#### 15.1.4.1. COMPENSATION OF THE CHAIRMAN OF THE BOARD OF DIRECTORS

For 2015, the gross fixed annual compensation of Mr. Philippe Varin as Chairman of the Board of Directors was set at 120,000 euros by decision of the Board of

Directors meeting on April 29, 2015 on the recommendation of the Nominating and Compensation Committee of April 23, 2015. This compensation was approved by ministerial decision on May 19, 2015.

Mr. Philippe Varin does not receive variable compensation.

(euros)

#### Summary of compensation and benefits of Philippe Varin

	2014		2015 <sup>(1)</sup>	
	Amounts due	Amounts paid	Amounts due <sup>(2)</sup>	Amounts paid <sup>(3)</sup>
<b>AREVA directors and officers</b>				
Fixed compensation	NA	NA	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>NA</b>	<b>NA</b>	<b>120,000</b>	<b>120,000</b>

(1) Compensation as from January 8, 2015, effective date of his term as Chairman of the Board of Directors.

(2) Compensation paid for the year, regardless of the payment date.

(3) Sum total of compensation paid during the year.

## 15.1.4.2. SEVERANCE AND NON-COMPETITION PAYMENTS

Mr. Philippe Varin is not entitled to severance or non-competition payments.

	Employment contract		Supplemental retirement benefits		Compensation or benefits due or that may be due in the event of termination or change in position, including payments related to a non-competition clause	
	Yes	No	Yes	No	Yes	No
<b>Executive director</b>						
Name: Philippe Varin						
Office: Chairman of the Board of Directors						
Date of start of term: January 8, 2015		X		X		X
Date of end of term: 2019 Annual General Meeting						

## 15.1.4.3. COMPENSATION OF THE MEMBERS OF THE BOARD OF DIRECTORS

The members of the Board of Directors receive attendance fees for their service.

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 2015.

At the request of Jean-Michel Lang, Françoise Pieri and Odile Matte, directors elected by company personnel, their attendance fees are paid by AREVA to the labor organizations to which they belong.

The General Meeting of shareholders of January 8, 2015 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 as from January 8, 2015 and ending at the end of the 2015 accounting year. In accordance with article 3 of decree n°. 53 707 of August 9, 1953, these deliberations were approved by ministerial decision on April 7, 2015.

For the year 2015, to ensure that a majority of the compensation received by each Board member is linked to a variable component, the distribution of attendant fees was done according to the rules hereunder by the Board of Directors on February 2, 2015, and on July 29, 2015 as concerns the Ad Hoc Committee <sup>(1)</sup>.

The members of the Board of Directors are entitled to fixed compensation for their duties as directors and to variable compensation based on their effective attendance at Board meetings and, if applicable, at meetings of the committees (or the Select Committee) of which they are members. Also, the Board may allocate additional attendance fees to directors residing outside France in consideration of 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; this sum may be withheld in the event of repeated absences;
- b) 1,500 euros per meeting, provided the member was physically in attendance.

**2/ Amounts paid for meetings of Board Committees (and the Select Committee), provided the member was physically in attendance:**

- a) 3,000 euros per meeting for the chairman of the Audit and Ethics Committee;
- b) 2,500 euros per meeting for the chairman of the Strategy and Investments Committee;
- c) 2,500 euros per meeting for the chairman of the Nominating and Compensation Committee;
- d) 2,500 euros per meeting for the chairman of the End-of-lifecycle Obligations Monitoring Committee;
- e) 2,500 euros per meeting for the chairman of the Ad Hoc Committee <sup>(1)</sup>;
- f) 1,500 euros per meeting for each member of a committee (except for the committee chairman and excluding the Select Committee of the Strategy and Investments Committee);
- g) a flat annual fee capped at 10,000 euros for each of the members of the Strategy and Investment Committee's Select Committee tasked with reviewing major sales proposals (including the chairman of said committee). The Committee must meet at least four times for the payment to be made. The member must physically attend all meetings of the committee to receive payment. In the event of the member's absence, the calculation of attendance fees will be prorated based on the member's presence at committee meetings held during the year.

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 year-end closing.

A director who participates in a meeting of the Board of Directors or a committee meeting (or the Select Committee) by teleconference or videoconference receives a fee equal to half of the fee paid to a director residing in France an participating in the meeting in person.

As an exception, only one director fee is paid for two meetings when the Board of Directors meets both before and after a General Meeting of Shareholders.

(1) The Ad Hoc Committee was created in and by the Board of Directors on June 5, 2015 in connection with the establishment of the financing plan and with the restructuring to be carried out in the group.

15.1.4.4. SUMMARY OF ATTENDANCE FEES PAID DURING THE YEAR

Members of the Board of Directors <sup>(1)</sup>	2014 <sup>(2)</sup>	2015 <sup>(3)</sup>
Sophie Boissard	NA	99,250
Claude Imauven	NA	75,584
Jean-Michel Lang	NA	25,000
Christian Masset	NA	34,000
Odile Matte	NA	37,750
Denis Morin	NA	20,500
Françoise Pieri	NA	50,500
Pascale Sourisse	NA	91,000
Alexis Zajdenweber	NA	85,917
<b>TOTAL</b>	<b>NA</b>	<b>519,501</b>

(1) List of members of the Board of Directors who received attendance fees.

(2) The members of the Board of Directors did not receive attendance fees for their service as directors in 2014, given that they took up their duties as from January 8, 2015 during the change of governance. For the amounts of attendance fees and the compensation received for 2014 by the members of the Board of Directors who were members of the Supervisory Board in 2014, please refer to table 15.1.2.2 summarizing the compensation of the members of the Supervisory Board paid during the accounting period (gross compensation and attendance fees).

(3) Amounts of attendance fees allocated in 2015 as from the change of governance on January 8, 2015.

15.1.4.5. SUMMARY OF COMPENSATION PAID TO 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 contractual compensation 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 Matter, members elected by company personnel in 2015, corresponds to the compensation (including profit-sharing) paid by the AREVA subsidiary that employed them during their terms 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 organizations to which they belong.

(euros)	2014 <sup>(1)</sup>			2015		
Board of Directors	Gross compensation	Attendance fees	Total gross compensation	Gross compensation	Attendance fees	Total gross compensation
	(a)	(b)	(c = a + b)	(a)	(b)	(c = a + b)
Sophie Boissard	NA	NA	-	-	99,250	99,250
Claude Imauven	NA	NA	NA	-	75,584	75,584
Philippe Knoche	NA	NA	NA	420,435	┘ <sup>(2)</sup>	420,435
Jean-Michel Lang	NA	NA	NA	44,729	25,000	69,729
Christian Masset	NA	NA	NA	-	34,000	34,000
Odile Matte	NA	NA	NA	72,187	37,750	109,937
Denis Morin	NA	NA	NA	-	20,500	20,500
Françoise Pieri	NA	NA	NA	44,777	50,500	95,277
Pascale Sourisse	NA	NA	NA	-	91,000	91,000
Philippe Varin	NA	NA <sup>(3)</sup>	NA	120,000	┘ <sup>(2)</sup>	120,000
Daniel Verwaerde <sup>(4)</sup>	NA	NA	NA	177,272	┘ <sup>(2)</sup>	177,272
Alexis Zajdenweber	NA	NA	NA	-	85,917	85,917

(1) The members of the Board of Directors did not receive attendance fees for their service as directors in 2014, given that they took up their duties as from January 8, 2015 during the change of governance. For the amounts of attendance fees and the compensation received for 2014 by the members of the Board of Directors who were members of the Supervisory Board in 2014, please refer to table 15.1.2.2 summarizing the compensation of the members of the Supervisory Board paid during the accounting period (gross compensation and attendance fees).

(2) Messrs. Philippe Varin, Philippe Knoche and Daniel Verwaerde did not receive attendance fees for their respective duties on the Board of Directors in 2015.

(3) Mr. Philippe Varin did not receive attendance fees for 2014.

(4) 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. 2014-948 of August 20, 2014, the attendance fees allocated on a proposal from the French State, to directors appointed by the Shareholders and with the status of public employee 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 is paid into the State budget.

## 15.2. STOCK OWNED BY OFFICERS AND DIRECTORS

Until the change of governance, the CEA had lent 10 shares to each member of the Supervisory Board, except for members representing the French State.

Mr. Pierre Aubouin, member of the Executive Board till January 8, 2015, holds 1,000 AREVA shares.

Mr. Philippe Knoche, Chief Executive Officer, holds 100 AREVA shares.

### Stock options allowing subscription or acquisition of shares for no consideration

The AREVA group does not presently 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 discontinued operations and exclude the fees relative to companies consolidated using the proportionate consolidation method.

(in thousands of euros)	2014 Fees				2015 Fees			
	EY Audit	Mazars	Other	Total	EY Audit	Mazars	Other	Total
<b>Statutory Auditors</b>								
Issuer	465	510	0	975	588	637	0	1,225
Subsidiaries	2,113	2,241	712	5,066	2,258	2,272	692	5,222
<b>Other reviews and services directly linked to the Statutory Auditors' mission</b>								
Issuer	125	40	0	165	80	23	0	103
Subsidiaries	3	125	13	141	250	295	9	554
<b>Sub-total</b>	<b>2,706</b>	<b>2,916</b>	<b>725</b>	<b>6,347</b>	<b>3,176</b>	<b>3,228</b>	<b>701</b>	<b>7,105</b>
<b>Other services rendered by the networks to fully consolidated subsidiaries</b>								
Legal, tax, labor	464	26	0	480	175	0	0	175
Other	200	0	0	200	0	0	0	0
<b>Sub-total</b>	<b>664</b>	<b>26</b>	<b>0</b>	<b>690</b>	<b>175</b>	<b>0</b>	<b>0</b>	<b>175</b>
<b>TOTAL</b>	<b>3,370</b>	<b>2,942</b>	<b>725</b>	<b>7,037</b>	<b>3,351</b>	<b>3,228</b>	<b>701</b>	<b>7,280</b>

For financial year 2015, the other services concern work performed abroad by members of the network of statutory auditors relative to the preparation of tax returns on the one hand, and the contractual audit of the combined AREVA NP

financial statements, the review of AREVA SA environmental, social and societal information, and tax and social services on the other.

# FUNCTIONING OF CORPORATE BODIES

16

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On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance, composed of a Supervisory Board and an Executive Board, into a single structure with a Board of Directors.

This section reports on the functioning of the Board of Directors and of the executive management set up on January 8, 2015. Information on the functioning of the Supervisory Board and of the Executive Board appears in the 2014 Reference Document (Section 16 and Appendix 1).

## 16.1. FUNCTIONING OF EXECUTIVE MANAGEMENT

The Chief Executive Officer is responsible for the company's executive 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.

As of the date of filing of this Reference Document, the composition of the Executive Committee is as follows:

Name	Title
Rémy Autebert	Senior Executive Vice President, Asia Region, Executive Director for the reorganization of the international commercial function
Eric Chassard	Senior Executive Vice President, Engineering & Projects
Anne-Marie Choho	Senior Executive Vice President of Operations Support, responsible for the corporate transformation project
Guillaume Dureau	Senior Executive Vice President, Back End Business Group
Bernard Fontana	Chief Operating Officer of AREVA NP and Senior Executive Vice President of the Reactors & Services Business Group
Stéphane Lhopiteau	Chief Financial Officer
François Nogué	Senior Executive Vice President, Human Resources
Olivier Wantz	Senior Executive Vice President, Mining and Front End Business Groups

Magali Smets is Secretary of the Executive Committee.

The Executive Committee and the Chief Executive Officer rely on three coordination and steering 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).

## 16.3. FUNCTIONING OF THE COMMITTEES ESTABLISHED 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 IN APPLICATION OF 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 chairman of the Board of Directors' report 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 in accordance with article L. 225-235 of the French Commercial Code on the report of the Chairman of the Board of Directors of AREVA with respect to internal control procedures related to the preparation and treatment of financial and accounting information.*

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The kick-off of a new performance plan, the conclusion of management-labor negotiations on staff reductions, particularly in France and Germany, and the transformation of the group's organizations left their mark on 2015. The year was largely devoted to explaining the group's economic and financial situation to stakeholders and to sharing the group's recovery challenges with management and employees. The first cost reduction measures

(compensation, jobs, etc.) were set up beginning in the second quarter of 2015. Detailed dialogue between management and employees began with employee representatives in order to determine procedures for operational implementation of the human resources component of the transformation plan and in particular the approximately 18% reduction in personnel expenses worldwide (over the 2015-2017 period).

## 17.1. EMPLOYMENT

### 17.1.1. TOTAL WORKFORCE AND DISTRIBUTION BY GENDER, AGE AND GEOGRAPHICAL AREA

The group employs 39,761 people at December 31, 2015 (excluding asset sales in progress), versus 41,847 employees at the end of December 2014.

Distribution of employees by businesses within the group's consolidation scope	2015	2014
Projects	1,597	1,781
Mining	3,536	3,892
Chemistry/Enrichment	3,012	3,331
Recycling	4,863	5,125
Dismantling	4,408	4,333
Logistics	1,197	1,246
International Projects	582	561
Renewable Energies	162	216
Corporate functions	1,689	1,628
<b>Subtotal New AREVA</b>	<b>21,046</b>	<b>22,113</b>
Installed Base	4,714	4,645
Manufacturing	1,854	1,939
Fuel	3,591	3,892
Products and Technologies	635	660
Large Projects	318	294
Engineering and Projects	3,410	4,195
Corporate and other cross-business functions	1,513	1,386
<b>Sub-total AREVA NP</b>	<b>16,035</b>	<b>17,011</b>
Propulsion and Research Reactors	1,733	1,751
Nuclear Measurements	947	972
<b>TOTAL</b>	<b>39,761</b>	<b>41,847</b>

Some 95% 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 (40.5%), while technical and administrative personnel account for a little less than half

(45.5%). Blue collar workers represented 14% of the workforce at December 31, 2015. As of the end of December 2015, 22.2% of the group's worldwide engineers and management staff were women, an increase of 0.45 percentage point from the previous year.

<b>Distribution of employees by gender</b> <i>Percentage calculated based on active permanent employees</i>	<b>2015</b>	<b>2014</b>
Women (global)	21.4%	21.1%
Men (global)	78.6%	78.9%
Women in executive positions	18%	16%
Women in governance bodies (Executive Board and Supervisory Board)	31.5%	33%
Women in management positions	22.2%	21.7%
Women in non-management positions	20.8%	20.8%
<b>Distribution of employees by age group</b>		
Less than age 21	0%	0.1%
21 to 30 years	11.4%	13.2%
31 to 40 years	27.6%	27.1%
41 to 50 years	25.6%	25.8%
51 to 60 years	30.2%	29.1%
More than age 60	5.2%	4.6%
<b>Distribution of employees by geographical area</b>		
France	68.0%	67.0%
Europe (excluding France)	13.2%	13.7%
North and South America	11.3%	11.3%
Africa and Middle East	3.0%	4.1%
Asia-Pacific	4.4%	4.0%
<b>Distribution of employees by occupational category</b>		
Engineers and management staff	40.5%	40.0%
Technical and administrative personnel	45.5%	45.6%
Skilled workers	14.0%	14.4%

### 17.1.2. STAFFING AND LAYOFFS

Consistent with the commitment in its 2015-2017 performance plan, AREVA's total global workforce in 2015 was reduced by 2,318 employees in 2015, including 1,118 in France (net decrease excluding asset disposals), while the number of employees with permanent full-time employment contracts fell 2,109. This reduction was made

possible by the replacement of a little less than half of the employees departing. Thus, hiring thus slowed considerably in relation to 2014 (1,018 permanent employment contracts), in addition to 710 redundancies. The workforce stabilized at 39,537 employees at the end of 2015.

	<b>2015*</b>	<b>2014</b>
Number of external hires (total external hires of permanent and temporary staff)	1,735	2,611
Number of layoffs	710	352

\* Excluding asset disposals.

The group worked to secure its skills in France through its campaign "AREVA work-study spring" composed of six job fairs organized in every French region

from March to May. Through this campaign, the number of work-study employees in France was kept at more than 1,200.

### 17.1.3. COMPENSATION AND TRENDS

The compensation policy under which employees are paid around the world is based on four pillars: compensate performance, adhere to budget, ensure internal equity and observe external competitiveness 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 2015, considering its economic results, the group decided to eliminate salary reviews in most countries, but provided a budget in those countries devoted to internal mobility and professional promotion.

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 employee classifications, eligibility for 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, where labor union representation is strong and influential.

In China, compensation is based on market conditions. Every year, AREVA China participates in a salary review organized by an international consulting firm with chairman presence, which examines compensation levels for different positions in the organization. AREVA also signed a collective bargaining agreement on equal compensation for women and men.

#### 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.

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 group 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 regulations.

In France, compensation based on collective performance takes the form of performance-related plans and of profit-sharing plans applicable to the group's companies. The sums distributed in 2015 in respect of 2014 represented a total of close to 131 million euros for the group as a whole. Employees chose to invest 73% of the optional profit-sharing remuneration and 76% of the mandatory profit-sharing paid in 2015 in the group's savings plan.

#### 17.1.3.3. CORPORATE SAVINGS PLANS AND INVESTMENT VEHICLES

In France, a group savings plan (AREVA GSP) common to all of the group's entities 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 socially responsible fund and three diversified funds. A diversified pool of fund managers was sought to optimize investor returns. At December 31, 2015, the funds managed in the AREVA GSP represent more than 866 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 save their variable compensation in a dedicated fund.

In the United States, a 401(K) retirement plan is offered to employees who wish to save for their retirement. AREVA's contribution to the plan comes to 3% of each employee's compensation. 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 9.9% of his/her base salary.

Close to 93% of AREVA's employees in the United States decided to contribute to the retirement plan in 2015. This percentage is higher than the national average for all employers in the United States, which is 75%.

#### 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 operation was not repeated in 2014 and 2015.

## 17.2. ORGANIZATION OF WORK

### 17.2.1. ORGANIZATION OF WORKING HOURS

In the countries in which the group is based, the average number of working hours per week is usually 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 contributing a better balance between personal and professional life. It helps improve the quality of working life and keep employees on therapeutic part-time and disabled

employees at work. At the end of 2015, almost 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. Some fifty employees benefitted from this system in 2015;

- in the United Kingdom, full-time employees work an average of 37 hours and are not being paid for any overtime. Whilst the company may on occasion be prepared to allow employees to work at home, this should only be in exceptional circumstances. That flexibility is working is available to staff who have completed their probationary period and meet the pre-requisites;
- in China, the standard work day is 8 hours, and the work week is 40 hours.

### 17.2.2. ABSENTEEISM

For the first time in 2013, a method to collect and calculate absenteeism was deployed in the group's largest entities, representing 94% of AREVA's global workforce.

	2015	2014
France	9.1	8.7
Germany	13.9	13
United States	5.7	5.2
Rest of World	2.8	5

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.

## 17.3. LABOR RELATIONS

### 17.3.1. ORGANIZATION OF DIALOGUE BETWEEN MANAGEMENT AND EMPLOYEES, IN PARTICULAR PROCEDURES FOR INFORMATION, CONSULTATION AND NEGOTIATION WITH PERSONNEL

The group's social relations are founded on mutual respect and dialogue. It is in that spirit that social partners and executive 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 guidance of the President of the French Republic of June 3, 2015, compensation policies, and the proposed Voluntary Departure Plan resulting from the economic difficulties encountered by the group.

The three countries of France, Germany and the United States represent 89.7% of the group's workforce at December 31, 2015 and form a representative sample in this respect. Dialogue between management and employees is not organized the same way in these different countries. Local requirements, and in particular national legislation, call for a customized approach. Dialogue between management and employees may take place at the national, regional or company level, whether for information, consultation or negotiation.

## DIALOGUE BETWEEN MANAGEMENT AND EMPLOYEES

### 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 2015, that body met five times: on March 6, March 20, April 16, July 2 and December 9. The meetings concerned optimization of opportunities for synergy offered by the nuclear industry, planned organizational changes, the performance plan, changes in the backlog and the partnership in China. The meets were generally preceded by meetings of the officers of the European Works Council.

### Germany

In Germany, management and labor unions meet regularly to talk about the group's operations and outlook.

In 2015, the procedure for transferring Offenbach employees to Erlangen was launched. The procedures of the redundancy plan in progress ended on December 31, 2015.

### France

The French Works Council (FWC), set up in 2011 when the group's new organization was established, is a body for information, exchange and dialogue that has a comprehensive, crosscutting view of all of the group's activities and strategy concerning employment. In this regard, the FWC constitutes a special venue for discussions with employee representatives.

Bringing together 30 titular members, 5 labor representatives of representative labor unions at the group level, and the group's 5 labor union coordinators, the FWC met several times in 2015, particularly in connection with the consultation information process on optimization of opportunities for synergy offered by the nuclear industry. It met in March, April, June, September and December, and its Guidance and Coordination College met in January, February, March, April, May and November 2015. These meetings provided an opportunity to present and discuss changes in the strategy, the redefinition of the nuclear industry, organizational changes, and jobs.

An agreement on jobs was approved by the majority and signed by 4 labor unions. In early November 2015, voluntary departure plan procedures were launched at 6 of the group's companies (AREVA NC SA, AREVA NP SAS, AREVA BS, AREVA Mines, Eurodif Production and SET).

In addition, the commitment to social consensus-building of the group and its labor unions led to the renewal of the group agreement on the Quality of Working Life on April 2, 2015, and to the inclusion of occupational stress in that agreement.

Lastly, development continued of the group's new independent health department, which was approved by the French Ministry of Labor and Employment in September 2013 and established in the October 18, 2012 agreement. The group's health department now monitors 63% of the group's employees.

### 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 equitable 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

Please refer to paragraph 17.3.1.

# 17.4. HEALTH AND SAFETY

## 17.4.1. HEALTH AND OCCUPATIONAL SAFETY CONDITIONS

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

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-Environment Department and the Human Resources Department through quarterly Steering Committee meetings on occupational stress prevention and the Quality of Working Life. For the past two years, during the Committee's confidential meetings with coordinating physicians for 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 strength and relevance of the group's Quality of Working Life initiatives are reviewed in order to support and assess 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 34 programs to listen to and counsel all of its employees in France and performed 23 surveys in France covering almost 80% of the workforce enabling it to identify risk factors and propose occupational stress prevention actions.

The first meeting of the Quality of Working Life Observatory was held on June 20, 2014. It conducted a preliminary assessment of activities undertaken since 2012.

In addition, the group trained 400 members of Management Committees and more than 1,300 line managers in occupational stress prevention. Special training for the human resources position was deployed over the year, and close to 100 people were trained in 2015.

Lastly, as part of the deployment of the Quality of Working Life agreement, a chart of the "human impacts of change and reorganizations" was established. The chart has been used close to 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, 78 charts were integrated in the notes of the Health, Safety and Working Conditions Committee (CHSCT) of the 6 group companies concerned by the proposed Voluntary Department Plan. At the same time, various occupational stress prevention tools deployed in the group since 2009 were strengthened and supplemented.

In Germany, several initiatives addressing the balance between professional and personal life were showcased on the intranet or during special events. Most of the measures adopted relate to occupational safety, part-time work, the reconciliation of professional 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, for 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 the same spirit, an Employee Concerns Program (ECP) dedicated to the quality of working life was deployed to prevent and fight discrimination.

Employees were 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 monitored.

### 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

The Training Department is now organized into four Shared Services Training Centers (Cotentin, Paris area, Lyon-Alps, Burgundy and Southeast). All of them share the same system of management and operation. The Training Department is strengthening its priority lines of action with the development of employee certification programs and widespread deployment of digital training for the most recurrent entity training plans.

In Germany, a training program for experts was established in 2014. This 18-month program consisting of 4 modules offering a wide variety of content aims to develop the human resources skills necessary to career management for experts. 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 UK, appraisals take place twice a year, in the middle and at the end of the year. From this a personal development plan is created. Which proposes how individual training needs should be met. Employees are expected to become full members of a recognized professional institution and to maintain membership of this institution whilst employed by the company. The annual fee for retaining membership will be paid in full by the Company.

A training governance infrastructure was established in the United States. It offers a defined procedure for a partnership between the North American Training Department and the region's Business Groups. Members of the Training Governance Committee include managers and individual contributors representing each of the Business Groups. 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 empirical learning model, which incorporates collaboration and training at the workplace into the training program. The main characteristics of the empirical learning model are the reliance on real work situations for training and the development of self-starting learners. The goal is to help proactive employees optimize their learning in order to help them face daily professional challenges 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 contributing to AREVA's future in a fast-changing industry. The average number of training hours per employee is 32. It varies by entity.

In China, a yearly training plan is established according to employee training expectations in agreement with the manager through 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, more than 929,835 hours of training were dispensed in 2014, for an average of 34 hours of training per employee (to be compared with the objective of 30 hours in the group-wide agreement for France), a decrease of 6.7% compared with 2013.

Number of hours of training per permanent employee per year	2015	2014
France	NA	34 hrs.
Germany	26.5 hrs.	25 hrs.
United States	32 hrs.	NA

The 2015 data for France will be available in April 2016.

## 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 confirmed the sustainability and maturity of AREVA's approach to diversity and appreciated its evolutionary nature and its alignment with changes in the group.

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 agreement is embodied in days organized each year at all of the group's sites in Europe, whether on gender equality or on the integration of persons with disabilities. For its sixth edition, the days merged to make room for a European Day of Employment and Knowledge during the National Week for the Employment of Persons with Disabilities in France, dedicated to the wealth and diversity of internal profiles and their career development. This day was held on November 20, 2015 in all European countries.

In France, this policy translated into the signature in 2010 and 2012 of group agreements on the development of the Quality of Working Life, gender equality, the integration of persons with disabilities and "generation" contracts.

### 17.6.1. MEASURES IN FAVOR OF GENDER EQUALITY

In France, AREVA signed its first group agreement on 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. The agreement allows employees on parental leave to contribute to their retirement. It also allows for deployment 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, with women accounting for 18.5% of all new hires and 19.4% of all new management hires as of the end of 2015, 21.4% in the general workforce and 22.2% as managers. As part of its talent building policy, AREVA continues its program to identify talent, with 98 women identified as "Best Talent Potential Executive" and 22.2% women members of the Management Committees and 18% participating in the Executive Committee.

It should be noted that, in 2013, the group and 16 other major employers signed an agreement on gender equality with the Minister of Women's Rights.

### 17.6.2. MEASURES IN FAVOR OF EMPLOYMENT AND INTEGRATION OF PERSONS WITH DISABILITIES

Since 2006, AREVA has led a group policy for the development of all talent and for openness to difference in the workplace.

In France, this proactive policy was launched in 2007 with a first agreement on the employment of persons with disabilities. As a result, the rate of employment of persons with disabilities rose from 2.93% in 2007 to 4.77% in 2014.

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 topics of recruitment, integration and training of persons with disabilities, support to

companies in the protected and adapted sector, awareness activities, and job retention.

Several commitments were made for the duration of the agreement: an objective 3.3% of all hires should involve disabled workers, with a minimum of 120 disabled persons employed, 120 work-study positions for the disabled, and 180 internship positions. The agreement also provides that 20 million euros should be dedicated to purchases from companies in the protected sector.

	2015	2014
Disabled workers in France	NA	4.77%
Disabled workers in Germany	4.13%	3.44%

The 2015 data for France will be available in April 2016.

### 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 23 instances of discrimination or alleged discriminatory

behaviors. Eight cases proved justified upon examination. Corrective measures have been taken.

In general, HR processes concern the entire diversity policy and particularly verification that managerial decisions affecting employees are taken according to the principle of equal opportunity.

## 17.7. PROMOTION AND COMPLIANCE WITH THE STIPULATIONS OF FUNDAMENTAL AGREEMENTS OF THE INTERNATIONAL LABOR UNION

Together with its Values Charter, AREVA has and implements a process for business ethics and respect for human rights and the fundamental conventions of the ILO. The Values Charter 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 Charter, which serves as a set of standards and a code of conduct in this regard.

The introduction to the AREVA Values Charter notes that the group is a signatory to the UN Global Compact. It also adheres to the OECD Guidelines for Multinational Enterprises, 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 International Labor union 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 has deployed a system to deal with complaints and

notices in France. This system supplements other internal, centralized systems to actual or alleged discrimination in the group. Its rules and processes were developed in cooperation with the group's business ethics advisor.

### 17.7.3. ELIMINATION OF FORCED OR COMPULSORY LABOR

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

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 Charter, 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 Values Charter.

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## 18.1. DISTRIBUTION OF CAPITAL AND VOTING RIGHTS

As of the date of this Reference Document, AREVA's share capital amounted to 1,456,178,437.60 euros, divided into 383,204,852 ordinary shares with a par value of 3.80 euros per share, each with a single voting right.

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 share capital or voting rights that would be subject to disclosure in accordance with the national law applicable to AREVA.

AREVA's shareholders for the last three years were as follows:

	December 31, 2015	December 31, 2014	December 31, 2013
	Theoretical % of voting rights <sup>(1)</sup> & number of shares	Theoretical % of voting rights <sup>(1)</sup>	Theoretical % of voting rights <sup>(1)</sup>
CEA	54.37% representing 208,349,283 shares <sup>(2)</sup>	54.37% <sup>(3)</sup>	61.52% <sup>(4)</sup>
French State	28.83% representing 110,487,336 shares	28.83% <sup>(3)</sup>	21.68% <sup>(4)</sup>
Kuwait Investment Authority (KIA)	4.82% representing 18,461,538 shares	4.82%	4.82%
Bpifrance Participations SA	3.32% representing 12,712,910 shares	3.32%	3.32% <sup>(5)</sup>
EDF	2.24% representing 8,571,120 shares	2.24%	2.24%
Total group	0.95% representing 3,640,200 shares	0.95%	0.95%
FCPE AREVA France actions salariés, FCPE AREVA International actions salariés & US-Employee Stock Purchase Plan	1.23% representing 4,722,177 shares <sup>(6)</sup>	1% <sup>(6)</sup>	0.937% <sup>(6)</sup>
Framépargne (employees)	0% representing 0 shares <sup>(7)</sup>	0.226%	0.23%
Public	3.99% representing 15,326,690 shares	4.02%	4.11%
Members of the Supervisory Board <sup>(2)</sup>	NA	ns	ns
Treasury shares <sup>(8)</sup>	0.19% representing 740,490 shares	0.19%	0.19%
Liquidity contract <sup>(8)</sup>	0.05% representing 193,108 shares	0.04%	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 transferred respectively 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) On September 19, 2013, the CEA sold 28,179,453 shares representing 7.35% of AREVA's share capital to the French State for the amount of 357,400,002.40 euros.

(5) On July 12, 2013, the CDC transferred its entire interest in AREVA's share capital to Bpifrance Participations SA.

(6) AREVA's offer of shares to the group's employees in May 2013 was implemented through a disposal of existing treasury shares bought previously by AREVA for a share purchase program authorized by the shareholders on May 10, 2012 in application of article L. 225-209 of the French Commercial Code.

(7) The Framépargne fund merged with FCPE AREVA France actions salariés on August 6, 2015.

(8) As provided in 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

At December 31, 2015, AREVA's share capital consisted exclusively of ordinary shares, each with one voting right.

Article L. 225-123 of the French Commercial Code, stemming from law no.2014-384 of March 29, 2014 aimed at reclaiming the real economy, provides that, in companies whose shares are admitted for trading on a regulated market, double voting rights are henceforth 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 articles of association adopted after promulgation of the law.

Considering the particularity 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 changed to suppress the establishment of double voting rights; consequently, the provisions of article L. 225-123 of the Commercial Code remain applicable.

Thus, as from April 3, 2016, a double voting right will be attached to all fully paid-up registered 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 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

AREVA is subject to order no. 2014-948 of August 20, 2014 on governance and capital transactions for partially state-owned companies.

At December 31, 2015, the decree no. 83-1116 of December 21, 1983, stipulates that the CEA is obliged to keep more than half of AREVA's share capital. That decree was amended on January 14, 2016 and now requires that the French State, or the CEA, 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 keep more than half the 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 company.

The Government Commissioner and the head of the control mission\* attend meetings of the Board of Directors of AREVA and of its committees, in application of decree no. 55-733 of May 26, 1955.

The Government Commissioner may attend meetings of the Boards of Directors of first tier subsidiaries of the company.

The deliberations of the Board of Directors become ipso facto enforceable if the Government Commissioner or the member of 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.

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.

## 18.4. AGREEMENTS KNOWN TO THE ISSUER THAT COULD, IF IMPLEMENTED, RESULT IN A CHANGE IN CONTROL OF THE ISSUER

The Autorité des marchés financiers (the financial regulator) was informed that a three-year agreement (2014-2016) was signed between the CEA and the French State on August 13, 2014 relative to the long-term financing of the CEA's nuclear expenses.

Under the three-year agreement for the 2014-2016 period signed on August 13, 2014, the price per AREVA share acquired by the French State 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 at 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.

\* Pursuant to decree no. 55-733 of May 26, 1955.

# TRANSACTIONS WITH RELATED PARTIES

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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, 2015, the French State and the CEA jointly held 83.21% of AREVA's share capital and voting rights.

As the majority shareholders, they thus have the power to control corporate decisions requiring the approval of the shareholders. In application of the 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 executive leadership of the Commissioner for State shareholdings. The latter, under the authority of the Minister Delegate of the Economy, leads the French State's shareholding policy from an economic, industrial and social perspective. The APE makes proposals to the Minister Delegate of the Economy on the French State's position, as shareholder, as concerns the company's strategy, and examines in particular the company's main financing and capital expenditures programs as well as proposed acquisitions and disposals, and commercial, cooperative and research and development agreements.

Thus, at December 31, 2015, of the 12 directors of the Board of Directors, one is a representative of the French State and two directors recommended by the

French State were appointed by the Shareholders, in accordance with the order no. 2014-948 of August 20, 2014 pertaining to the governance and capital transactions of publicly owned companies.

In accordance with the 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, please refer to 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, in application of 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, 2015, the CEA, a public scientific, technical and industrial organization, held a 54.37% interest in AREVA's share capital and voting rights.

At December 31, 2015, the decree no. 83-1116 of December 21, 1983 amended on the Société des participations du CEA (AREVA) stipulates that the CEA is obliged to keep more than half of AREVA's capital.

That decree was amended on January 14, 2016 and now 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, keep more than half 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 appointed him as censor.

On February 26, 2015, the Chairman of the CEA and the Chief Executive Officer of AREVA SA signed an agreement for the drafting and implementation of the terms

and conditions of the final settlement of the RJH project situation, based on their shared view of the "to be done", of the schedule to completion and of the related resources to complete the construction of this reactor, with the objective of loading the first core in October 2019.

These financial and project governance contract terms and conditions were transposed into a tripartite memorandum of understanding between the CEA, AREVA and Technicatome (AREVA TA) signed on July 20, 2015. This memorandum of understanding is described in Appendix 2 of this Reference document.

The CEA and AREVA also have a partnership relationship concerning research and development for the nuclear operations. For more information, please refer to Section 11. *Research and Development programs, patents and licenses* and to Section 18. *Principal shareholders*.

## 19.3. RELATIONS WITH PUBLICLY HELD COMPANIES

The group routinely carries out transactions with publicly held companies, mainly EDF.

In addition, AREVA and EDF have entered into discussions for the sale of at least 75% of AREVA NP's share capital to EDF. The Board of Directors, meeting on January 27, 2016, was favorable to the convergence of negotiations entered into with EDF concerning the valuation of AREVA NP's operations (2.5 billion euros for 100% of AREVA NP's capital, excluding OL3, with a price supplement mechanism) and gave the Chief Executive Officer authority to finalize the negotiations. Completion of the transaction, planned for 2017, remains subject to consultation of the employee

representative bodies and to validation of such a transaction by the competent authorities. AREVA will retain a strategic interest of at least 15%.

The nature of the relations with the EDF group and the transactions concluded between the two groups are explained in Section 4.4. *Operational risk* of Section 4, in the *Notes to the consolidated financial statements for the year ended December 31, 2015*, Note 1.1. *Highlights of the period*, and in Note 29. *Related party transactions* of Section 20, in Section 6. *Business overview*, and in Section 22. *Major contracts*.

# FINANCIAL INFORMATION CONCERNING ASSETS, FINANCIAL POSITIONS AND FINANCIAL PERFORMANCE

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## 20.1. CONSOLIDATED FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2015

### 20.1.1. STATUTORY AUDITORS' REPORT ON THE CONSOLIDATED FINANCIAL STATEMENT

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 2015, on:

- the audit of the accompanying consolidated financial statements of AREVA SA,
- 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 2015 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:

- Note 1.1 sets out the context of the closing, the AREVA Group's liquidity situation and the information relating to the application of the going concern principle;
- Notes 1.1, 1.3.1.5 and 9, which describe the accounting treatment and the impacts of the transaction under consideration with EDF to transfer a majority share of AREVA NP, as well as the accounting treatment of the discontinued operations (wind power and solar energy activities, nuclear measurements and AREVA TA);
- Note 24 describes the reasons that led AREVA to apply paragraph 32 of IAS 11 as from the second half of 2013 and the methods of recognition applicable to the construction contract for the Olkiluoto 3 ("OL3") EPR. In addition, this note specifies the conditions of completion of this contract, in particular for the end of construction and testing until the reactor is put into service as well as for legal risks;
- Notes 1.3.17 and 13 describe the conditions of measurement of the provisions for end-of-lifecycle operations, and their sensitivity to the assumptions used in terms of technical processes, costs, disbursement schedules and inflation and discount rates.

#### 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:

- 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 adopted 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;

- In accordance with IFRS 5, the criteria for the classification, recognition and valuation of the activities held for sold or in the process of being sold are described in Note 1.3.1.5 to the consolidated financial statements. We verified the correct application of this accounting principle and confirmed that Notes 1.1, 9 and 37 to the consolidated financial statements made appropriate disclosures.
- Deferred tax assets were analysed as described in Notes 1.3.22 and 8 to the consolidated financial statements. We examined the methods used to make these estimates and verified the consistency of the assumptions used to value these deferred tax assets with the Group's forecast data. We also verified the appropriateness of the information given in this respect in the notes to the consolidated financial statements;
- AREVA recognizes the profit or loss on long-term contracts according to the methods described in Notes 1.3.7, 9 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;
- Provisions for end-of-lifecycle operations have been measured according to the methods described in Note 1.3.17 to the consolidated financial statements. We reviewed the implementation of these methods, the assumptions used and the cost estimates obtained. We confirmed the appropriateness of the information disclosed in the notes to the consolidated financial statements on this issue. Offsetting 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.
- The method and conditions for recording provisions for restructuring are described in Note 24 to the financial statements. Our work consisted in analysing the data used, assessing the assumptions made, and verifying that notes 1.1 and 24 to the consolidated financial statements provide appropriate information;
- In the frame of our assessment of the going concern assumption, we examined the Group's liquidity situation, which is detailed in Notes 1 and 31 to the consolidated financial statements. We acknowledged the cash flow forecasts, the debt schedules, the current credit lines and the related covenants.

As referred to in Note 1.2 to the consolidated financial statements, several items referred to 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 31, 2016

French original signed by

The Statutory Auditors

MAZARS

ERNST & YOUNG Audit

Cédric Haaser

Jean-Louis Simon

Aymeric de La Morandière

Jean Bouqurot

**20.1.2. CONSOLIDATED STATEMENT OF INCOME**

<i>(in millions of euros)</i>	<b>Note</b>	<b>2015</b>	<b>2014*</b>
<b>REVENUE</b>	<b>3</b>	<b>4,199</b>	<b>3,954</b>
Other income from operations		5	5
Cost of sales		(4,492)	(4,538)
<b>Gross margin</b>		<b>(288)</b>	<b>(579)</b>
Research and development expenses		(112)	(134)
Marketing and sales expenses		(52)	(59)
General and administrative expenses		(165)	(213)
Other operating expenses	6	(863)	(1,145)
Other operating income	6	91	16
<b>OPERATING INCOME</b>		<b>(1,388)</b>	<b>(2,115)</b>
Share in net income of joint ventures and associates	14	(21)	(14)
<b>Operating income after share in net income of joint ventures and associates</b>		<b>(1,409)</b>	<b>(2,129)</b>
Income from cash and cash equivalents		20	32
Gross borrowing costs		(205)	(217)
<b>Net borrowing costs</b>		<b>(185)</b>	<b>(185)</b>
Other financial expenses		(477)	(453)
Other financial income		348	338
<b>Other financial income and expenses</b>		<b>(129)</b>	<b>(115)</b>
<b>NET FINANCIAL INCOME</b>	<b>7</b>	<b>(313)</b>	<b>(299)</b>
<b>Income tax</b>	<b>8</b>	<b>(124)</b>	<b>(739)</b>
<b>NET INCOME FROM CONTINUING OPERATIONS</b>		<b>(1,846)</b>	<b>(3,167)</b>
Net income from operations sold, discontinued or held for sale	9	(190)	(1,678)
<b>NET INCOME FOR THE PERIOD</b>		<b>(2,036)</b>	<b>(4,845)</b>
Including:			
Group:			
Net income from continuing operations		(1,853)	(3,159)
Net income from operations sold, discontinued or held for sale		(185)	(1,674)
<b>NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT</b>		<b>(2,038)</b>	<b>(4,833)</b>
Minority interests:			
Net income from continuing operations		7	(8)
Net income from operations sold, discontinued or held for sale		(5)	(4)
<b>NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS</b>		<b>2</b>	<b>(12)</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	857,551
Average number of shares outstanding, excluding treasury shares		382,295,981	382,347,301
Earnings per share from continuing operations		(4.85)	(8.26)
Basic earnings per share		(5.33)	(12.64)
Consolidated net income per diluted share <sup>(1)</sup>		(5.33)	(12.64)

(1) AREVA has not issued any instruments with a dilutive impact on share capital.

\* In application of IFRS 5, the 2014 financial statements were restated in relation to the data published 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>	2015	2014*
<b>Net income</b>	<b>(2,036)</b>	<b>(4,845)</b>
<b>Items not recyclable to the income statement</b>	<b>292</b>	<b>(260)</b>
Actuarial gains and losses on the employee benefits of consolidated companies	217	(200)
Income tax related to non-recyclable items	9	24
Share in non-recyclable items from joint ventures and associates, net of tax	12	(16)
Non-recyclable items related to operations sold, discontinued or held for sale, net of tax	55	(68)
<b>Items recyclable to the income statement</b>	<b>(160)</b>	<b>(85)</b>
Currency translation adjustments on consolidated companies and other	(136)	133
Change in value of available-for-sale financial assets	84	(78)
Change in value of cash flow hedges	(87)	(114)
Income tax related to recyclable items	(28)	45
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	(70)
<b>Total other items of comprehensive income (net of income tax)</b>	<b>132</b>	<b>(346)</b>
<b>COMPREHENSIVE INCOME</b>	<b>(1,905)</b>	<b>(5,190)</b>
• Attributable to equity owners of the parent	(1,825)	(5,155)
• Minority interests	(80)	(36)

\* In application of IFRS 5, the 2014 financial statements were restated in relation to the data published 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>	<b>Note</b>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
<b>NON-CURRENT ASSETS</b>		<b>17,747</b>	<b>21,709</b>
Goodwill on consolidated companies	10	1,272	3,667
Intangible assets	11	1,648	2,267
Property, plant and equipment	12	7,642	8,719
End-of-lifecycle assets (third party share)	13	178	188
Assets earmarked for end-of-lifecycle operations	13	6,122	6,015
Investments in joint ventures and associates	14	100	143
Other non-current assets	15	573	273
Deferred tax assets	8	212	437
<b>CURRENT ASSETS</b>		<b>11,240</b>	<b>8,211</b>
Inventories and work-in-process	16	1,216	2,020
Trade accounts receivable and related accounts	17	941	2,079
Other operating receivables	18	865	1,786
Current tax assets	8	51	85
Other non-operating receivables		81	104
Cash and cash equivalents	19	804	1,686
Other current financial assets	20	207	76
Assets of operations held for sale	9	7,076	375
<b>TOTAL ASSETS</b>		<b>28,987</b>	<b>29,920</b>

## LIABILITIES AND EQUITY

<i>(in millions of euros)</i>	Note	December 31, 2015	December 31, 2014
<b>EQUITY AND MINORITY INTERESTS <sup>(1)</sup></b>		<b>(2,281)</b>	<b>(244)</b>
Share capital	21	1,456	1,456
Consolidated premiums and reserves		(3,797)	(1,756)
Actuarial gains and losses on employee benefits		(293)	(583)
Deferred unrealized gains and losses on financial instruments		166	204
Currency translation reserves		(48)	(12)
<b>Equity attributable to owners of the parent</b>		<b>(2,516)</b>	<b>(691)</b>
Minority interests	22	235	447
<b>NON-CURRENT LIABILITIES</b>		<b>14,676</b>	<b>16,527</b>
Employee benefits	23	1,455	2,235
Provisions for end-of-lifecycle operations	13	6,921	6,985
Other non-current provisions	24	238	267
Share in negative net equity of joint ventures and associates	14	59	103
Long-term borrowings	25	5,905	6,870
Deferred tax liabilities	8	100	66
<b>CURRENT LIABILITIES</b>		<b>16,592</b>	<b>13,638</b>
Current provisions	24	3,990	3,473
Current borrowings	25	1,440	624
Advances and prepayments received	26	2,895	4,444
Trade accounts payable and related accounts		941	1,824
Other operating liabilities	27	1,904	2,750
Current tax liabilities	8	39	58
Other non-operating liabilities	27	64	73
Liabilities of discontinued operations	9	5,320	392
<b>TOTAL LIABILITIES AND EQUITY</b>		<b>28,987</b>	<b>29,920</b>

(1) Including other items of total comprehensive income related to discontinued operations not recyclable to the statement of income in the amount of 55 million euros and recyclable to the statement of income in the amount of 7 million euros at December 31, 2015.

**20.1.4. CONSOLIDATED STATEMENT OF CASH FLOWS**

<i>(in millions of euros)</i>	<b>Note</b>	<b>2015</b>	<b>2014*</b>
<b>Net income for the period</b>		<b>(2,036)</b>	<b>(4,845)</b>
Less: income from operations sold, discontinued or held for sale		190	1,678
<b>Net income from continuing operations</b>		<b>(1,846)</b>	<b>(3,167)</b>
(Profit) / loss of joint ventures and associates		21	14
Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months		812	1,278
Goodwill impairment losses		26	214
Net increase in (reversal of) provisions		919	723
Net effect of reverse discounting of assets and provisions		253	346
Income tax expense (current and deferred)		124	739
Net interest included in borrowing costs		178	165
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value		(148)	(129)
Other non-cash items		14	(4)
Dividends from joint ventures and associates		1	2
<b>Cash flow from operations before interest and taxes</b>		<b>356</b>	<b>181</b>
Net interest received (paid)		(176)	(160)
Income tax paid		(140)	(113)
<b>Cash flow from operations after interest and tax</b>		<b>40</b>	<b>(92)</b>
Change in working capital requirement	28	322	56
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>		<b>362</b>	<b>(36)</b>
Investment in PP&E and intangible assets		(646)	(978)
Loans granted and acquisitions of non-current financial assets		(2,408)	(1,174)
Acquisitions of shares of consolidated companies, net of acquired cash		-	-
Disposals of PP&E and intangible assets		8	7
Loan repayments and disposals of non-current financial assets		2,338	1,268
Disposals of shares of consolidated companies, net of disposed cash		-	(11)
<b>NET CASH FLOW FROM INVESTING ACTIVITIES</b>		<b>(708)</b>	<b>(889)</b>
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries		-	-
Treasury shares sold/(acquired)		-	(2)
Transactions with minority interests		-	(8)
Dividends paid to shareholders of the parent company		-	-
Dividends paid to minority shareholders of consolidated companies		(132)	(30)
Increase in borrowings		(693)	155
<b>NET CASH FLOW FROM FINANCING ACTIVITIES</b>		<b>(825)</b>	<b>116</b>
(Increase) decrease in securities recognized at fair value through profit and loss		35	(2)
Impact of foreign exchange movements		(6)	44
<b>NET CASH FROM OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE</b>	9	<b>331</b>	<b>740</b>
<b>INCREASE (DECREASE) IN NET CASH</b>		<b>(811)</b>	<b>(26)</b>
<b>NET CASH AT THE BEGINNING OF THE YEAR</b>		<b>1,556</b>	<b>1,582</b>
Cash at the end of the year	19	804	1,686
Less: short-term bank facilities and non-trade current accounts (credit balances)	25	(91)	(122)
Net cash from operations held for sale		32	(9)
<b>NET CASH AT THE END OF THE YEAR</b>		<b>745</b>	<b>1,556</b>

\* In application of IFRS 5, the 2014 financial statements were restated in relation to the data published 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, 2015

**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 short-term bank facilities and non-trade current accounts included in short-term borrowings (see Note 25);
- net cash from operations held for sale (see Note 9).

**20.1.5. CONSOLIDATED STATEMENT OF CHANGES IN EQUITY**

<i>(in millions of euros)</i>	Number of shares and investment certificates	Share 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 equity holders of the parent	Minority interests	Total equity and minority interests
<b>JANUARY 1, 2014</b>	<b>382,432,527</b>	<b>1,456</b>	<b>3,198</b>	<b>(317)</b>	<b>330</b>	<b>(94)</b>	<b>4,574</b>	<b>408</b>	<b>4,982</b>
Net income for 2014			(4,833)				(4,833)	(12)	(4,845)
Other items of comprehensive income				(243)	(158)	79	(321)	(24)	(346)
<b>Comprehensive income</b>			<b>(4,833)</b>	<b>(243)</b>	<b>(158)</b>	<b>79</b>	<b>(5,155)</b>	<b>(36)</b>	<b>(5,190)</b>
Dividends paid**								(31)	(31)
Treasury shares sold/ (acquired)	(107,658)		(2)				(2)		(2)
Other transactions with shareholders			(119)	(23)	32	3	(108)	105	(3)
<b>DECEMBER 31, 2014</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 (see Note 21)				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>

\*\* Dividend paid per share (in euros)

- in 2014 from 2013 net income
- in 2015 from 2014 net income

## 20.1.6. 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". Accordingly, this information does not appear in the business segment information below. As a consequence, the Front End BG presented hereunder does not include the Fuel operations, and the OL3 contract is included in "Other operations".

### Definition of EBITDA

EBITDA is equal to operating income plus net amortization, depreciation and operating provisions (including provisions for impairment of working capital items), net of reversals. EBITDA excludes the cost of end-of-lifecycle operations performed in nuclear facilities during the year (facility dismantling, waste retrieval and packaging).

For purposes of greater consistency, AREVA modified its definition of EBITDA in fiscal year 2014 to exclude all non-cash items of operating income.

### BY BUSINESS SEGMENT

#### 2015

##### Income

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate, other operations and eliminations	Group total
<b>Gross revenue</b>	<b>1,453</b>	<b>1,114</b>	<b>1,928</b>	<b>(295)</b>	<b>4,199</b>
Inter-segment sales	(6)	(16)	(335)	357	-
Contribution to revenue	1,447	1,097	1,593	62	<b>4,199</b>
<b>EBITDA*</b>	<b>604</b>	<b>389</b>	<b>315</b>	<b>(624)</b>	<b>685</b>
% of gross revenue	41.5%	35.0%	16.4%	NA	16.3%

\* see Note 5.

About 30% of the group's consolidated revenue is with EDF.

##### Balance sheet

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate, other operations and eliminations	Group total
PP&E and intangible assets (including goodwill)	3,862	4,330	2,256	114	<b>10,562</b>
Assets earmarked for end-of-lifecycle operations	2	1,537	4,761	-	<b>6,300</b>
Other non-current assets				885	<b>885</b>
<b>Subtotal: Non-current assets</b>	<b>3,864</b>	<b>5,867</b>	<b>7,017</b>	<b>1,000</b>	<b>17,747</b>
Inventories and receivables (excluding tax receivables)	471	1,052	950	628	<b>3,102</b>
Other current assets				1,062	<b>1,062</b>
<b>Subtotal: Current assets</b>	<b>471</b>	<b>1,052</b>	<b>950</b>	<b>1,690</b>	<b>4,164</b>
Assets of operations held for sale				7,076	<b>7,076</b>
<b>TOTAL ASSETS</b>	<b>4,335</b>	<b>6,919</b>	<b>7,968</b>	<b>9,766</b>	<b>28,987</b>

20.1 Consolidated financial statements for the year ended December 31, 2015

2014 (\*)

\* Pursuant to IFRS 5, the segment information for 2014 was restated in relation to the data reported for the previous year.

Income

(in millions of euros)	Mining	Front End	Back End	Corporate, other operations and eliminations	Group total
<b>Gross revenue</b>	<b>1,304</b>	<b>1,040</b>	<b>1,838</b>	<b>(229)</b>	<b>3,954</b>
Inter-segment sales	(7)	(52)	(307)	366	-
Contribution to revenue	1,297	988	1,531	137	<b>3,954</b>
<b>EBITDA**</b>	<b>451</b>	<b>245</b>	<b>232</b>	<b>(457)</b>	<b>471</b>
% of gross revenue	34.6%	23.5%	12.6%	NA	11.9%

\*\* see Note 5.

About 30% of the group's consolidated revenue is with EDF.

Balance sheet

(in millions of euros)	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services, Engineering and Eliminations	Group total
PP&E and intangible assets (including goodwill)	4,244	5,730	2,299	2,246	48	85	<b>14,653</b>
Assets earmarked for end-of-lifecycle operations	2	1,195	51	4,955	-	-	<b>6,204</b>
Other non-current assets						852	<b>852</b>
<b>Subtotal: Non-current assets</b>	<b>4,246</b>	<b>6,925</b>	<b>2,351</b>	<b>7,202</b>	<b>48</b>	<b>937</b>	<b>21,709</b>
Inventories and receivables (excluding tax receivables)	669	1,598	1,882	1,046	54	740	<b>5,989</b>
Other current assets						1,847	<b>1,847</b>
<b>Subtotal: Current assets</b>	<b>669</b>	<b>1,598</b>	<b>1,882</b>	<b>1,046</b>	<b>54</b>	<b>2,587</b>	<b>7,836</b>
Assets of operations held for sale					375		<b>375</b>
<b>TOTAL ASSETS</b>	<b>4,915</b>	<b>8,523</b>	<b>4,232</b>	<b>8,247</b>	<b>478</b>	<b>3,524</b>	<b>29,920</b>

BY GEOGRAPHICAL AREA

2015

Contribution to consolidated revenue by business segment and customer location

(in millions of euros)	Mining	Front End	Back End	Corporate and other operations	Group total
France	252	274	1,098	36	<b>1,660</b>
Europe (excluding France)	225	258	209	11	<b>703</b>
North & South America	273	318	236	6	<b>833</b>
Asia-Pacific	620	232	46	8	<b>906</b>
Africa and Middle East	77	16	5	1	<b>98</b>
<b>TOTAL</b>	<b>1,447</b>	<b>1,097</b>	<b>1,593</b>	<b>62</b>	<b>4,199</b>

**Closing balances of net property, plant and equipment and intangible assets (excluding goodwill) at December 31, 2015  
by geographical area and by business segment**

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate and other operations	Group total
France	130	4,169	1,979	109	6,387
Europe (excluding France)	171	-	2	6	178
North & South America	1,571	-	44	2	1,617
Asia-Pacific	3	-	0	1	4
Africa and Middle East	1,103	-	-	-	1,103
<b>TOTAL</b>	<b>2,979</b>	<b>4,169</b>	<b>2,025</b>	<b>117</b>	<b>9,290</b>

**Acquisitions of property, plant and equipment and intangible assets (excluding goodwill) in 2015 by business segment  
and by the geographical area of the units**

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate and other operations	Group total
France	2	275	154	11	443
Europe (excluding France)	55	-	0	0	55
North & South America	105	0	14	0	119
Asia-Pacific	0	-	-	0	0
Africa and Middle East	25	-	-	-	25
<b>TOTAL</b>	<b>187</b>	<b>276</b>	<b>169</b>	<b>11</b>	<b>642</b>

**Additional information on Germany and Japan at December 31, 2015**

<i>(in millions of euros)</i>	Revenue by customer location	Closing balance of net property, plant and equipment and intangible assets (excluding goodwill)
Germany	76	7
Japan	375	-

**2014 (\*)**

\* Pursuant to IFRS 5, the segment information for 2014 was restated in relation to the data reported for the previous year.

**Contribution to consolidated revenue by business segment and customer location**

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate and other operations	Group total
France	220	313	957	96	1,587
Europe (excluding France)	188	170	283	7	648
North & South America	260	326	205	20	812
Asia-Pacific	598	166	81	12	859
Africa and Middle East	30	12	5	-	48
<b>TOTAL</b>	<b>1,297</b>	<b>988</b>	<b>1,531</b>	<b>137</b>	<b>3,954</b>

**Closing balances of net property, plant and equipment and intangible assets (excluding goodwill) at December 31, 2014**  
**by geographical area and by business segment**

<i>(in millions of euros)</i>	Mining	Front End	Reactors & Services	Back End	Renewable Energies	Corporate, Shared Services and Engineering	Group total
France	150	4,375	720	1,952	9	163	7,369
Europe (excluding France)	296	49	49	2	6	18	420
North & South America	1,680	66	77	30	2	17	1,872
Asia-Pacific	5	-	1	-	1	1	8
Africa and Middle East	1,316	-	-	-	-	-	1,316
<b>TOTAL</b>	<b>3,447</b>	<b>4,490</b>	<b>847</b>	<b>1,984</b>	<b>18</b>	<b>198</b>	<b>10,986</b>

**Acquisitions of property, plant and equipment and intangible assets (excluding goodwill) in 2014 by business segment and by the geographical area of the units**

<i>(in millions of euros)</i>	Mining	Front End	Back End	Corporate and other operations	Group total
France	106	373	141	32	652
Europe (excluding France)	65	-	0	0	66
North & South America	161	2	5	0	169
Asia-Pacific	0	-	0	0	0
Africa and Middle East	131	-	-	-	131
<b>TOTAL</b>	<b>463</b>	<b>375</b>	<b>147</b>	<b>33</b>	<b>1,018</b>

**Additional information on Germany and Japan at December 31, 2014**

<i>(in millions of euros)</i>	Revenue by customer location	Closing balance of net property, plant and equipment and intangible assets (excluding goodwill)
Germany	147	115
Japan	382	-

## 20.2. NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS FOR THE YEAR ENDED DECEMBER 31, 2015

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All amounts are presented in millions of euros unless otherwise indicated. Certain totals may include rounding differences.

## INTRODUCTION

AREVA's consolidated financial statements for the period January 1 through December 31, 2015 were approved by the Board of Directors on February 25, 2016. The financial statements will be presented to the Annual General Meeting of Shareholders for approval on May 19, 2016.

The AREVA group is fully consolidated by the Commissariat à l'énergie atomique et aux énergies alternatives (see Note 21).

Information for 2013 reported in the 2014 Reference Document filed with the Autorité des marchés financiers (AMF) on March 31, 2015, is incorporated by reference.

## NOTE 1. HIGHLIGHTS OF THE PERIOD, ESTIMATES AND JUDGMENTS, AND ACCOUNTING PRINCIPLES

### 1.1. HIGHLIGHTS OF THE PERIOD

The year of 2015 saw the implementation of measures announced on March 4, 2015 during the publication of the financial statements for the year ended December 31, 2014, and guidance relative to the transformation of the French nuclear industry announced on June 3, 2015 by the President of the French Republic. Important milestones were met in 2015 and in the first weeks of 2016, in particular for the following items:

- Advanced discussions with EDF for the sale of at least 75% of AREVA NP's share capital, excluding the OL3 contract;
- Refocusing of AREVA on nuclear fuel cycle operations with the announced termination or sale of operations that are not part of its core business;
- A competitiveness plan aiming for 1 billion euros in cost reductions by 2017, including a restructuring plan;
- The preparation of a 2015-2017 financing plan including in particular an increase in AREVA's share capital of 5 billion euros.

#### Discussions with EDF for the sale of AREVA NP

AREVA and EDF continue discussions for the sale of at least 75% of AREVA NP to EDF.

- The two companies signed a preliminary memorandum of understanding on July 29, 2015 presenting the principal terms and conditions of the project with a view to finalizing definitive agreements.
- The next milestone was met during the AREVA Board of Directors meeting of January 27, 2016, which was favorable to the convergence of negotiations entered into with EDF concerning the valuation of AREVA NP's operations and gave the Chief Executive Officer authority to finalize the negotiations. AREVA reached an agreement with EDF on an indicative value of 2.5 billion euros for 100% of the equity as of the date of execution of the transaction, excluding OL3 including a price adjustment mechanism up to 350 million euros based on the 2017-2018 performance of AREVA NP. This value will be revised according to the financial statements as at the closing date.
  - AREVA would keep a strategic interest in AREVA NP of at least 15% with which governance rights would be associated commensurate with AREVA's status as a strategic minority shareholder.
  - Finalization of the transaction remains subject in particular to (i) the favorable outcome of verifications in progress concerning the compliance of the Flamanville 3 reactor vessel and (ii) the definition of procedures for transferring the OL3 contract from AREVA NP to AREVA SA.
  - The parties' objective is to carry out this transaction in 2017, after consultation with the employee representative bodies, receipt of regulatory authorizations and the lifting of the other conditions precedent of the transaction.

In this context, AREVA considers that the sale of a controlling interest in AREVA NP to EDF is highly probable and that the conditions for implementing IFRS 5 accounting rules relative to operations held for sale have been met. The OL3 project is not part of the scope held for sale (see Note 9).

#### Refocusing on nuclear fuel cycle operations

The sale, termination or transformation into a joint venture of operations that are not part of the new AREVA's core business, refocused on the nuclear fuel cycle, have been announced or carried out in 2015:

- Offshore Wind: On March 9, 2015, AREVA and Gamesa finalized the creation of the Adwen joint venture.
- Solar Energy: Discussions with potential buyers were not successful, and the last project in execution was the subject of an agreement with the customer on January 16, 2016 to terminate the contract.
- Nuclear Measurements: Following a call for offers issued in June 2015 aimed at selling its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in nuclear measurement instrumentation and systems, AREVA selected the Mirion proposal on December 24, 2015.
- AREVA TA: The principle of an acquisition by the Agence des participations de l'État of a majority interest in AREVA TA was announced in a press release on December 17, 2015 and confirmed on January 27, 2016.

These operations were classified under operations sold, discontinued or held for sale at December 31, 2015, pursuant to IFRS 5 (see Note 9).

#### Restructuring plan

The group announced a personnel expense reduction target of 18% worldwide (15% in France) based on renegotiation of compensation, the organization of working time, and manpower adjustments leading to the elimination of 5,000 to 6,000 jobs, including 3,000 to 4,000 in France, by the end of 2017.

In France, a group agreement was signed on October 19, 2015 between management and labor. Measures are based on voluntary action. The consultation procedures with employee representative bodies are in progress and, subject to approval by the labor administration, the voluntary departure plans will enter into force in early April 2016.

In Germany, the closing of the Offenbach site and transfer of the personnel to the Karlstein and Erlangen sites were announced. These activities will be finalized in mid-2016.

Provisions for restructuring were recognized at December 31, 2015 in this regard (see Note 24).

## Capital increase

The Board of Directors, meeting on January 27, 2016, approved the principle of a capital increase in the amount of 5 billion euros designed to restore a sound balance sheet to the group. On that same day, the President of the French Republic announced that the State, as leading shareholder, would subscribe to this capital increase, to which minority third-party investors would be invited, and would ensure its full success, in compliance with regulations and European procedures applicable to such transactions.

## Liquidity situation and business continuity

At December 31, 2015, the liquidity risk was covered for the year of 2016 by:

- a positive gross cash position of 0.8 billion euros (versus 1.7 billion euros at December 31, 2014). Gross cash was maintained at this level through the combination of optimization actions taken during the year (strengthened cash management, implementation of the competitiveness plan, factoring transactions and the sale of tax credit receivables). These optimization actions will continue in 2016;
- an unused balance of confirmed bilateral lines and syndicated line of credit in the amount of 2.1 billion euros.

Since December 31, 2015:

- as it announced on January 27, 2016, AREVA drew 2 045 million euros on its bilateral lines of credit and syndicated line of credit on January 4 and 5, 2016;
- in addition, an interim financing in the amount of 1.1 billion euros, negotiated with banks, will ensure the group's business continuity.

At December 31, 2015, current financial debt totaled 1.440 billion euros, consisting in particular of:

- the last installment, in the amount of 200 million euros, of a loan granted by the European Investment Bank, reimbursed in January 2016;
- the scheduled repayment of 964 million euros of a bond issue in September 2016;
- scheduled repayments of the redeemable loan for structured financing of Georges Besse II in the amount of 36 million euros;
- accrued interest on bond issues in the amount of 56 million euros in September 2016;
- commercial paper in the amount of 26 million euros; and
- current bank credit facilities and positive credit balances in the amount of 91 million euros.

Beyond 2016 and up to 2018 year end, significant debt repayments include the bond issue expiring in October 2017 in the nominal remaining amount of 798 million euros, the repayment of the 1.1 billion interim financing in January 2017, the repayment of bilateral lines of credit in the amount of 795 million euros in 2017 and the repayment of the syndicated line of credit in the amount of 1.250 billion euros in January 2018 and the repayment of a private placement issued in Japanese yen of approximately 60 million euros in September 2018. Over that timeframe, business continuity will be ensured through the measures set forth in the group's financing plan, whose objective is to give the company the means to implement its transformation plan and to have a financial profile enabling it to refinance in the markets on a long-term basis. These measures include among others the capital increase, the sale of the majority of AREVA NP to EDF, and the other subsidiary sales described in the preceding paragraphs.

## Contract for construction of the Olkiluoto 3 EPR

Over the course of 2015, the Olkiluoto 3 EPR project made progress, meeting critical path milestones.

Discussions have begun with TVO with the objectives of jointly laying the foundations for cooperation to complete the project and settle the dispute. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

However, the loss at completion of the project was raised by 905 million euros to reflect (i) extra operating costs, (ii) an increase in costs and contingencies for the test phases, and (iii) the probable outcome of discussions begun with TVO.

## Other highlights

AREVA and EDF reached an agreement in June 2014 on the main financial terms of the treatment and recycling contract for the 2013-2020 period. On May 27, 2015, AREVA and EDF agreed on the application of this agreement to the years 2013-2015. Discussions concerning an agreement for the 2016-2023 period ended in December 2015 and the contract was formally signed on February 5, 2016 following approval by the governing bodies of each group.

On January 15, 2016, the Ministry of Ecology, Sustainable Development and Energy published an order setting the cost accruing to implementation of long-term management solutions for long-lived medium- and high-level radioactive waste at 25 billion euros. This new cost was reflected in AREVA's financial statements through the recognition of an addition provision of 250 million euros for end-of-lifecycle operations at December 31, 2015.

## 1.2. ESTIMATES AND JUDGMENTS

To prepare its financial statements, AREVA must make estimates, assumptions and judgments impacting the net 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 take into account past experience and other factors deemed relevant, based on business circumstances. Depending on changes in these assumptions or in circumstances, the group's future financial statements may or may not be consistent with current estimates, particularly in the following areas:

- 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 following the group's procedures;
- anticipated cash flows, discount rates and growth assumptions used in 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 calculate provisions for end-of-lifecycle operations and the assets corresponding to the third party share, including:
  - the estimated costs of these operations,
  - inflation and discount rates,
  - the schedule of future disbursements,

- the operating period of the facilities (see Notes 1.3.17 and 13);
- the procedures for final shut-down of the facilities;
- the assumptions used to value provisions for restructuring and provisions for voluntary redundancy plans (see Notes 1.3.16 and 24);
- estimates and judgments regarding the outcome of ongoing litigation and, more generally, estimates regarding all provisions and contingent liabilities of the AREVA group (see Notes 1.17, 24 and 34);
- estimates and judgments relative to the recoverability of trade accounts receivable 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 calculate deferred tax assets (see Notes 1.3.22 and 8);
- the share in equity and net income of joint ventures and associates that had not yet published their year-end financial statements as of the date of year-end closing of AREVA's financial statements;
- the high probability of loss of control of assets and operations classified as being "held for sale" within a period of 12 months after the date of closing, in accordance with IFRS 5 (see Notes 1.3.1.5 and 9);
- estimates relative to the proceeds from net sales of assets and operations classified as "held for sale" (see Note 9).

### 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), as adopted by the European Union as from December 31, 2015. They reflect International Accounting Standards (IAS) and IFRS standards and interpretations issued by the IFRS Interpretations Committee (IFRIC) and the former Standing Interpretation Committee (SIC). They 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, 2015 is later than said date.

#### IFRIC interpretation applicable January 1, 2015

On June 13, 2014, the European Union published IFRIC 21 – Levies Charged by Public Authorities, for which it set the mandatory adoption date at the opening date of the first fiscal year after its publication, i.e. January 1, 2015. The interpretation concerns the taxes due by an entity to a public authority in application of the regulation, other than those entering into the scope of IAS 12 – Income Taxes. IFRIC 21 specifies that the obligating event for a tax consists of the last activity rendering it payable. Adoption of this interpretation has the consequence of modifying the recognition method for certain taxes. In particular, taxes that become payable on a given date, when certain conditions are met, are recognized in their full amount at that date and may not be spread out over time. The impact of the adoption of this interpretation had little impact on the AREVA group in 2015.

#### Amendments to existing standards applicable as from the 2016 accounting year

- An amendment to IFRS 8 on aggregations of operating segments requires the disclosure of criteria applied to the aggregation of operating segments by briefly describing the segments aggregated and the economic indicators on which the company based its determination that they have similar characteristics.
- Amendments to IAS 16 and IAS 38 prohibit the use of an amortization method based on the proportionate share of revenue generated by the use of the asset in the case of property, plant and equipment, and allow it only exceptionally for intangible assets. These amendments have no impact on the AREVA group's financial statements, which do not use an amortization method based on the proportionate share of revenue generated by the use of assets.

#### IFRS standards published before December 31, 2015 and not yet approved by the European Union

- IFRS 15 – Revenue Recognition was published on May 28, 2014. It will enter into force January 1, 2018, subject to its adoption by the European Union. This standard will replace IAS 11 – Construction Contracts and IAS 18 – Revenue, and their interpretations.
- IFRS 9 – Financial Instruments was published on July 24, 2014. It will enter into force January 1, 2018, subject to its adoption by the European Union. This standard will replace IAS 39.

A plan to implement IFRS 15 was set up in 2015 in order to measure its impacts on the group's financial statements and information systems; the group has also begun to analyze IFRS 9.

### 1.3.1. Presentation of the financial statements

#### 1.3.1.1 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 include assets held for sale or for use in connection with the operating cycle, or that are expected to be sold or settled within 12 months of the statement of financial position date.

Financial liabilities are reported as current or non-current liabilities based on their residual maturity at year-end.

To simplify the presentation of the statement of financial position, AREVA presents all headings relating to end-of-lifecycle operations, as defined in Note 13, on separate lines under non-current assets or liabilities, in their full amount. Thus, provisions for end-of-lifecycle operations are presented as non-current liabilities; the end-of-lifecycle asset corresponding to the share of third parties in the financing of these operations is presented under non-current assets. Financial assets earmarked to cover these operations are presented in a separate heading under non-current assets, including all equities and shares of equity funds and bond funds 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 reported as non-current.

#### 1.3.1.2. 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 expenses are presented by function, 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 qualified as discontinued operations in accordance with IFRS 5, in which case they are presented on a separate line in the statement of income);
  - reversals of impairment of property, plant and equipment and intangible assets;
- other operating expenses, mainly comprising the following items:
  - goodwill impairment;
  - costs of restructuring and early employee retirement plans;
  - 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 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 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, most notably:
    - lasting impairment and gains or losses on sales of available-for-sale securities;
    - negative changes in value of securities held for trading;
    - reverse discounting of provisions for end-of-lifecycle operations and employee benefits;
  - other financial income, most notably:
    - 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;
    - reverse discounting of end-of-lifecycle assets (third party share);
    - returns on retirement plan assets and other employee benefits.

### **1.3.1.3. 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 not recyclable to the income statement.

- Items recyclable to the income statement include:
  - currency translation adjustments on 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 discontinued operations 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 from 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 immaterial.

### **1.3.1.4. 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 equity associates, which are reported in cash flows from investing activities.

Cash flow from operations is presented before income tax, dividends and interest.

### **1.3.1.5. 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 business segments within the group for which management has initiated a disposal plan and an active program to search for buyers, and whose sale is probable within the 12 months following the end of the accounting year (which may be extended in the event of specific circumstances). Discontinued operations correspond to business segments whose operation was terminated at the date of closing of the accounting year. Operations held for sale and discontinued operations are presented as follows in the financial statements:

- the assets and liabilities of operations held for sale are presented in their full amount under specific headings of the balance sheet; the debts and receivables of these operations as concerns the group's other entities continue to be eliminated in consolidation. The comparative statement of financial position is not restated;
- net income from operations held for sale and discontinued operations is presented under a specific heading of the statement of income, which includes the net income after tax from these operations until the date of their termination or disposal and the net gain after tax on the disposal itself; the statement of income for 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;
- net cash flows from operations held for sale and discontinued operations 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 for 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.

**1.3.2. Consolidation and equity methods**

The consolidated financial statements combine the financial statements for the year ended December 31, 2015 of AREVA and the subsidiaries which it controls, in accordance with the criteria defined in IFRS 10, which are fully consolidated.

Joint ventures (companies in which AREVA exercises joint control with one or more investors and which do not meet the definition of a joint activity) 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 in the consolidated balance sheet;
- 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 in 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 1.3.1.5 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;
- income statement transactions and cash flow statements are translated at average annual rates;
- currency translation differences in respect of 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**

AREVA presents its business segment information by operating Business Group, which corresponds to the level at which performance is examined by the group's steering bodies, in accordance with the requirements of IFRS 8. The three operating segments presented are Mining, Front End and Back End.

Information by business segment relates only to operating data included in the statement of income and the statement of financial position (revenue, EBITDA, goodwill, non-current property, plant and equipment and intangible assets, and other operating assets). Financial assets and liabilities and the group's tax position are managed at the corporate level; the corresponding items in the statement of income and statement of financial position are not allocated to the operating segments.

In addition, AREVA reports data by geographical area. AREVA's consolidated revenue is allocated among five geographical areas based on the destination of goods and services: France, Europe excluding France, North and South America, Asia-Pacific, Africa and the Middle East.

**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 business 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.

The acquired company's contingent liabilities resulting from a current obligation on the date of acquisition are recognized as identifiable liabilities and recorded at 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. In accordance with that method:

- the goodwill reported in assets corresponds to the difference between the acquisition price of the operations or shares of the company acquires and the fair value share of the corresponding assets, liabilities and contingent liabilities on the date of the acquisition;
- minority interests are recognized initially based on the fair value of assets, liabilities and contingent liabilities on the date of acquisition, prorated for the percentage interest held by 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 if 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 these tests indicates that it is necessary. Significant loss of market share, loss of administrative permits or licenses required to operate a business, or significant 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).

When the recoverable amount of the cash-generating unit is less than the net carrying amount of its assets, the impairment is allocated first to goodwill and then to other non-current assets of the CGU (property, plant and equipment and intangible assets), prorated based on their net carrying amount. The recoverable amount of a CGU is the higher of (1) its value in use, measured in accordance with 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 and taken into consideration to determine the gain or loss on disposal.

If an asset or group of assets is sold that 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 recognized at the fair value of the consideration received or to be received, net of rebates and sales taxes.

Revenue 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 in respect of transactions where the unit only acts as broker, without bearing the risks and rewards attached to the goods, consists of the margin obtained by the unit. The same is true for commodity trading activities, which primarily concern uranium trading.

No revenue 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 equal to 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 contract terms generate significant cash surpluses during all or part of the contract's performance, the resulting financial income is included in contract revenue 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 of the project.

When a contract is expected to generate losses at completion, the total projected loss is recorded immediately, 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 recognized at amortized cost.

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 expected life of the intangible asset, 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 MINING PRE-DEVELOPMENT**

Exploration and geological work are assessed in accordance with the following rules:

- Exploration expenses incurred to identify new mineral resources and expenses related to studies and pre-development work to evaluate a deposit before project profitability is confirmed are recognized as research and development expenses through profit and loss for the period.
- Mining pre-development expenses relating to reserves presenting technical and economic characteristics that indicate a strong probability of profitable mining development may be capitalized at year-end. 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 recorded when it is likely that future economic benefits therefrom will accrue to the company and if the cost of this asset can be estimated reliably, based on reasonable and documented assumptions.

Intangible assets are recorded at 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 based on its own 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.

Nuclear facilities are depreciated on a straight line over their useful life, measured by taking into account the durations of the portfolio of existing or reasonably foreseeable contracts performed in these facilities.

Depreciation periods are revised if the group's backlog changes significantly.

Changes in the asset value of these facilities, recognized to offset 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 are performed systematically at least once a year for goodwill and intangible assets with indefinite useful lives. These tests are performed at the level of the cash-generating units (CGU) to which such goodwill and intangible assets belong.

A CGU is the smallest identifiable group of assets generating cash inflows which are largely independent of the cash inflows from 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 all 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, published 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 an asset's useful value, cash flows are discounted based on a discount rate consistent with a current assessment of the time value of money and the specific risk of the asset or the CGU.

#### ***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 production cost in the case of goods produced by the group and at acquisition cost in the case of goods acquired for consideration. Items are valued according to the first-in first-out method (FIFO) or at weighted average cost, depending on the type of inventory.

Impairment is recognized when the likely recoverable amount of inventory or work-in-process is less than its net carrying amount.

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. Accounts receivable**

Trade accounts receivable, generally due in less than one year, are recognized at book value at amortized cost.

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 includes all investments dedicated by AREVA to the funding of its operations for future end-of-lifecycle operations in the nuclear business, including facility dismantling and waste retrieval and packaging. The portfolio includes directly-held publicly traded shares and bonds, dedicated equity mutual funds, dedicated bond and money market funds, and cash. It also includes receivables resulting from agreements with third parties liable for a share of the financing of end-of-lifecycle operations. These receivables are recognized at amortized cost.

- Publicly traded shares are classified as "available-for-sale securities", as defined in IAS 39. They are recognized at fair value, corresponding to the last traded price of the year. Changes in value are under "other items of comprehensive income" and are presented on the balance sheet under "deferred unrealized gains and losses on financial instruments" on an after-tax basis, except for lasting impairment, which is recognized in financial expenses for the year.
- AREVA does not consolidate its dedicated mutual fund assets on an individual basis, insofar as the company does not have control over them according to IFRS 10 criteria:
  - AREVA is not involved in the management of the dedicated mutual funds, which are managed by independent and reputable asset management firms. These mutual funds are benchmarked to the MSCI index of large European capitalizations, with strict limits on risk. The funds are regulated by the French stock market authority and therefore subject to regulations governing investment and concentration of risk,
  - AREVA does not control the mutual fund management firms,
  - AREVA does not hold voting rights in the mutual funds,
  - the 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 mutual 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 mutual funds are recognized in the balance sheet under a single heading corresponding to AREVA's share of their net asset value as of the end of the year.

Considering their long-term investment objective, the funds dedicated to financing end-of-lifecycle operations are classified as "available-for-sale securities". Accordingly, the accounting treatment of changes in fair value and the impairment measurement and recognition methods 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 mutual funds consisting exclusively of bonds held to maturity are recognized under "securities held to maturity" and valued at amortized cost.

### **1.3.12.2. Other available-for-sale securities**

This heading includes all 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 held in the dedicated portfolio:

- fair value equal to the last traded price of the year;
- changes in fair value recognized under "other items of comprehensive income", except for lasting impairment, which is recognized in net financial income.

This heading also includes the group's investments in the share capital of unconsolidated companies, either because AREVA does not have control and has no significant influence over them or because of immateriality. These securities are valued at their acquisition cost when the 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 lasting drop in the price or liquidation value of a line of securities below their initial value. The impairment is calculated as the difference between the prices traded on the stock market or the liquidation value of the securities on the last day of the period and the initial value of the securities, corresponding to their acquisition cost at inception.

AREVA determines the significant or lasting nature of a drop in the price or liquidation 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 funds, bond or equity funds; bonds or equities held directly;
- whether the assets are earmarked or not to finance end-of-lifecycle operations: assets earmarked for end-of-lifecycle operations must 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 liquidation value of a line of securities is significant or lasting and requires the recognition of a provision for lasting impairment. The impairment is measured for significance by comparing the drop in the price or liquidation value of the line of securities with the historical acquisition cost. The lasting nature of impairment is measured by observing the length of time during which the price or liquidation value of the line of securities remained consistently lower than the acquisition cost at inception.

The drop in value 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 funds	5%	1 year
• Bond funds and bonds held directly	25%	2 years
• Equity 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 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 and may only be released to the income statement on sale of the securities. An increase in market prices or liquidation value subsequent to recognition of impairment is recorded as a change of fair value under "other items of comprehensive income". Any additional loss of value affecting a line of previously impaired securities is recognized 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 equity interests, advances for acquisitions of equity interests, and security deposits.

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 and 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 1.3.1.5) 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**

Inflation and discount rates used to discount end-of-lifecycle operations are determined as follows:

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 determined based on long series of bonds with maturities comparable to those of the liabilities, to take into account long-term interest trends consistent with the long-term schedule of actual disbursements. The selected discount rate must also comply with a dual regulatory cap:

- the value defined by the decree of February 23, 2007 and the order of March 24, 2015 amending the order of March 21, 2007;
- the expected return on plan assets.

It is based on the moving average yield of 30-year French OATs over a 10-year period, plus the spread applicable to prime corporate borrowers.

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 1.75% and a discount rate of 4.50% at December 31, 2015 (rates identical to those used at December 31, 2014).

#### **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 accounting 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

### 2.1. CONSOLIDATED COMPANIES AND ASSOCIATES (FRENCH / FOREIGN)

(number of companies)	2015		2014	
Consolidation method	Foreign	French	Foreign	French
Full consolidation	84	43	90	44
Equity method	17	8	16	8
<b>Sub-total</b>	<b>101</b>	<b>51</b>	<b>106</b>	<b>52</b>
<b>TOTAL</b>	<b>152</b>		<b>158</b>	

Note 36 provides a list of the main consolidated companies and associates.

### 2.2. 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 9 describes transactions that were ongoing at year-end 2015 and are expected to be finalized in 2016.

### 2.3. 2014 TRANSACTIONS

#### Sale of Euriware SA and Euriware Group

On May 7, 2014, AREVA and Capgemini signed agreements involving a commercial partnership in the form of an IS outsourcing and systems integration contract, and the acquisition of Euriware and its subsidiaries by the Capgemini group.

#### Creation of AREVA H2Gen

On May 23, 2014, AREVA, Smart Energies (via its subsidiary Ceth<sub>2</sub>) and Ademe announced the creation of the AREVA H2-Gen joint venture, which will manufacture proton exchange membrane electrolyzers.

#### Creation of Anadec

On July 1, 2014, AREVA and Atox announced the creation of the Anadec joint venture, which will provide dismantling solutions and services to Japanese nuclear power plants.

#### Creation of AREVA Mace Atkins

On September 18, 2014, AREVA and Atkins announced the creation of the AREVA Mace Atkins joint venture, to strengthen their competitive position in the nuclear fuel management and dismantling markets in the United Kingdom.

### NOTE 3. REVENUE BY REGION

<i>(in millions of euros)</i>	2015	2014
Contracts accounted for according to the percentage of completion method	1,165	1,131
Other sales of products and services		
Sales of goods	1,728	1,624
Sales of services	1,306	1,198
<b>TOTAL</b>	<b>4,199</b>	<b>3,954</b>

Revenue for 2015 includes 54 million euros for sales of enrichment services exchanged for natural uranium in the form of UF<sub>6</sub> (versus 36 million euros at December 31, 2014).

The table below presents data on contracts recognized according to the percentage of completion method, which were in progress as of December 31, 2015 and December 31, 2014:

<i>(in millions of euros)</i>	2015	2014
Customer advances	1,576	1,140
Amounts withheld by customers	4	5

The group elected to present its statement of income based on the destination of income and expense items. Additional information is provided in Notes 4 and 5 below.

### NOTE 4. ADDITIONAL INFORMATION BY TYPE OF EXPENSE

<i>(in millions of euros, except workforce)</i>	2015	2014*
Payroll expenses	(1,553)	(1,705)
Employees at the end of the year	21,046	22,113
Operating leases	(73)	(95)

(\*) In application of IFRS 5, the 2014 data were restated in relation to the data published the previous year.

Payroll expenses include salaries and related social security contributions, excluding retirement benefits.

### NOTE 5. RECONCILIATION BETWEEN OPERATING INCOME AND EBITDA

<i>(in millions of euros)</i>	2015	2014
<b>Operating income</b>	<b>(1,388)</b>	<b>(2,115)</b>
Impairment of goodwill	26	214
Net increase in depreciation and impairment of intangible assets, net of reversals	145	132
Net increase in depreciation and impairment of property, plant and equipment, net of reversals	643	1,131
Impairment of current assets, net of reversals	71	148
Provisions, net of reversals (*)	920	724
Investment subsidies recognized through profit and loss	(1)	(1)
Costs of end-of-lifecycle operations performed	267	237
<b>EBITDA</b>	<b>685</b>	<b>471</b>

(\*) Including increases and reversals of provisions for employee benefits.

**NOTE 6. OTHER OPERATING INCOME AND EXPENSES**

Other operating expenses and other operating income include foreign exchange losses in the amount of 22 million euros and foreign exchange gains in the amount

of 53 million euros at December 31, 2015 (versus a loss of 27 million euros and a gain of 2 million euros at December 31, 2014).

**OTHER OPERATING EXPENSES**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>
Restructuring and early retirement costs*	(238)	1
Goodwill impairment losses	(26)	(214)
Impairment of property, plant and equipment and intangible assets, net of reversals	(208)	(710)
Income on disposals of assets other than financial assets	-	(6)
Other operating expenses	(391)	(217)
<b>TOTAL OTHER OPERATING EXPENSES</b>	<b>(863)</b>	<b>(1,145)</b>

\* Net of employee benefits reversals.

Restructuring costs are recognized for 2015. They are described in Notes 1 and 24.

Impairment of goodwill, intangible assets and property, plant and equipment in 2015 and 2014 are described in Notes 10, 11 and 12 respectively.

In 2014 and 2015, other operating expenses included in particular:

- provisions and expenses associated with the streamlining of the group's office sites, mainly in France, in the amount of 41 million euros in 2014;

- costs associated with the deferral of work to open the Imouraren mining site in the amounts of 42 million euros in 2015 and 48 million euros in 2014;
- a provision constituted in 2015 for an industrial equipment supply contract in the amount of 40 million euros (see Note 24);
- a provision in the amount of 180 million euros for expected costs resulting from the transfer of the OL3 contract from AREVA NP to AREVA SA, for which the terms are under discussion. (see Note 24).

**OTHER OPERATING INCOME**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>
Income on disposals of assets other than financial assets	2	
Other operating income	89	16
<b>TOTAL OTHER OPERATING INCOME</b>	<b>91</b>	<b>16</b>

**NOTE 7. NET FINANCIAL INCOME**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>
<b>Net borrowing costs</b>	<b>(185)</b>	<b>(185)</b>
Income from cash and cash equivalents	20	32
Gross borrowing costs	(205)	(217)
<b>Other financial income and expenses</b>	<b>(129)</b>	<b>(115)</b>
<b>of which share related to end-of-lifecycle operations</b>	<b>122</b>	<b>30</b>
Income from disposal of securities earmarked for end-of-lifecycle operations	139	131
Dividends received	145	139
Income from receivables related to dismantling and from discount reversal on earmarked assets	24	27
Impairment of available-for-sale securities	(3)	-
Impact of changes in discount rate and amended schedules	9	(40)
Discounting reversal expenses on end-of-lifecycle operations	(193)	(227)
<b>of which share not related to end-of-lifecycle operations</b>	<b>(250)</b>	<b>(145)</b>
Foreign exchange gain (loss)	19	13
Income from disposals of securities and change in value of securities held for trading	6	4
Dividends received	1	5
Impairment of financial assets	(21)	(11)
Interest on contract prepayments	(68)	(71)
Financial income from pensions and other employee benefits	(34)	(48)
Other financial expenses	(141)	(54)
Other financial income	(12)	17
<b>NET FINANCIAL INCOME</b>	<b>(313)</b>	<b>(299)</b>

At December 31, 2015, other financial expenses mainly include accretion on debt and provisions other than employee benefits and end-of-lifecycle operations in the amount of 41 million euros, and a debt write-off for an operation held for sale in the amount of 66 million euros.

At December 31, 2014 and December 31, 2015, the net gain on sales of securities included in the share related to end-of-lifecycle operations did not include the recapture of lasting impairment allocated to the securities sold.

**NOTE 8. INCOME TAX****ANALYSIS OF INCOME TAX EXPENSE**

<i>(in millions of euros)</i>	<b>2015</b>	<b>2014</b>
Current taxes (France)	(80)	(63)
Current taxes (other countries)	(68)	(28)
<b>Total current taxes</b>	<b>(148)</b>	<b>(91)</b>
Deferred taxes	24	(648)
<b>TOTAL TAX INCOME</b>	<b>(124)</b>	<b>(739)</b>

During the 2014 and 2015 accounting years, AREVA disposed of tax receivables without recourse to financial institutions in the amounts of 72 million euros and 122 million euros respectively. AREVA retained no significant ongoing involvement in respect of these receivables.

## RECONCILIATION OF INCOME TAX EXPENSE AND INCOME BEFORE TAXES

<i>(in millions of euros)</i>	2015	2014
Net income attributable to equity owners of the parent	(2,038)	(4,833)
Less income from operations sold, discontinued or held for sale	190	1,678
Minority interests	2	(12)
Share in net income of joint ventures and associates	21	14
Tax expense (income)	124	739
Income before tax	(1,701)	(2,415)
<b>Theoretical tax income (expense)</b>	<b>586</b>	<b>831</b>
<i>Reconciliation</i>		
Operations taxed at a rate other than the full statutory rate	10	(32)
Unrecognized deferred taxes	(572)	(927)
Impairment of deferred tax assets recognized in previous years*		(600)
Other permanent differences	(148)	(11)
<b>EFFECTIVE TAX INCOME (EXPENSE)</b>	<b>(124)</b>	<b>(739)</b>

\* in the tax consolidation area including AREVA SA (France) and AREVA GmbH (Germany).

In view of the revision in the group's business and profitability outlook, and consistent with the assumptions selected for impairment tests, the group did not recognize deferred tax assets for the current year and wrote down certain deferred tax assets recognized in previous years in the two regions consolidated for tax purposes, consisting of France and Germany.

## TAX RATES USED IN FRANCE

<i>(percentage)</i>	2015	2014
Tax rate	34.43	34.43

The tax rate used for presentation of the tax reconciliation was kept at 34.43% insofar as the French tax consolidations are in a deficit position and parliamentary decisions to bring the tax rate to 38% are temporary in application.

## OTHER PERMANENT DIFFERENCES

<i>(in millions of euros)</i>	2015	2014
Parent / subsidiary tax treatment and inter-company dividends	1	2
Impact of permanent differences for tax purposes	(17)	26
Differences between the French tax rate and tax rates applicable abroad	(20)	(21)
CVAE business tax	(11)	(15)
Other permanent differences*	(101)	(2)
<b>TOTAL PERMANENT DIFFERENCES</b>	<b>(148)</b>	<b>(11)</b>

\* including 75 million euros related to goodwill write-downs (see Note 10).

## EFFECTIVE TAX RATE

<i>(in millions of euros)</i>	2015	2014
Operating income	(1,388)	(2,115)
Net financial income	(313)	(299)
<b>TOTAL INCOME SUBJECT TO TAX</b>	<b>(1,701)</b>	<b>(2,415)</b>
Tax expense	(124)	(739)
<b>Effective tax rate</b>	<b>NA</b>	<b>NA</b>

## DEFERRED TAX ASSETS AND LIABILITIES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Deferred tax assets	212	437
Deferred tax liabilities	100	66
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>113</b>	<b>370</b>

## MAIN CATEGORIES OF DEFERRED TAX ASSETS AND LIABILITIES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>Tax impact of temporary differences related to:</b>		
Property, plant and equipment, intangible assets and non-current financial assets	(106)	-
Working capital assets	(173)	(154)
Employee benefits	170	141
Provisions for restructuring	-	1
Tax-driven provisions	(124)	(102)
Provisions for end-of-lifecycle operations	30	73
<b>Impact of loss carry-forwards and deferred taxes</b>	<b>93</b>	<b>175</b>
<b>Other temporary differences</b>	<b>222</b>	<b>238</b>
<b>NET DEFERRED TAX ASSETS AND LIABILITIES</b>	<b>113</b>	<b>370</b>

## DEFERRED TAX ASSET AND LIABILITY REVERSAL SCHEDULE

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Reversal in more than 12 months	80	345
Reversal in 12 months or less	33	26

## CHANGE IN CONSOLIDATED DEFERRED TAX ASSETS AND LIABILITIES

<i>(in millions of euros)</i>	2015	2014
<b>AT JANUARY 1</b>	<b>370</b>	<b>1,098</b>
Tax on continuing operations, recognized in profit or loss	24	(648)
Tax recognized in discontinued operations	(274)	(231)
Tax recognized directly in "other items of comprehensive income"	(45)	111
Change in consolidated group	16	15
Currency translation adjustments	21	25
<b>AT DECEMBER 31</b>	<b>113</b>	<b>370</b>

## DEFERRED TAX INCOME AND EXPENSES BY CATEGORY OF TEMPORARY DIFFERENCE

<i>(in millions of euros)</i>	2015	2014
<b>Tax impact of temporary differences related to:</b>		
Property, plant and equipment, intangible assets and non-current financial assets	85	302
Working capital assets	(12)	11
Employee benefits	(6)	5
Provisions for restructuring	55	12
Tax-driven provisions	(34)	155
Provisions for end-of-lifecycle operations	1	10
Net loss carry-forwards and deferred taxes	457	122
Impairment of deferred taxes	(572)	(1,527)
Other temporary differences	51	262
<b>NET DEFERRED TAX INCOME (EXPENSES)</b>	<b>24</b>	<b>(648)</b>

## DEFERRED TAX RECOGNIZED IN "OTHER ITEMS OF COMPREHENSIVE INCOME"

<i>(in millions of euros)</i>	2015	2014
IAS 32-39 impacts (change in value of available-for-sale assets, cash flow hedges and hedges of a net investment)	(26)	61
Other	(19)	50
<b>DEFERRED TAX RECOGNIZED DIRECTLY IN "OTHER ITEMS OF COMPREHENSIVE INCOME"</b>	<b>(45)</b>	<b>111</b>

## UNRECOGNIZED DEFERRED TAX ASSETS

<i>(in millions of euros)</i>	2015	2014
Tax credits	-	-
Tax losses	1,170	1,618
Other temporary differences	1,268	1,453
<b>TOTAL UNRECOGNIZED DEFERRED TAX ASSETS</b>	<b>2,439</b>	<b>3,070</b>

## NOTE 9. 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, 2015.

### ■ Wind Energy

AREVA's wind energy business division had already been classified in “operations held for sale” at December 31, 2014. On March 9, 2015, AREVA and Gamesa finalized the creation of the Adwen joint venture. Adwen's results are recognized using the equity method as from that date (see Note 14). The results from January 1 to March 8, 2015, and income from deconsolidation are presented in “net income from operations sold”. Moreover, the impacts of execution of the guaranties granted by AREVA to Adwen are presented under that same heading.

### ■ Solar Energy

AREVA's solar energy business division had already been classified in “operations held for sale” at December 31, 2014. The discussions entered into with a potential buyer in 2015 were not successful. In parallel and with the objective of terminating its solar operations, AREVA reached an agreement with its customer Reliance to transfer to it the 125-MWe solar field in Rajasthan, India, thus signifying the termination of all AREVA operations in the solar energy field. AREVA has no other contract in execution or in its backlog. The Solar operations are thus treated as a “discontinued operation” at December 31, 2015.

### ■ AREVA NP

As indicated in Note 1, AREVA and EDF signed a memorandum of understanding on July 29, 2015 presenting the principal terms and conditions of the project with a view to finalizing definitive agreements. AREVA's Board of Directors, meeting on January 27, 2016, was favorable to the convergence of negotiations entered into with EDF concerning the valuation of AREVA NP's operations, and gave the Chief Executive Officer authority to complete the negotiations. At EDF's request, completion of the transaction remains subject to (i) the favorable outcome of verifications in progress concerning the compliance of the Flamanville 3 reactor vessel and (ii) the definition of procedures to protect EDF from risks related to the OL3 project, which remain to be specified.

The objective of the parties is to carry out this transaction in 2017, after consultation with the employee representative bodies, receipt of regulatory authorizations and the lifting of the other conditions precedent of the transaction.

In this context, AREVA considers that the sale of a controlling interest in AREVA NP to EDF is highly probable and that the conditions for implementing IFRS 5 accounting rules relative to operations held for sale have been met. The scope of AREVA NP operations classified as “operations held for sale” at December 31, 2015 was determined based on discussions underway between AREVA and EDF, and may still change. The OL3 project is not part of the scope held for sale.

No impairment is indicated in the comparison between the expected sales price (based on the status of discussions to date between AREVA and EDF), net of sales costs, and the net carrying amount of assets held for sale.

### ■ Nuclear Measurements

In June 2015, AREVA began the process of disposing of its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in nuclear measurement instrumentation and systems. AREVA received indicative offers on July 20, 2015 and binding offers on December 18, 2015. After examining the offers, the AREVA Board of Directors selected the Mirion proposal (supported by the Charterhouse venture capital fund) on December 24, 2015. The proposal will be the subject of consultation with the AREVA group's employee representation bodies in the first quarter of 2016 and is expected to receive the approval of the competition authorities. The objective is to finalize the transaction by the end of 2016. Consequently, the Nuclear Measurements business is treated as an “operation held for sale” at December 31, 2015.

The net sales price resulting from Mirion's offer is higher than the net carrying amount.

### ■ AREVA TA

The transformation plan led by AREVA calls for the group to refocus on the processes of the nuclear cycle. The Agence des participations de l'État plans to take a majority share of AREVA TA. The principle of this transaction was confirmed in a press release in December 2015. In that situation, AREVA began the process of disposing of AREVA TA; the objective is to complete the transaction by the end of 2016.

The net sales price expected is higher than the net carrying amount.

## NET INCOME AND NET CASH FROM OPERATIONS SOLD, DISCONTINUED OR HELD FOR SALE

<i>(in millions of euros)</i>	2015	2014
Net income from operations sold	(240)	
Net income after tax from disposals	59	
Net income from discontinued operations	(115)	(180)
Net income from operations held for sale	106	(1,498)
<b>Net income from operations sold, discontinued or held for sale</b>	<b>(190)</b>	<b>(1,678)</b>
Net cash from operations sold	(127)	
Net cash from discontinued operations	0	(49)
Net cash from operations held for sale	458	791
<b>Net cash from operations sold, discontinued or held for sale</b>	<b>331</b>	<b>741</b>

## 2015

(in millions of euros)	Operation sold	Discontinued operation	Discontinued operations		TOTAL
	Wind Energy	Solar Energy	AREVA NP	Other	
<b>Revenue</b>	<b>3</b>	<b>(80)</b>	<b>3,566</b>	<b>449</b>	<b>3,937</b>
Operating income	(79)	(109)	33	83	(71)
Share in net income of associates	-	-	(11)	-	(11)
<b>Operating income after share in net income of joint ventures and associates</b>	<b>(79)</b>	<b>(109)</b>	<b>22</b>	<b>83</b>	<b>(83)</b>
Net financial income	(86)	(6)	(121)	39	(174)
Income tax	(17)	-	80	3	67
<b>Net income for the period</b>	<b>(181)</b>	<b>(115)</b>	<b>(20)</b>	<b>126</b>	<b>(190)</b>

Operating income from the solar operations includes (78) million euros of currency translation reserves recycling through profit and loss.

(in millions of euros)	Operation sold	Discontinued operation	Discontinued operations		TOTAL
	Wind Energy	Solar Energy	AREVA NP	Other	
Net cash flow from operating activities	(77)	(38)	33	177	95
Net cash flow from investing activities	(163)	6	(112)	(2)	(272)
Net cash flow from financing activities	114	42	396	(22)	529
Other changes	-	(10)	(13)	2	(21)
<b>Increase (decrease) in net cash</b>	<b>(127)</b>	<b>0</b>	<b>303</b>	<b>155</b>	<b>331</b>

## 2014

(in millions of euros)	Operation sold	Discontinued operation	Discontinued operations		TOTAL
	Wind Energy	Solar Energy	AREVA NP	Other	
<b>Revenue</b>	<b>66</b>	<b>(1)</b>	<b>3,863</b>	<b>520</b>	<b>4,449</b>
Operating income	(474)	(174)	(422)	(113)	(1,183)
Share in net income of associates	-	-	(140)	-	(140)
<b>Operating income after share in net income of joint ventures and associates</b>	<b>(474)</b>	<b>(174)</b>	<b>(563)</b>	<b>(113)</b>	<b>(1,324)</b>
Net financial income	(5)	(5)	(96)	(2)	(108)
Income tax	17	(1)	(271)	9	(246)
<b>Net income for the period</b>	<b>(462)</b>	<b>(180)</b>	<b>(930)</b>	<b>(106)</b>	<b>(1,678)</b>

Operating income for 2014 included:

- impairment of assets (including goodwill) in the Wind Energy and Solar Energy businesses in the total amount of 135 million euros;
- losses on several contracts in the Wind Energy and Solar Energy businesses (including losses at completion) in the total amount of 215 million euros;
- provisions for contingencies and warranties on contracts in the Wind Energy and Solar Energy businesses in the total amount of 205 million euros;

- write-downs of capitalized development expenses concerning AREVA NP's EPRs in the amount of 299 million euros;
- provisions for losses at completion for an AREVA NP nuclear power plant modernization contract in the amount of 155 million euros;
- provisions for losses at completion for an experimental reactor design and construction contract in the amount of 178 million euros.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

<i>(in millions of euros)</i>	Operation sold	Discontinued operation	Discontinued operations		TOTAL
	Wind Energy	Solar Energy	AREVA NP	Other	
Net cash flow from operating activities	(258)	(38)	123	97	(76)
Net cash flow from investing activities	(19)	(13)	(177)	(17)	(226)
Net cash flow from financing activities	229	11	828	(2)	1,066
Other changes	-	(9)	(27)	15	(22)
<b>Increase (decrease) in net cash</b>	<b>(48)</b>	<b>(49)</b>	<b>746</b>	<b>92</b>	<b>740</b>

The other operations held for sale include AREVA TA and Nuclear Measurements.

ASSETS AND LIABILITIES HELD FOR SALE

<i>(in millions of euros)</i>	2015	2014
<b>Non-current assets</b>	<b>4,645</b>	<b>208</b>
Goodwill on consolidated companies	2,468	29
Property, plant and equipment and intangible assets	1,480	172
Assets earmarked for end-of-lifecycle operations	105	
Investments in joint ventures and associates	103	
Other non-current financial assets	59	6
Deferred tax assets	430	
<b>Current assets</b>	<b>2,431</b>	<b>167</b>
Inventories and work-in-process	696	20
Trade receivables and other operating receivables	1,685	145
Current tax assets	9	
Other non-operating receivables	6	
Cash and cash equivalents	32	1
Other current financial assets	3	1
<b>TOTAL ASSETS OF OPERATIONS HELD FOR SALE</b>	<b>7,076</b>	<b>375</b>

<i>(in millions of euros)</i>	2015	2014
<b>Non-current liabilities</b>	<b>864</b>	<b>11</b>
Employee benefits	456	
Provisions for end-of-lifecycle operations	318	
Other non-current provisions	2	
Share in negative net equity of joint ventures and associates	30	
Long-term borrowings	1	11
Deferred tax liabilities	57	
<b>Current liabilities</b>	<b>4,457</b>	<b>381</b>
Current provisions	751	281
Current borrowings	156	10
Advances and prepayments received	1,692	10
Trade payables and other operating liabilities	1,821	79
Current tax liabilities	11	
Other non-operating liabilities	26	
<b>TOTAL LIABILITIES OF OPERATIONS HELD FOR SALE</b>	<b>5,320</b>	<b>392</b>

The amounts at December 31, 2014 include assets and liabilities of the Wind Energy and Solar Energy operations.

The amounts at December 31, 2015 include assets and liabilities of AREVA NP (excluding the OL3 project), AREVA TA and Nuclear Measurements operations. 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".

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. No trade receivable maturing after year-end closing was done in 2014.

### CAPITALIZED DEVELOPMENT EXPENSES

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, 2015 (238 million euros at December 31, 2014).

It should be noted that in 2013 EDF signed a series of agreements with the British government, CGNPC, CNNC and AREVA for the construction of two EPR reactors at the Hinkley Point site in the United Kingdom. These agreements remained in force at December 31, 2015 and in some cases were the subject of amendments. Negotiations of the principal contract are well advanced at present.

### INFORMATION ON CONTRACTS

#### Adwen contracts

Since Adwen could find itself exposed to impacts from projects that have already been executed or are being executed, AREVA agreed to provide it with certain guarantees in this regard.

These are first and foremost guarantees relating to the past: deterioration of profit margins on projects in progress to supply turbines to GlobalTech One and Borkum West II. This guarantee was given without a financial cap for a period of five years as from the creation of the joint venture. Guarantees were also given for disputes, litigation and claims relating to operations prior to closing but unrelated to projects under execution, capped at 25 million euros for a period of 18 months.

Concerning operations to come as of the date of closing, AREVA will indemnify the joint venture for potential losses related to maintenance contracts for the Alpha Ventus, GlobalTech One and Borkum West II wind farms as well as for the future Wikingier project, up to the limit of 130 million euros and at 85% of this amount for a period of five years as from the commissioning of the turbines (except for Alpha Ventus, which is already in service). Moreover, AREVA will cover 100% of any manufacturing defects for the Wikingier project for five years as from commissioning, in a maximum amount of 70 million euros.

On the date of Adwen's establishment, a provision of 133 million euros was recognized to cover all of these warranties. Subsequently, 207 million euros was added to the provision for deterioration of margins on GlobalTech One and Borkum West II supply contracts following the implementation of reinforced marine logistics resources for turbine startup before winter, and for machine warranties by the adoption of new statistical failure rate assumptions. These provisions are likely to evolve as a function of observed failure rates.

At the end of 2015, the Borkum West II and GlobalTech One wind farms were under a maintenance contract and machine warranty. However, at that date, although the 40 wind turbines of Borkum West II were all accepted by the customer, an agreement for the final acceptance of the 80 wind turbines of GlobalTech One remains to be found in the first half of 2016.

#### AREVA Solar contracts

On December 22, 2015, AREVA signed a preliminary agreement with its customer Reliance to end its obligations under supply and maintenance contracts for the 125-MW solar farm built in Dhursar in the state of Rajasthan, India. The agreement was confirmed and signed by both parties on January 16, 2016. According to the principal terms of the agreement, Reliance accepted the solar farm in its present state of completion and performance on February 3, 2016 in exchange for a price reduction of 85 million US dollars, paid by AREVA. Reliance also takes over facility maintenance activities.

#### AREVA NP contracts

##### Contract to modernize a nuclear power plant

On October 14, 2015, the shareholders of the company that operates the power plant announced the final shutdown of the reactor that is the subject of the project. AREVA and its customer signed an amendment to the contract on October 26, 2015 to take into account the reduction of the scope resulting from the announced shutdown of the reactor. The systems were transferred to the customer on December 17, 2015.

The profit at project completion on December 31, 2015 was adjusted to take into account the customer's decision to shut down the reactor and the contract amendment.

##### FA3 contract

During the first half of 2015, the Institut de Radioprotection et de Sûreté Nucléaire (IRSN) announced a deviation in the results of quality testing on the reactor vessel of Flamanville 3. In order to provide technical proof of the absence of safety or security risks, AREVA prepared a new vessel design report presentation and proposed a program of supplementary testing to the nuclear safety authority (NSA). On December 12, 2015, the French nuclear safety authority validated the test program proposed by AREVA concerning the bottom head and the closure head of the Flamanville 3 reactor vessel. This program aims to demonstrate the mechanical properties of these parts in connection with the fitness for service report required by (NSA). The test program was launched at the end of 2015 as planned. Tests are being carried out on vessel bottom heads and closure heads analogous to those of the Flamanville 3 EPR reactor. Preliminary measurements were begun on the first samples taken. The Notified Body in charge of surveillance, EDF and the French safety authority were associated with these tests. The first analyses are in progress and should go into more detail in compliance with the requirements framework of the French nuclear safety authority defined in its letter of December 12, 2015. In the financial statements for the year ended December 31, 2015, it was considered that the test program on sacrificial parts would bring the discussions underway with ASN and IRSN to a positive conclusion. The cost of the test program was included in the cost at completion of the project.

Concerning the progress of the reactor construction project, numerous milestones were met over the course of 2015: the control room started up in the first half, all of the equipment of the primary coolant loop was installed in the reactor building, welding of the primary coolant loop is nearing completion, and welding of the auxiliary piping is more than 50% complete. The hydraulic test of the vessel head was carried out successfully at the Chalon Saint Marcel plant on December 18, 2015, paving the way for the vessel head to be delivered to the Flamanville site on February 15, 2016.

## 20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

In addition, AREVA and EDF reached an agreement on the terms of amendment no. 7 formalizing the update of the master schedule for the Flamanville 3 project, for which administrative approval is in progress.

*Quality action plan:*

In January 2016, AREVA confirmed and explained in detail to the French nuclear safety authority the quality action plan presented during the hearing of December 8, 2015. A large share of this plan is devoted to verification of the quality of manufacturing operations conducted at Creusot since 2004 and to the treatment of the findings that may result from it. Beyond that, all of the quality processes will be revised as part of this plan, and the necessary improvement measures will be taken. This initiative has been extended to the Jeumont and Châlon/Saint Marcel plants.

**Taishan contract**

The design was completed and equipment delivered in 2015, enabling cold tests of unit 1 to be started in accordance with the schedule. This key milestone of project completion is a world first. At present, the teams are preparing to start hot tests of unit 1 and are providing support to the customer for startup of the first-of-a-kind reactor, which the Chinese nuclear safety authority has made conditional on the French nuclear safety authority's acceptance of the Flamanville vessel justification report.

**Angra 3 contract**

Due to a delay in the payment of operations performed in 2015 from its customer Eletrobrás Eletronuclear (ETN), AREVA decided to temporarily reduce its supply of engineering services, components and the instrumentation and control system of the Angra 3 nuclear reactor during the second quarter of 2015.

However, the expenses incurred in 2015 were funded by the amounts collected since the start of the project and payments received in the second half of the year. AREVA will resume all of its project-related activities once ETN has firmed up a long-term financing solution. The terms of the resumption are actively being discussed by the two companies.

**Koeberg contract**

A provision for losses at completion in the amount of 41 million euros was recognized for an export contract in the reactors and services field. The provision takes into consideration both the technical constraints and the schedule of the contract. As supplier, AREVA considers that the dispute between its customer and Westinghouse has no impact on the validity of its contract.

**AREVA TA contracts**

**Contracts for the design and construction of an experimental reactor**

A tripartite memorandum of understanding was signed on July 20, 2015 by AREVA SA, AREVA TA and the customer. The memorandum of understanding is based on reciprocal concessions under which AREVA agrees to bear a capped part of the extra costs deemed necessary to the completion of its contracts, excluding errors of its doing and extra costs specifically related to its project manager responsibilities to steer overall testing. This memorandum of understanding will very substantially limit the group's financial exposure to this project.

## NOTE 10. GOODWILL

The change in goodwill from December 31, 2014 to December 31, 2015 was as follows:

(in millions of euros)	December 31, 2014	Increase	Disposals	Impairment	Operations held for sale*	Currency translation adjustments and other	December 31, 2015
Mining	797					86	883
Front End	1,162				(1,000)	(1)	161
Back End	227					1	228
Other operations	1,481			(26)	(1,468)	13	-
<b>TOTAL</b>	<b>3,667</b>			<b>(26)</b>	<b>(2,468)</b>	<b>99</b>	<b>1,272</b>

\* see Note 9.

### GOODWILL IMPAIRMENT TESTS

As indicated in Notes 1.1, "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 amount, 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 business segment. They are calculated using observed market data and evaluations prepared by specialized firms (10- 20- and 30-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:

At December 31, 2015	After tax discount rate	Growth rate of pro forma year	Final year
Mining	9.50%	Na	2070
Front End (Chemistry, Enrichment)	6.50%	1.75%	2025
Back End	4.50%	1.75%	2025

At December 31, 2014	After tax discount rate	Growth rate of pro forma year	Final year
Mining	10.00%	Not applicable	2069
Front End (Chemistry, Enrichment and Fuel)	7.00%	1.75%	2024
Back End	5.00%	1.75%	2023
Renewable Energies	9.50%	2%	2019

These impairment tests were calculated using exchange rates in effect on the balance sheet date.

### Mining

At December 31, 2015, the impairment test of the Uranium Mining CGU did not lead to a write-down (versus a write-down of 200 million euros at December 31, 2014).

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, from mining at existing mines to marketing of the corresponding products (i.e. until 2070), rather than on a base year. The value in use is determined by discounting future cash flows at the rate of 9.50% (10.00% at December 31, 2014) and using an exchange rate of 1.0887 US dollars per euro at December 31, 2015.

Future cash flows were determined using the AREVA price forecasts to 2030, projected to 2070. 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 utilities' procurement strategies).

To do this, the group developed a model to forecast the balance between supply and demand in the uranium market and to predict the behavior of market participants in order to forecast future uranium prices.

The price forecast curve was updated on December 31, 2015 based on the most recent assumptions available as concerns supply and demand for uranium.

The result of this test was higher than the net carrying amount and therefore does not result in goodwill impairment.

The test is highly sensitive to 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 10.00% rather than 9.50%: 278 million euros
- a euro/US dollar exchange rate of 5 eurocents higher (i.e. 1.1387 instead of 1.0887): 362 million euros
- or a uranium sales price assumption of 5 dollars less per pound than the price forecast drawn up by AREVA for the entire 2015-2030 period: 571 million euros

However, such deterioration would not lead to a write-down of the goodwill of the Uranium Mining CGU.

In this respect, 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.

### Bioenergy

At December 31, 2015, the Bioenergy operations had no certainty of continuation.

A plan for the termination of the Bioenergy operations in Europe was announced in April 2015 to employee representatives. The termination carries social consequences which were already in progress in Germany and France in 2015. At the end of February 2016, no commercial project remained in backlog or in progress in the Bioenergy Europe footprint.

In Brazil, AREVA suspended all operations on the only project in progress (the "EPC" project for a 115-MW biomass power plant) and notified the customer of its inability to ensure the necessary financing for normal project operations. In Asia, the only project still in progress (in Thailand) ended in January 2016. In addition, no commercial contract was signed for the torrefaction technology.

Due to the above operating items and in the absence of any probable disposal, the goodwill of the Bioenergy CGU was written down in full in the amount of 26 million euros (versus 14 million euros at December 31, 2014), as are intangible assets in the amount of 8 million euros.

### Front End and Back End

The impairment tests conducted at December 31, 2015 on the CGUs carried by the Front End and Back End BGs did not lead to recognition of impairment of goodwill. Sensitivity analyses showed that a discount rate of 1% 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 allocated to these cash-generating units, since their recoverable amount is greater than the net carrying amount of their assets.

For the Enrichment CGU, an assumption of a 5% decrease in future sales prices in relation to the selected scenario, which is based on long-term sales price forecasts for separative work units (SWU) developed by AREVA for the share of future sales not under contract, would not generate goodwill impairment.

## NOTE 11. INTANGIBLE ASSETS

<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, 2014</b>	<b>1,894</b>	<b>1,086</b>	<b>1,180</b>	<b>460</b>	<b>617</b>	<b>374</b>	<b>379</b>	<b>5,991</b>
Internally generated assets	4	22	-	-	0	10	1	37
Acquired assets	48	17	-	0	1	38	0	105
Disposals	(0)	(1)	-	(3)	(6)	(2)	(1)	(12)
Discontinued assets and operations <sup>(2)</sup>	-	(1,122)	-	(18)	(149)	(72)	(147)	(1,508)
Currency translation adjustments	(179)	47	127	2	2	(2)	7	3
Change in consolidated group	-	-	-	(1)	(0)	(0)	(0)	(1)
Other changes	58	(0)	(36)	19	15	(33)	(0)	23
<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>
<b>Depreciation and provisions at December 31, 2014</b>	<b>(816)</b>	<b>(716)</b>	<b>(1,180)</b>	<b>(89)</b>	<b>(508)</b>	<b>(224)</b>	<b>(190)</b>	<b>(3,723)</b>
Net increase in depreciation / impairment <sup>(1)</sup>	(80)	(32)	-	(17)	(27)	(8)	(35)	(199)
Disposals	0	0	-	3	6	-	1	10
Discontinued assets and operations <sup>(2)</sup>	-	790	-	12	113	(0)	119	1,034
Currency translation adjustments	102	(46)	(127)	(2)	(1)	(26)	(1)	(99)
Change in consolidated group	-	(0)	-	1	0	-	-	1
Other changes	(49)	-	36	0	(0)	(1)	1	(12)
<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>
<b>Net carrying amount at December 31, 2014</b>	<b>1,079</b>	<b>370</b>	<b>0</b>	<b>371</b>	<b>109</b>	<b>150</b>	<b>189</b>	<b>2,267</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>

(1) Impairment of intangible assets in the amount of 28 million euros was recognized at December 31, 2015.

(2) See Note 9.

In 2015, investments in intangible assets primarily concern mineral exploration expenses in Canada, Niger and Kazakhstan.

**NOTE 12. PROPERTY, PLANT AND EQUIPMENT**

<i>(in millions of euros)</i>	Land	Buildings	Plant, equipment and tooling	End-of-lifecycle assets – AREVA share	Other	In process	Total
<b>Gross amount at December 31, 2014</b>	<b>197</b>	<b>2,547</b>	<b>19,916</b>	<b>1,383</b>	<b>1,795</b>	<b>2,446</b>	<b>28,283</b>
Investments	0	23	18	-	5	657	702
Disposals	(1)	(12)	(48)	-	(59)	(8)	(126)
Discontinued assets and operations <sup>(2)</sup>	(35)	(590)	(1,523)	(133)	(227)	(209)	(2,717)
Currency translation adjustments	(1)	(59)	(29)	2	49	(17)	(55)
Change in consolidated group	-	-	-	-	(0)	-	(0)
Other changes	2	(106)	1,040	45	4	(954)	31
<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>
<b>Depreciation and provisions at December 31, 2014</b>	<b>(90)</b>	<b>(1,345)</b>	<b>(15,152)</b>	<b>(1,038)</b>	<b>(1,329)</b>	<b>(610)</b>	<b>(19,565)</b>
Net increase in depreciation / impairment <sup>(1)</sup>	(2)	(66)	(380)	(2)	(100)	(150)	(701)
Disposals	0	11	45	-	49	-	105
Discontinued assets and operations <sup>(2)</sup>	9	382	1,077	66	176	2	1,712
Currency translation adjustments	0	18	6	(1)	(50)	1	(26)
Change in consolidated group	-	-	-	-	0	-	0
Other changes	(0)	154	(149)	-	(7)	1	(2)
<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>
<b>Net carrying amount at December 31, 2014</b>	<b>107</b>	<b>1,202</b>	<b>4,764</b>	<b>345</b>	<b>466</b>	<b>1,836</b>	<b>8,719</b>
<b>NET CARRYING AMOUNT FOR THE YEAR ENDED 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>

(1) Impairment of Property, Plant and Equipment in the amount of 191 million euros was recognized at December 31, 2015.

(2) See Note 9.

At December 31, 2015, the net carrying amount of capitalized finance lease contracts was 4 million euros (10 million euros at December 31, 2014).

Interest expenses capitalized in the cost of property, plant and equipment were not significant at December 31, 2014 and December 31, 2015.

**MINING ASSETS IN NIGER - IMOURAREN**

Work to place the project in care and maintenance was completed in 2015. Impairment of 194 million euros was recognized for certain assets devoted to the project. The project will restart when uranium market conditions permit.

After taking into account that impairment, the net carrying amount of the Imouraren project's property, plant and equipment and intangible assets was 692 million euros at December 31, 2015.

That value remains justified by the value in use and potential resale value of the deposit's reserves and resources, based on a valuation per pound of uranium in the ground.

**MINING ASSETS IN NAMIBIA - TREKKOPJE**

At December 31, 2015, the carrying amount of Trekkopje's intangible assets and property, plant and equipment includes the mining infrastructure and the desalination plant infrastructure.

AREVA has begun discussions with NamWater for the sale of the desalination plant; its value in use 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 7.50% (8.00% at the end of 2014).

At December 31, 2015, the net carrying amount of the mine's property, plant and equipment and intangible assets is not justified by the potential resale value of the deposit's reserves and resources of 24 million US dollars, based on a valuation per pound of uranium in the ground. Accordingly, partial impairment in the amount of 24 million US dollars was recognized for this asset at December 31, 2015 (i.e. 22 million euros based on the year-end exchange rate and the average exchange rate for the year), compared with 100 million US dollars at December 31, 2014 (i.e. 82 million euros at the year-end exchange rate and 75 million euros at the average exchange rate for the year).

## COMURHEX II PLANT

Impairment tests carried out in previous years for property, plant and equipment under construction of 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 supply and demand situation 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 take into account the latest market price trends, contracts under negotiation and conversion market forecasts. In addition, the cost of construction at completion for the first phase of the plant was raised by 66 million euros in 2015.

The impairment test performed at December 31, 2015 shows that the value in use of property, plant and equipment under construction, valued at December 31, 2015 using a discount rate of 6.5% (compared with 7.0% at December 31, 2014), a euro/US dollar exchange rate of 1.09 corresponding to the rate at December 31, 2015, and conversion unit sales price assumptions resulting from AREVA's mid- and long-term forecasts for supply and demand, was used to justify their net carrying amount, which is equal to the amounts capitalized in 2015, i.e. 83 million euros.

The result of the impairment test at December 31, 2015 remains sensitive to the assumptions used, in particular the euro / US dollar exchange rate, long-term sales prices and volumes sold.

On that basis, no write-down or recapture of write-down was recognized at December 31, 2015.

## 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 financing.

Assets (in millions of euros)	December 31, 2015	December 31, 2014	Shareholders' equity and liabilities (in millions of euros)	December 31, 2015	December 31, 2014
End-of-lifecycle assets – AREVA share <sup>(1)</sup>	322	345			
Assets earmarked for end-of-lifecycle operations	6,300	6,203	Provisions for end-of-lifecycle operations	6,921	6,985
• End-of-life-cycle assets – third party share <sup>(2)</sup>	178	188	• funded by third parties <sup>(2)</sup>	178	188
• Assets earmarked for end-of-life cycle operations <sup>(3)</sup>	6,122	6,015	• funded by AREVA	6,743	6,797

(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

In addition to the value of its property, plant and equipment, the group recognizes the deferred portion of the group's share of end-of-lifecycle operations, such as nuclear facility dismantling, decontamination, etc. The group's share of this adjustment account asset is amortized according to the same schedule as the

underlying property, plant and equipment. It also recognizes a third party asset for the share of dismantling and waste retrieval and packaging operations to be funded by certain customers. Conversely, a provision is recorded to cover its total estimated end-of-lifecycle costs as soon as a facility starts up, including any share funded by third parties.

(in millions of euros)	AREVA share			Third party share	December 31, 2015	December 31, 2014
	Gross	Amortization	Net			
Dismantling	1,298	(976)	322	178	500	533

(in millions of euros)	Net carrying amount at December 31, 2014	Increase	Decrease	Increases in reversals of amortization and provisions	Discounting reversals	Other changes	Net carrying amount at December 31, 2015
AREVA share	345	58	-	(15)	-	(66)	322
Third party share	188	-	(16)	-	6	-	178
<b>TOTAL</b>	<b>533</b>	<b>58</b>	<b>(16)</b>	<b>(15)</b>	<b>6</b>	<b>(66)</b>	<b>500</b>

At December 31, 2015, the balance of the group's share of assets related to AREVA NP operations were reclassified under "operations held for sale" in the amount of 66 million euros (see Note 9).

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. This heading increases by the amount of discounting reversals and decreases as work is performed.

The increase in the group's share of assets is primarily due to the phased commissioning of the Georges Besse II plant, to the change in the cost of disposal for long-lived medium- and high-level waste (LL/MHLW) from the future dismantling of operating plants, and to the revaluation of the future dismantling cost of sites in Germany and the United States.

### PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS

<i>(in millions of euros)</i>	Net carrying amount at December 31, 2014	Reversals (when risk has materialized): expenses for the year	Discounting reversals	Change in assumptions, revised budgets, etc.	Discontinued operations	Net carrying amount at December 31, 2015
Provision for nuclear facility dismantling	5,212	(173)	146	50	(296)	4,939
Provision for waste retrieval and packaging	1,773	(104)	55	279	(21)	1,982
<b>PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>6,985</b>	<b>(277)</b>	<b>201</b>	<b>329</b>	<b>(317)</b>	<b>6,921</b>

The ministerial order of January 15, 2016 setting a cost of 25 billion euros for implementation of long-term management solutions for long-lived medium- and high-level radioactive waste has a net impact of 250 million euros (243 million euros in revised estimate and 7 million euros of accretion) on the change in provisions for end-of-lifecycle operations.

Without that impact, the changes in assumptions, estimate revisions and other would amount to 86 million euros. Most of this change concerns projects for dismantling, projects for the retrieval and packaging of waste from the UP2-400 plant at la Hague, and the updating of the waste inventories of that site.

### 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, 2015 and December 31, 2014:

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Dismantling of regulated nuclear facilities, excluding long-term radioactive waste management	4,310	4,359
Dismantling of used fuel, excluding long-term radioactive waste management	1,204	1,221
Retrieval and packaging of legacy waste, excluding long-term radioactive waste management	1,148	870
Long-term radioactive waste management	44	40
Post-closure disposal center monitoring costs	-	-
<b>Total provisions for end-of-lifecycle operations of facilities covered by the French law of June 28, 2006</b>	<b>6,706</b>	<b>6,490</b>
Provisions for end-of-lifecycle operations of facilities not covered by the French law of June 28, 2006	215	495
<b>TOTAL PROVISIONS FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>6,921</b>	<b>6,985</b>

### Nature of the commitments

As a nuclear facility operator, the group has a legal obligation to secure and dismantle its production facilities when they are shut down permanently in whole or in part. The group must also retrieve and package, in accordance with prevailing standards, the various waste types generated by operating activities which could not be processed during treatment. These installations concern the front end of the cycle, especially the Pierrelatte site, and the back end of the cycle, including the treatment plants at La Hague and the MELOX and Cadarache MOX fuel fabrication plants.

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 these 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 cost element 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 are expected. The estimate for the Georges Besse I plant, for example, was revised in 2015;
- 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).

**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 discount rate is determined based on long series of bonds with maturities comparable to those of the liabilities, to take into account long-term interest trends consistent with the long-term schedule of actual disbursements. The selected discount rate at December 31, 2015 must also comply with a dual regulatory cap defined in the decree of February 23, 2007 and the administrative order of March 21, 2007.

It is based on the rolling average yield of 30-year French OATs over a 10-year period, plus the spread applicable to prime corporate borrowers.

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 1.75% and a discount rate of 4.50% at December 31, 2015 (the same as at December 31, 2014).

**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 its 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.

In its order of January 15, 2016, the Ministry of Ecology, Development and Energy set the cost for implementation of long-term management solutions for long-lived medium- and high-level radioactive waste (the Cigéo project) at 25 billion euros (not discounted to the economic conditions of 2011) for a period of 140 years beginning in 2016. This cost, arising from the phase outlining the Cigéo project, substitutes for the 2005 estimate of 14.1 billion euros (at 2003 economic conditions) on which the corresponding end-of-lifecycle provision was based.

The development of this new reference cost for Cigéo led AREVA NC to supplement the net end-of-lifecycle provision by 250 million euros, factoring in the increased cost of Cigéo and a margin for contingencies. The provision for Cigéo (disposal) is thus a total of 716 million euros in discounted value at December 31, 2015 (2.136 billion euros in undiscounted value) based on criteria for allocation of funding

among producers that is unchanged in relation to previous accounting periods. It should be noted that Cigéo is funded by EDF, the CEA and AREVA according to allocation criteria based on the volume of waste to be sent to the geologic repository. The two main factors likely to influence the amount of the provision are the cost of the Cigéo project and the funding allocation criteria.

The final cost constitutes an objective to be met by the French national radioactive waste management agency ANDRA, in compliance with the nuclear safety standards set forth by the French nuclear safety authority (ASN) and based on close cooperation with the nuclear facility operators. Pursuant to the above-mentioned order, the cost of the Cigéo project will be regularly updated and as a minimum at the key stages of the project's development (construction permit, operating license, end of the "industrial pilot phase", safety reviews), in accordance with ASN's opinion.

### TENTATIVE SCHEDULE OF PROVISION DISBURSEMENTS

The table below presents the tentative schedule for disbursement of provisions required by the law of 2006 (excluding cross-business contingencies):

<i>(in millions of euros)</i>	December 31, 2015
2016	343
2017 – 2020	1,372
2021 – 2025	1,355
2026 – 2035	1,633
2036 and beyond	8,364
<b>TOTAL PROVISIONS BEFORE DISCOUNTING</b>	<b>13,067</b>

### ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS

This heading consists of the following:

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Receivables related to end-of-lifecycle operations	739	725
Earmarked assets	5,383	5,290
<b>TOTAL</b>	<b>6,122</b>	<b>6,015</b>

Balances of the AREVA NP operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 105 million euros (see Note 9).

Receivables related to end-of-lifecycle operations correspond principally to receivables resulting from the signature of a contract in December 2004 under which the CEA agreed to fund a share of facility dismantling costs at the La Hague and Cadarache plants and a share of waste retrieval and packaging costs at the UP2-400 plant.

#### 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-life-cycle 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.

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.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

The portfolio of assets earmarked to fund end-of-lifecycle expenses includes the following:

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>In market value or liquidation value</b>		
Publicly traded shares	1,325	1,222
Equity funds	1,095	1,157
Bond and money market mutual funds	2,258	2,119
Unlisted mutual funds	96	76
<b>At amortized cost</b>		
Bonds and bond mutual funds held to maturity	610	716
<b>Portfolio of securities earmarked for end-of-lifecycle operations</b>	<b>5,383</b>	<b>5,290</b>
Receivables related to end-of-lifecycle operations	739	725
<b>TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>6,122</b>	<b>6,015</b>

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>By region</b>		
Eurozone	5,510	5,409
Non-euro Europe	537	549
Other	75	57
<b>TOTAL</b>	<b>6,122</b>	<b>6,015</b>

Financial assets held as securities or mutual funds represent 88% of all earmarked assets at December 31, 2015. Earmarked assets were allocated as follows: 41% equities, 47% bonds, 12% receivables.

The contractual framework for the main receivable related to end-of-lifecycle operations (receivable from the CEA in the amount of 663 million euros at December 31, 2014 vs. 676 million euros at December 31, 2015) 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 on account of 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, 2015.

**Performance of financial assets earmarked for end-of-lifecycle operations by asset class <sup>(\*)</sup>**

Asset class	2015	2014
Shares	+12.8%	+3.7%
Interest rate products	+0.6%	+6.4%
<b>Subtotal - Portfolio of earmarked securities</b>	<b>+6.3%</b>	<b>+5.2%</b>
Receivables related to end-of-lifecycle operations	<b>+2.5%</b>	+2.9%
<b>TOTAL FINANCIAL ASSETS EARMARKED FOR END-OF-LIFECYCLE OPERATIONS</b>	<b>+5.8%</b>	<b>+4.8%</b>

<sup>(\*)</sup> Performance reported for these asset classes includes that of mutual funds earmarked for end-of-life-cycle operations of regulated French and foreign nuclear facilities not subject to the French law of June 28, 2006.

If interest on receivables is used to determine the performance of rate instruments, the overall performance of earmarked assets would be 5.8% for the 2015 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:

#### Base case (December 31, 2015)

(in millions of euros)

#### Assumption: declining equity markets and rising interest rates

-10% on equities	-252
+100 basis points on rates	-58
<b>TOTAL</b>	<b>-310</b>

#### Assumption: rising equity markets and declining interest rates

+10% on equities	+252
-100 basis points on rates	+58
<b>TOTAL</b>	<b>+310</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.

**INVESTMENTS IN JOINT VENTURES AND ASSOCIATES**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
ADWEN	74	-
Other joint ventures	23	64
<b>Total joint ventures</b>	<b>97</b>	<b>64</b>
MNF	-	30
Other associates	3	49
<b>Total associates</b>	<b>3</b>	<b>79</b>
<b>TOTAL</b>	<b>100</b>	<b>143</b>

Adwen combines the offshore wind operations of AREVA and Gamesa. It is held in equal shares by its two shareholders. Since its creation, Adwen has continued work to commission two major projects in the German North Sea: the Borkum West II project, with an installed capacity of 200 MW, and the GlobalTech One project, with an installed capacity of 400 MW. Losses related to the execution of this contract are the subject of a guarantee given by AREVA to Adwen (see Note 9).

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 103 million euros (see Note 9).

**SHARE IN NEGATIVE NET EQUITY OF JOINT VENTURES AND ASSOCIATES**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
ETC	59	75
ATMEA	-	28
<b>TOTAL JOINT VENTURES</b>	<b>59</b>	<b>103</b>

Amounts related to Atmea are reclassified under "operations held for sale" in the amount of 30 million euros at December 31, 2015 (see Note 9).

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.

## SHARE IN NET EQUITY OF JOINT VENTURES AND ASSOCIATES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
ETC	4	(17)
Adwen	(26)	-
Other joint ventures	0	2
<b>Total joint ventures</b>	<b>(22)</b>	<b>(15)</b>
Other associates	1	1
<b>Total associates</b>	<b>1</b>	<b>1</b>
<b>TOTAL</b>	<b>(21)</b>	<b>(14)</b>

Financial information required under IFRS 12 is presented before elimination of intercompany transactions and restatements, and is based on 100% ownership.

## SIGNIFICANT JOINT VENTURES

<i>(in millions of euros)</i>	December 31, 2015		December 31, 2014	
	ETC	Adwen	ETC	Adwen
	Front End	REN	Front End	REN
Country	UK	Spain	UK	Spain
% held	50%	50%	50%	50%
<b>Revenue</b>	<b>323</b>	<b>35</b>	<b>271</b>	
<b>EBITDA</b>	<b>79</b>	<b>(35)</b>	<b>48</b>	
<b>Net income</b>	<b>42</b>	<b>(52)</b>	<b>8</b>	
Including increases to amortization and depreciation	(2)	11	8	
Including interest income / expense	-	6	-	
Including income tax income / expense	-	-	11	
<b>Other items of comprehensive income</b>	<b>24</b>	<b>-</b>	<b>(29)</b>	
<b>Comprehensive income</b>	<b>66</b>	<b>(52)</b>	<b>(22)</b>	<b>NA</b>
<b>Current assets</b>	<b>127</b>	<b>494</b>	<b>280</b>	
Including cash and cash equivalents	11	90	7	
<b>Non-current assets</b>	<b>47</b>	<b>462</b>	<b>42</b>	
<b>Current liabilities</b>	<b>107</b>	<b>237</b>	<b>(321)</b>	
Including current financial liabilities	-	147	10	
<b>Non-current liabilities</b>	<b>54</b>	<b>571</b>	<b>(54)</b>	
Including non-current financial liabilities	-	381	-	
<b>Net assets</b>	<b>13</b>	<b>148</b>	<b>(53)</b>	<b>NA</b>
<b>Share of equity at the beginning of the year</b>	<b>(27)</b>	<b>-</b>	<b>(16)</b>	
Share of comprehensive income	33	(26)	(11)	
Share of dividend distributions	-	-		
Joint venture creation	-	100		
<b>Share of equity at year-end closing</b>	<b>6</b>	<b>74</b>	<b>(27)</b>	
Goodwill and consolidation entries	(65)	-	(49)	
<b>Investment in joint ventures</b>	<b>-</b>	<b>74</b>		
<b>Share of negative net equity</b>	<b>(59)</b>	<b>-</b>	<b>(75)</b>	<b>NA</b>

## NON-SIGNIFICANT JOINT VENTURES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>Investments in joint ventures at year-end closing</b>	<b>23</b>	<b>64</b>
Share of net income	-	8
Share of other items of comprehensive income	-	3
Share of comprehensive income	2	10

At December 31, 2015, non-significant joint ventures were as follows:

- TSU Projects
- TSU Niger
- Cominak
- AREVA H2Gen
- Anadec
- AREVA Mace Atkins

## NON-SIGNIFICANT ASSOCIATES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>Investments in associates at year-end closing</b>	<b>3</b>	<b>49</b>
Share of net income	1	1
Share of other items of comprehensive income	-	1
Share of comprehensive income	1	3

At December 31, 2015, non-significant associates correspond to CILAS.

## NOTE 15. OTHER NON-CURRENT ASSETS

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Available-for-sale securities	41	86
Loans to affiliates	370	82
Derivatives on financing activities	123	21
Other non-current financial assets	24	74
Other non-current non-financial assets	15	8
<b>TOTAL</b>	<b>573</b>	<b>273</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 59 million euros (see Note 9).

Loans to affiliates include in particular a shareholder loan to Adwen in the amount of 227 million euros.

**AVAILABLE-FOR-SALE SECURITIES**

Changes during the year were as follows:

(in millions of euros)

<b>December 31, 2014</b>	<b>86</b>
Increase	5
Disposals	(14)
Lasting impairment	(21)
Changes in fair value recorded in "other items of comprehensive income"	3
Discontinued operations and operations held for sale	(14)
Change in consolidation scope, currency translation, reclassifications and miscellaneous	(4)
<b>DECEMBER 31, 2015</b>	<b>41</b>

Available-for-sale securities are as follows:

(in millions of euros)

	<b>December 31, 2015</b>	<b>December 31, 2014</b>
Publicly traded shares (at market value)		
• Japan Steel	-	14
• Other publicly traded shares	-	4
Investment in privately held companies	41	68
<b>TOTAL</b>	<b>41</b>	<b>86</b>

At December 31, 2015, "investments in privately held companies" consisted principally of the 13% interest in the share capital of Euronimba (iron mine in Guinea). The disposal of these securities to ArcelorMittal, for which a sales contract had been signed in the first half of 2014, was not carried out in 2015. In addition, since the end of 2014, the price of iron ore declined then rose at the end of the first half of 2015 then fell again in the second half. At December 31, 2015, the net carrying amount of the securities is less than the potential resale value of the deposit's reserves and resources, based on a valuation per pound of iron in the ground. On that basis, impairment of the securities in the amount of 21 million euros was recognized at December 31, 2015.

The impact on the valuation of shares classified as "available-for-sale securities" is presented in Note 32.

**OTHER NON-CURRENT NON-FINANCIAL ASSETS**

At December 31, 2015, other non-current financial assets included uranium inventories which were capitalized to fund future mine reclamation expenses abroad.

**NOTE 16. INVENTORIES AND WORK-IN-PROCESS**

(in millions of euros)	<b>December 31, 2015</b>			<b>December 31, 2014</b>		
	<b>Gross</b>	<b>Impairment</b>	<b>Net</b>	<b>Gross</b>	<b>Impairment</b>	<b>Net</b>
Raw materials and other supplies	327	(104)	223	613	(127)	486
Goods in process	13	(0)	13	482	(111)	371
Services in process	854	(239)	615	634	(131)	503
Intermediate and finished products	416	(51)	365	719	(59)	660
<b>TOTAL</b>	<b>1,611</b>	<b>(395)</b>	<b>1,216</b>	<b>2,448</b>	<b>(428)</b>	<b>2,020</b>
Inventories and work-in-process						
• at cost			744			1,303
• at fair value net of disposal expenses			472			717

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 696 million euros (see Note 9).

## CHANGE IN WRITE-DOWNS OF INVENTORIES AND WORK-IN-PROCESS

JANUARY 1, 2015	(428)
Change in consolidated group	0
Charges	(139)
Reversal (when risk has materialized)	58
Reversal (when risk has not materialized)	12
Discontinued operations and operations held for sale	91
Other	11
DECEMBER 31, 2015	(395)

At December 31, 2014 and December 31, 2015, inventories and work-in-process in particular were written down as follows:

- 2 million euros in 2015 (94 million euros in 2014) for proposal expenses in the Back End Business Group's International Projects business, with an uncertain recovery schedule; and

- 108 million euros in 2015 (52 million euros in 2014) for inventories of separate work units (SWU) in the Enrichment business in view of the unfavorable trend in SWU market price indicators during the year.

## NOTE 17. TRADE ACCOUNTS RECEIVABLE AND RELATED ACCOUNTS

(in millions of euros)	December 31, 2015	December 31, 2014
Gross amount	978	2,099
Impairment	(37)	(20)
<b>NET CARRYING AMOUNT</b>	<b>941</b>	<b>2,079</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 861 million euros (see Note 9).

The gross amount of trade accounts receivable and related accounts does not include receivables maturing in more than one year.

At December 31, 2015, trade accounts receivable and related accounts include receivables in the amount of 274 million euros on contracts recognized according to the percentage of completion method (versus 742 million euros at December 31, 2014).

In 2014 and 2015, AREVA did not sell trade receivables maturing after year-end closing.

### TRADE ACCOUNTS RECEIVABLE AND RELATED ACCOUNTS (GROSS)\*

(in millions of euros)				Including not impaired and past due					
Trade accounts receivable and related accounts	Gross	Maturing in the future	Impaired and past due	Less than 1 month	1 to 2 months	2 to 3 months	3 to 6 months	6 months to 1 year	More than one year
At December 31, 2015	704	575	29	35	2	1	5	11	46
At December 31, 2014	1,357	1,084	16	117	20	5	8	78	30

\* Excluding accounts receivable recognized according to the percentage of completion method.

**NOTE 18. OTHER OPERATING RECEIVABLES**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
French State	326	525
Advances and down payments to suppliers	142	648
Miscellaneous accounts receivable	347	555
Financial instruments	41	46
Other	9	11
<b>TOTAL</b>	<b>865</b>	<b>1,786</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 824 million euros (see Note 9).

"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, 2015, other operating receivables include 97 million euros in receivables maturing in more than one year.

**NOTE 19. CASH AND CASH EQUIVALENTS**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
Cash and current accounts	336	193
Cash equivalents	468	1,493
<b>TOTAL</b>	<b>804</b>	<b>1,686</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 32 million euros (see Note 9).

Cash equivalents consist chiefly of short-term marketable securities and mutual funds.

**NOTE 20. OTHER CURRENT FINANCIAL ASSETS**

<i>(in millions of euros)</i>	<b>December 31, 2015</b>	<b>December 31, 2014</b>
Securities held for trading	-	35
Other current financial assets and derivatives on financing activities	207	41
<b>TOTAL</b>	<b>207</b>	<b>76</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 3 million euros (see Note 9).

At December 31, 2014, "Securities held for trading" included top-rated bonds and balanced equity/bond funds.

## NOTE 21. EQUITY

The AREVA share is traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN code FR0011027143.

At December 31, 2015, AREVA's share capital was held as follows:

### SHARE CAPITAL

At December 31	2015	2014
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 is 3.80 euros.

### CURRENCY TRANSLATION RESERVES

The group's currency translation reserves were a negative 48 million euros in 2015, compared with a negative 12 million euros in 2014.

### DILUTIVE INSTRUMENTS

The group does not have a stock option plan and has not issued any instrument convertible into equity.

### EARNINGS PER SHARE

An average of 382,295,981 shares was used to calculate earnings per share for 2015.

### OTHER ITEMS OF COMPREHENSIVE INCOME

(in millions of euros)	2015	2014
<b>Items not recyclable to the income statement</b>	<b>292</b>	<b>(260)</b>
• Actuarial gains and losses on the employee benefits of consolidated companies	217	(200)
• Income tax on non-recyclable items	9	24
Share in non-recyclable items from joint ventures and associates, net of tax	12	(16)
Non-recyclable items related to operations sold, discontinued or held for sale, net of tax	55	(68)
<b>Items recyclable to the income statement</b>	<b>(160)</b>	<b>(85)</b>
<b>Currency translation adjustments on consolidated companies and other</b>		
• Unrealized gains (losses) for the period	(136)	133
• Less gains (losses) recognized in profit and loss		
<b>Change in value of available-for-sale financial assets</b>		
• Unrealized gains (losses) for the period	170	66
• Less gains (losses) recognized in profit and loss	(86)	(145)
<b>Change in value of cash flow hedges</b>		
• Unrealized gains (losses) for the period	(139)	(110)
• Less gains (losses) recognized in profit and loss	52	(7)
<b>Income tax related to recyclable items</b>	<b>(28)</b>	<b>45</b>
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)	(70)
<b>TOTAL OTHER ITEMS OF COMPREHENSIVE INCOME (NET OF INCOME TAX)</b>	<b>132</b>	<b>(346)</b>

## TAX IMPACT OF OTHER ITEMS OF COMPREHENSIVE INCOME

(in millions of euros)	2015			2014		
	Before tax	Income tax	After tax	Before tax	Income tax	After tax
Actuarial gains and losses on employee benefits	217	9	225	(200)	24	(176)
Currency translation adjustments on consolidated companies and other	(136)	0	(136)	133	0	133
Change in value of available-for-sale financial assets	84	(38)	46	(78)	31	(47)
Change in value of cash flow hedges	(87)	10	(77)	(114)	13	(100)
Share in comprehensive income of joint ventures, net of tax	12		12	(16)		(16)
Items of comprehensive income related to operations sold, discontinued or held for sale, net of tax	62		62	(139)		(139)
<b>TOTAL OTHER ITEMS OF COMPREHENSIVE INCOME (NET OF INCOME TAX)</b>	<b>151</b>	<b>(20)</b>	<b>132</b>	<b>(415)</b>	<b>69</b>	<b>(346)</b>

## NOTE 22. MINORITY INTERESTS

The largest minority interests were as follows:

(in millions of euros)	December 31, 2015	December 31, 2014
Katco	126	200
SET and SET Holding	184	171
Somair	65	62
Imouraren	(129)	15
AREVA TA	11	14
Sofidif	18	19
Other	(41)	(34)
<b>TOTAL</b>	<b>235</b>	<b>447</b>

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".

Financial information on significant subsidiaries, required under IFRS 12, is presented before elimination of intercompany transactions.

A subsidiary is considered to be significant if the percentage held by minority shareholders is greater than 20%, or if its revenue or total balance sheet is more than 200 million euros.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

2015

	Imouraren	Somaïr	Katco	SET
(in millions of euros)	Mining	Mining	Mining	Front End
Country	Niger	Niger	Kazakhstan	France
Minority interests	42.34%	36.60%	49.00%	12.00%
<b>Revenue</b>	<b>-</b>	<b>197</b>	<b>361</b>	<b>649</b>
<b>EBITDA</b>	<b>(34)</b>	<b>40</b>	<b>295</b>	<b>460</b>
<b>Net income</b>	<b>(236)</b>	<b>5</b>	<b>207</b>	<b>37</b>
Share attributable to minority interests	(102)	2	102	4
Current assets	39	135	147	484
Non-current assets	1,716	167	180	5,468
Current liabilities	(74)	(73)	(36)	(690)
Non-current liabilities	(1,909)	(46)	(25)	(3,552)
<b>Net assets</b>	<b>(227)</b>	<b>183</b>	<b>267</b>	<b>1,709</b>
Share attributable to minority interests	(122)	67	131	205
Cash flow from operating activities	(62)	30	289	234
Cash flow from investing activities	(20)	(19)	(57)	(157)
Cash flow from financing activities	87	(13)	(179)	(22)
<b>Increase (decrease) in net cash</b>	<b>5</b>	<b>(2)</b>	<b>33</b>	<b>54</b>
Dividends paid to minority interests	(42)	-	(88)	-

2014

	Imouraren	Somaïr	Katco	SET
(in millions of euros)	Mining	Mining	Mining	Front End
Country	Niger	Niger	Kazakhstan	France
Minority interests	42.34%	36.60%	49.00%	12.00%
<b>Revenue</b>	<b>-</b>	<b>201</b>	<b>260</b>	<b>596</b>
<b>EBITDA</b>	<b>(22)</b>	<b>40</b>	<b>179</b>	<b>390</b>
<b>Net income</b>	<b>(76)</b>	<b>(29)</b>	<b>65</b>	<b>(5)</b>
Share attributable to minority interests	(35)	(11)	32	(1)
Current assets	38	139	226	271
Non-current assets	1,793	176	303	5,445
Current liabilities	(95)	(90)	(81)	(445)
Non-current liabilities	(1,414)	(59)	(37)	(3,600)
<b>Net assets</b>	<b>323</b>	<b>166</b>	<b>410</b>	<b>1,671</b>
Share attributable to minority interests	22	61	201	201
Cash flow from operating activities	(56)	63	110	234
Cash flow from investing activities	(159)	(30)	(71)	(273)
Cash flow from financing activities	217	(31)	(59)	90
<b>Increase (decrease) in net cash</b>	<b>3</b>	<b>2</b>	<b>(13)</b>	<b>51</b>
Dividends paid to minority interests	-	-	(29)	-

**NOTE 23. EMPLOYEE BENEFITS**

Depending on the prevailing laws and practices of each country, the group's companies may pay retirement bonuses to their retiring employees based on their compensation and seniority. Long-service jubilee payments and early retirement pensions are sometimes due in France and in Germany, while supplemental pensions may 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 obligations 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 obligation and the fair value of the 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 31 015**

The group's discount rate for the Eurozone was set at 2.15%, versus 1.85% at year-end 2014. The long-term inflation assumption for the Eurozone was kept at 1.6%.

Career pattern assumptions were revised downwards to within a range of [+1.0%; -0.5%] as a function of seniority, in addition to inflation. The overall impact of these effects generates a decrease in liabilities of approximately 144 million euros. The provision for employee benefits was adjusted accordingly by offset against "Other items of comprehensive", in accordance with the provisions of revised IAS 19.

**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**

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS</b>	<b>1,909</b>	<b>2,232</b>
Plus total for plans valued locally	2	2
Less total for operations held for sale	456	-
Less pension plan assets	-	-
<b>TOTAL PLANS REVIEWED BY THE GROUP'S ACTUARIES</b>	<b>1,455</b>	<b>2,235</b>
Medical expenses and accident/disability insurance	315	356
Retirement benefits	351	583
Job-related awards	7	27
Early retirement benefits	774	947
Supplemental retirement benefits	8	321

## ■ By geographical area

	Eurozone	United States	Other*	Total
Medical expenses and accident/disability insurance	315			<b>315</b>
Retirement benefits	351			<b>351</b>
Job-related awards	7			<b>7</b>
Early retirement benefits	763		11	<b>774</b>
Supplemental retirement benefits	7		1	<b>8</b>
<b>TOTAL</b>	<b>1,443</b>		<b>12</b>	<b>1,455</b>

\* Niger and Japan.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

The information below concerns plans reviewed by the group's actuaries.

The main actuarial assumptions used in determining the group's obligations are as follows:

	2015	2014
Long-term inflation		
• Eurozone	1.6%	1.6%
Discount rate		
• Eurozone	2.15%	1.85%
• Dollar zone	NA	3.75%
Pension benefit increases		
• Eurozone	1.6%	1.6%
• Dollar zone	NA	0%
Social security ceiling increase (net of inflation)	+0.5%	+0.5%

■ Mortality tables

	2015	2014
France		
• Annuity	Mortality tables	Mortality tables
• Lump sum payment	INSEE 2000-2002 Men/Women	INSEE 2000-2002 Men/Women
Germany	Heubeck 2005	Heubeck 2005
United States	NA	RP2014

■ Retirement age in France

	2015	2014
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	
	2015	2014	2015	2014
France	[1.6% - 0%]	[1.6% - 0%]	[0.7% - 0%]	[0.7% - 0%]
Germany	[7% - 0%]	[7% - 0%]	[7% - 0%]	[7% - 0%]
United States	NA	6%	NA	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	
	2015	2014	2015	2014
France	[2.6% ; -1.1%]	[3.8% - 2.6%]	[2.6% ; -1.1%]	[3.3% - 2.7%]
Germany	3%	3.2%	3%	3.2%
United States	NA	3.75%	NA	3.75%

■ Contributions / benefits anticipated for defined benefit plans in 2015 are estimated at 137 million euros.

## FINANCIAL ASSETS

## Europe

Type of asset	2015	2014
Cash	10%	5%
Bonds	90%	82%
Shares	0%	12%
Real estate	0%	1%

## United States

Type of asset	2015	2014
Cash	NA	4%
Bonds	NA	36%
Shares	NA	60%
Real estate	NA	0%

Effective return on plan assets	2015	2014
Europe	0.6%	8.54%
United States	NA	4.79%

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.

## NET CARRYING AMOUNT OF DEFINED BENEFIT OBLIGATIONS

At December 31, 2015	Retirement benefits	Supplemental retirement benefits	Early retirement benefits	Medical expenses and accident/disability insurance	Job-related awards	Total
Defined benefit obligation	315	399	129	774	8	1,625
Fair value of plan assets	1	49	121	0	0	171
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>315</b>	<b>351</b>	<b>7</b>	<b>774</b>	<b>8</b>	<b>1,455</b>

## Sensitivity of the actuarial value of the obligation to changes in discount rates

An across-the-board decrease in the discount rate of 0.5% would increase the defined benefit obligation by 5.8%.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

TOTAL EXPENSE FOR THE YEAR

2015 (in millions of euros)	Retirement benefits	Supplemental retirement benefits	Early retirement benefits	Medical expenses and accident/ disability insurance	Job-related awards	Total
Current service cost	31	21	26	9	2	89
Interest cost	12	25	21	7	0	66
Past service costs (including plan changes and reductions)	(37)	0	(1)	0	(5)	(43)
Interest income on assets	0	(17)	(3)	0	0	(20)
Recognition of actuarial gains and losses generated during the year on other long-term plans (long service medals, CATS, etc.)	0	0	7	0	(1)	6
Liquidation						
<b>TOTAL EXPENSE WITH INCOME STATEMENT IMPACT</b>	<b>6</b>	<b>29</b>	<b>50</b>	<b>16</b>	<b>(4)</b>	<b>97</b>
Recognition of actuarial gains and losses generated during the year on post-employment plans						
Actuarial gains and losses on earmarked assets	2	3	(20)	0	0	(15)
Experience differences	1	(7)	(24)	(15)	0	(44)
Demographic assumption differences	1	5	(7)	(1)	0	(2)
Financial assumption differences	(86)	(41)	(85)	(22)	0	(234)
<b>TOTAL EXPENSE WITH IMPACT ON OTHER ITEMS OF COMPREHENSIVE INCOME</b>	<b>(82)</b>	<b>(40)</b>	<b>(136)</b>	<b>(38)</b>	<b>0</b>	<b>(296)</b>
<b>TOTAL EXPENSE FOR THE YEAR</b>	<b>(77)</b>	<b>(11)</b>	<b>(85)</b>	<b>(21)</b>	<b>(4)</b>	<b>(198)</b>

CHANGE IN THE DEFINED BENEFIT OBLIGATION

At December 31, 2015 (in millions of euros)	Retirement benefits	Supplemental retirement benefits	Early retirement benefits	Medical expenses and accident/ disability insurance	Job-related awards	Total
<b>Defined benefit obligation at December 31, 2014</b>	<b>600</b>	<b>973</b>	<b>1,088</b>	<b>360</b>	<b>26</b>	<b>3,047</b>
Defined benefit obligation of operations held for sale	(129)	(909)	(28)	(16)	(13)	(1,096)
Current service cost	31	21	26	9	2	89
Past service costs (including plan changes and reductions)	(37)	0	(1)	0	(5)	(43)
Plan transfer						
Disposals / Liquidation / Plan reductions						
Cost escalation	12	25	21	7	0	66
Mergers, acquisitions, transfers	1	0	0	0	0	2
Change in consolidation scope						
Employee contributions		4				4
Benefits paid during the year	(43)	(50)	(102)	(8)	(2)	(204)
Actuarial gains and losses	(84)	(43)	(109)	(38)	(1)	(275)
Currency translation adjustments	0	36	0	1	0	37
<b>DEFINED BENEFIT OBLIGATION AT DECEMBER 31, 2015</b>	<b>352</b>	<b>57</b>	<b>895</b>	<b>315</b>	<b>7</b>	<b>1,626</b>

## CHANGES IN PLAN ASSETS

<i>(in millions of euros)</i>	2015
<b>Value of assets at December 31, 2014</b>	<b>810</b>
Assets of operations held for sale	(636)
Interest income on assets	20
Actuarial differences	16
Contributions / Benefits paid by the employer	16
Employee contributions	4
Benefits paid and not reimbursed	
Benefits paid by earmarked assets	(81)
Administrative expenses funded by assets	(2)
Effect of mergers / acquisitions / transfers between entities	
Effect of mergers / acquisitions / transfers between entities	
Change in consolidation scope	
Currency translation adjustments	25
<b>NET CARRYING AMOUNT AT DECEMBER 31</b>	<b>171</b>

## CHANGE IN PROVISION ESTIMATED BY THE GROUP'S ACTUARIES

<i>(in millions of euros)</i>	2015
<b>Balance at December 31, 2014</b>	<b>2,234</b>
Assets of operations held for sale	(456)
Change in consolidated group	1
Currency translation adjustment	13
Reclassification of provisions/assets	
Total expense	(198)
Contributions collected/benefits paid	(138)
<b>NET CARRYING AMOUNT AT DECEMBER 31, 2015</b>	<b>1,455</b>

## NOTE 24. OTHER PROVISIONS

(in millions of euros)	January 1, 2015	Charges (*)	Reversal (when risk has materialized)	Reversal (when risk has not materialized)	Discontinued operations (**)	Other changes	December 31, 2015
Restoration of mining sites and mill decommissioning	265	14	(20)			(22)	238
Provision for site clean-up and reclamation of other industrial sites	2				(2)		-
<b>Other non-current provisions</b>	<b>267</b>	<b>15</b>	<b>(20)</b>		<b>(2)</b>	<b>(22)</b>	<b>238</b>
Restructuring and layoff plans	48	416	(33)	(5)	(187)	4	243
Provisions for ongoing cleanup	152	10	(36)		(69)	(28)	29
Provisions for customer warranties	78	17	(15)	(5)	(72)	2	4
Provisions for losses at completion	1,499	1,148	(623)	(15)	(198)		1,810
Accrued costs	974	134	(53)	(8)	(19)	1	1,030
Other	722	537	(260)	(48)	(198)	121	874
<b>Current provisions</b>	<b>3,473</b>	<b>2,261</b>	<b>(1,021)</b>	<b>(80)</b>	<b>(742)</b>	<b>99</b>	<b>3,990</b>
<b>TOTAL PROVISIONS</b>	<b>3,740</b>	<b>2,275</b>	<b>(1,041)</b>	<b>(80)</b>	<b>(744)</b>	<b>78</b>	<b>4,228</b>

(\*) Including a discount reversal of 43 million euros at December 31, 2015.

(\*\*) see Note 9.

At December 31, 2015, provisions for cleanup included 11 million euros for "PRISME" operations preparatory to the final shutdown of Eurodif's Georges Besse I plant (versus 69 million euros at December 31, 2014).

At December 31, 2015 and December 31, 2014, 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 contract risks.

### INDUSTRIAL EQUIPMENT SUPPLY CONTRACT

A provision of 40 million euros was constituted for an industrial equipment supply contract whose use in the current market situation is under consideration.

### PROVISION RELATED TO THE SALE OF AREVA NP

The "Other provisions" line includes a provision of 180 million euros at December 31, 2015 for expected costs resulting from the transfer of the OL3 contract from AREVA NP to AREVA SA, for which the terms are under discussion.

### PROVISIONS FOR RESTRUCTURING AND REDUNDANCY PLANS

Provisions for restructuring and redundancy plans represent the best estimate of costs to be incurred in connection with staff reduction plans constituting the labor component of the group's competitiveness plan, as explained in Note 1 on

highlights of the period – Establishment of social dialogue. They correspond to the different components of these plans, including in particular voluntary retirement and early retirement, external mobility, and the tax for revitalization of labor pools in France. In accordance with the accounting rules, no provision is set up for the costs of internal mobility.

### PROVISIONS FOR LOSSES AT COMPLETION

#### Purchase Contract for Separative Work Units (SWU)

In light of the 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.

#### Contract for construction of the Olkiluoto 3 EPR reactor

Construction of the Olkiluoto 3 EPR ("the project") made good progress over the course of 2015, meeting critical path milestones, although delays were recorded on subcritical tasks. The key milestones met were:

- testing of the cabinets for the production part (TXP) of instrumentation and control systems on a platform at Erlangen. Those cabinets were sent to the site in late August 2015 for installation;
- completion in mid-December 2015 of all platform tests of the instrumentation and control systems constituting the critical path of the project, giving rise to the customer's payment of 55 million euros for milestone no. 10 in January 2016 (the first payment received from the customer since 2009 for meeting a contractual milestone).

The main short-term milestones are confirmed:

- Submittal of the operating license application (OLA) in April 2016.
- Functional tests of the TXP cabinets starting in January 2016 to enable the operational test phases to start in May 2016.
- Continuation of electromechanical installation activities in the first half of 2016, in particular electricity/instrumentation and control, and piping.
- End of the vessel flushing sequence in January 2017.

Operationally, the project still gives rise, and has for several years, to constant and significant disagreements with TVO ("the customer"), mostly because of the manner in which the latter applies the contract and does not comply with its operational obligations as the future nuclear operator of this reactor. This way of functioning remains an important disruptive factor in the final stages of reactor construction, testing and commissioning, which require close cooperation with the customer and gradual turnover of the plant to the latter. Talks with TVO are planned in 2016 to jointly develop a plan to complete the facility and update the project schedule. This cooperation, if confirmed, will improve the completion of the project and in particular will allow the test phases to begin in the best possible conditions.

On a legal level, the AREVA-Siemens Consortium (the "Consortium") continues to exercise its rights in connection with arbitration proceedings initiated in 2008.

The Consortium's claim for compensation for damages concerns a total amount of 3.5 billion euros. No income has been recognized in respect of this claim. TVO's claim against the Consortium amounts to approximately 2.3 billion euros. No provision has been constituted in respect of this claim. In fact, 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 arbitral proceeding, hearings on the merits of the dispute will take place in 2016. The arbitration court's final decision is not expected before the end of 2017.

Discussions have begun with TVO with the objectives of jointly laying the foundations for cooperation to complete the project and settle the dispute. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

On an accounting level, at this stage of the discussions with TVO, AREVA still considers that it does not have the ability to value with sufficient reliability the costs at completion of the reactor testing and commissioning phases until completion

of the project, as the valuation remains highly dependent on the degree of the customer's cooperation and its compliance with its operational obligations. This cost category is termed "undiscernible".

However, except for 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".

With this background, and in accordance with the provisions of paragraph 32 of IAS 11, AREVA stopped recognizing contract revenue and costs based on percentage of completion; it now uses the following recognition methods:

- Revenue recognized in respect of the contract is stabilized at the level reached at June 30, 2013.
- Contract costs are expensed as they are incurred. Only costs in the "reliable" categories that effectively contribute to the physical completion of reactor construction are charged against the provision for losses at completion pertaining to the contract; they amounted to 402 million euros for the year. "Undiscernible" costs recorded directly in expenses because they did not contribute to the project's progress amounted to 35 million euros for the year.
- Costs at completion are updated for the half-year and year-end closings. For 2015, the cost at completion rose 905 million euros in relation to that estimated at the closing of the 2014 financial statements. This increase is explained by (i) extra operating costs, (ii) an increase in contingencies for the test phases, and (iii) the impact of the discussions begun with TVO. The loss at completion recognized at December 31, 2015 was thus brought to 5.5 billion euros.
- If the conditions for carrying out the project improve over the coming months, as is foreseen in connection with the recent discussions with the customer, the abandonment of this degraded system of recognition of percentage of completion of the project will be examined. AREVA will then resume recognition of the OL3 contract in accordance with the percentage of completion method (IAS 11), which will lead to an adjustment of revenue as a function of the project's percentage of completion.

## PROVISIONS FOR CONTRACT COMPLETION

Provisions for contract completion totaled 1,030 million euros at December 31, 2015. These expenses represent ancillary tasks yet to be performed, in particular waste treatment and storage.

## NOTE 25. BORROWINGS

<i>(in millions of euros)</i>	Long-term borrowings	Current debts	December 31, 2015	December 31, 2014
Interest-bearing advances from customers	96	-	96	93
Borrowings from lending institutions and commercial paper	593	301	894	1,259
Bond issues	4,942	1,032	5,974	5,994
Short-term bank facilities and non-trade current accounts (credit balances)	-	91	91	122
Financial derivatives	221	14	235	5
Miscellaneous debt*	53	2	55	22
<b>TOTAL BORROWINGS</b>	<b>5,905</b>	<b>1,440</b>	<b>7,344</b>	<b>7,494</b>
* Including finance lease obligations.	1	3	4	10

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 157 million euros (see Note 9).

Borrowings from lending institutions and commercial paper at December 31, 2015 include:

- commercial paper outstanding in the amount of 26 million euros;
- a loan from the European Investment Bank in the total amount of 200 million euros contracted in 2009 and maturing in January 2016;
- an amortizable syndicated loan from 10 banks maturing in 2024 in the total initial amount of 650 million euros (617 million euros at December 31, 2015).

Borrowings by maturity, currency and type of interest rate:

<i>(in millions of euros)</i>	December 31, 2015
Maturing in one year or less	1,440
Maturity of 1-2 years	878
Maturity of 2-3 years	122
Maturity of 3-4 years	818
Maturity of 4-5 years	613
Maturing of more than 5 years	3,473
<b>TOTAL</b>	<b>7,344</b>

<i>(in millions of euros)</i>	December 31, 2015
Euro	7,191
US dollar	10
Yen:	62
Other	81
<b>TOTAL</b>	<b>7,344</b>

<i>(in millions of euros)</i>	December 31, 2015
Fixed rate borrowings	5,880
Floating rate borrowings	1,159
<b>TOTAL</b>	<b>7,040</b>
Other non-interest-bearing debt	70
Financial derivatives	235
<b>TOTAL</b>	<b>7,344</b>

The maturities of the group's financial assets and borrowings at December 31, 2015 are presented in Note 31.

## 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 from customers	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>	(29)	(3)	2	(40)	(32)	175
<b>TOTAL</b>	<b>7,183</b>	<b>8,492</b>	1,694	1,089	278	927	696	3,808

## PAYMENT SCHEDULE AT DECEMBER 31, 2014

<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	93	93						93
Borrowings from lending institutions and commercial paper	1,259	1,259	436	247	78	61	45	392
Bond issues	5,994	5,994	53	991	794	55	778	3,324
Short-term bank facilities and non-trade current accounts (credit balances)	122	122	122					
Miscellaneous debt	20	20	6	12	1			1
Future interest on financial liabilities		1,551	326	256	211	154	149	456
<b>Total borrowings (excluding derivatives)</b>	<b>7,489</b>	<b>9,038</b>	<b>941</b>	<b>1,506</b>	<b>1,083</b>	<b>270</b>	<b>971</b>	<b>4,266</b>
Derivatives – assets	(41)							
Derivatives – liabilities	5							
<b>Total net derivatives</b>	<b>(36)</b>	<b>(36)</b>	<b>(15)</b>	<b>(22)</b>	<b>(1)</b>	<b>6</b>	<b>(21)</b>	<b>16</b>
<b>TOTAL</b>	<b>7,453</b>	<b>9,002</b>	927	1,484	1,083	276	950	4,282

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

**BOND ISSUES AFTER HEDGING**

Issue date	Net carrying amount (in millions of euros)	Currency	Nominal amount (in millions of currency units)	Nominal rate	Maturity
September 23, 2009	976	EUR	971	3.875%	2016
September 23, 2009	1,034	EUR	1,000	4.875%	2024
November 6, 2009	773	EUR	750	4.375%	2019
September 22, 2010	767	EUR	750	3.5%	2021
October 5, 2011	396	EUR	398	4.625%	2017
March 14, 2012	399	EUR	400	4.625%	2017
April 4, 2012	198	EUR	200	TEC10 + 2.125%	2022
September 4, 2013	532	EUR	500	3.25%	2020
September 20, 2013	61	JPY	8,000	1.156%	2018
March 20, 2014	782	EUR	750	3.125%	2023
<b>TOTAL</b>	<b>5,917</b>				

**GUARANTEES AND COVENANTS**

With the exception of the loan to Somair in the amount of 5 billion CFA (7 million euros), for which assets have been pledged, no assets have been pledged to secure borrowings or debt (except for assets financed under leasing arrangements).

**BANKING COVENANTS**

The amortizable syndicated loan in the amount of 623 million euros at December 31, 2015 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 includes a covenant allocating cash flows to debt service which subordinates payments to AREVA SA (dividends and loan repayments) from Société d'enrichissement du Tricastin.

**NOTE 26. ADVANCES AND PREPAYMENTS RECEIVED**

(in millions of euros)	December 31, 2015	December 31, 2014
Advances and prepayments on orders	1,868	3,355
Customer advances and prepayments invested in non-current assets	1,026	1,090
<b>TOTAL</b>	<b>2,895</b>	<b>4,444</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 1,692 million euros (see Note 9).

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 recognized in the balance sheet represents the net balance of advances and prepayments received and sales 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 on an individual contract basis.

Customer advances and prepayments invested in non-current assets comprise amounts received from customers and used to finance capital expenditures for the performance of long-term contracts to which they have subscribed.

At December 31, 2015, advances and prepayments by maturity were as follows:

- less than 1 year: 18 million euros
- 1-5 years: 631 million euros
- more than 5 years: 2.247 billion euros

## NOTE 27. OTHER LIABILITIES

### OPERATING LIABILITIES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
Tax and social security liabilities, excluding corporate income tax	876	1,387
Financial instruments	299	202
Other operating liabilities	728	1,160
<b>TOTAL</b>	<b>1,904</b>	<b>2,750</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 1,002 million euros (see Note 9).

Financial instruments include the fair value of derivatives hedging market transactions and the fair value of the firm commitments hedged.

At December 31, 2015, operating liabilities by maturity were as follows:

- less than 1 year: 1,459 billion euros
- 1-5 years: 378 million euros
- more than 5 years: 66 million euros

### NON-OPERATING LIABILITIES

<i>(in millions of euros)</i>	December 31, 2015	December 31, 2014
<b>TOTAL</b>	<b>64</b>	<b>73</b>

Balances of the AREVA NP, AREVA TA and Nuclear Measurements operations at December 31, 2015 are reclassified under "operations held for sale" in the amount of 26 million euros (see Note 9).

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>	2015	2014
Change in inventories and work-in-process	(45)	162
Change in accounts receivable and other receivables	445	141
Change in accounts payable and other liabilities	(67)	(194)
Change in trade advances and prepayments received	(39)	(143)
Change in advances and prepayments made	11	49
Change in Forex hedge of WCR	24	49
Change in other non-current non-financial assets	(7)	(8)
<b>TOTAL</b>	<b>322</b>	<b>56</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 AREVA and its joint ventures and associates, which are also related parties, are described in Note 14.

Transactions between the Group and the CEA are as follows:

<i>(in millions of euros)</i>	CEA	
	December 31, 2015	December 31, 2014
Sales	582	574
Purchases	92	99
Loans to/receivables from related parties	962	949
Borrowings from related parties	185	183

Transactions between continuing operations and the CEA are presented hereunder:

<i>(in millions of euros)</i>	CEA	
	December 31, 2015	December 31, 2014
Sales	257	235
Purchases	73	79
Loans to/receivables from related parties	877	878
Borrowings from related parties	153	157

Transactions between the group and Adwen are as follows:

<i>(in millions of euros)</i>	Adwen	
	December 31, 2015	December 31, 2014
Sales	5	-
Purchases	9	-
Loans to/receivables from related parties	142	-
Borrowings from related parties	-	-

AREVA buys centrifuges from ETC for its new Georges Besse II enrichment plant. AREVA's equipment purchases from ETC totaled 81 million euros in 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 work on the CEA's nuclear facilities, engineering services for the design, construction and operating support of/to the CEA's research reactors, 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 and given rise to the recognition of provisions (see Note 24).

## COMPENSATION PAID TO KEY EXECUTIVES

<i>(in millions of euros)</i>	2015	2014 restated	2014
Short-term benefits	4.5	5.4	2.9
Termination benefits	1.7	-	-
Post-employment benefits	0.1	0.1	-
Other long-term benefits	-	-	-
<b>TOTAL</b>	<b>6.3</b>	<b>5.5</b>	<b>2.9</b>

Key executives are:

- for reported 2014 data: the members of the Executive Board and of the Supervisory Board;
- for 2015 data: from January 1 to 8, 2015, the members of the Executive Board and of the Supervisory Board and, from January 9, 2015, the members of the Board of Directors and of the Executive Committee;
- for restated 2014 data: the members of the Executive Management Board were added to the members of the Executive Board and of the Supervisory Board to enable comparability with 2015 data.

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>	2015	2014
Allowances received by AREVA	73	77
Actual emissions	73	70
Excess of allowances over emissions	0	7
Allowances sold on the Powernext market	0	0

## NOTE 31. MANAGEMENT OF MARKET RISKS

## GENERAL OBJECTIVES

The group 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 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 weekly report on all positions and their market values for the group's Chief Financial Officer.

## FOREIGN EXCHANGE RISK MANAGEMENT

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. As a uranium producer in Canada and Kazakhstan, the group is also exposed to fluctuations in the Canadian dollar and the Kazakh tenge against the US dollar, in which uranium prices are denominated.

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.

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

The AREVA group 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).

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.

At December 31, 2015, derivatives used by the group to manage foreign exchange risk were as follows:

<i>(Notional amounts by maturity date at December 31, 2015)</i>	2016	2017	2018	2019	2020	> 5 years	Total	Market value
Forward exchange transactions and currency swaps	2,613	728	331	136	0	0	3,808	(219)
Currency options	62	28					90	
Cross-currency swaps	132	60	61	298	0	983	1,533	(145)
<b>TOTAL</b>	<b>2,808</b>	<b>815</b>	<b>392</b>	<b>434</b>	<b>0</b>	<b>983</b>	<b>5,432</b>	<b>(364)</b>

Derivative financial instruments used to hedge foreign currency exposure were as follows at December 31, 2015 and December 31, 2014:

<i>(in millions of euros)</i>	2015		2014	
	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>386</b>	<b>(12)</b>	<b>965</b>	<b>(20)</b>
Forward exchange transactions and currency swaps	386	(12)	965	(20)
<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>2,212</b>	<b>(209)</b>	<b>1,926</b>	<b>(95)</b>
Forward exchange transactions and currency swaps	2,194	(208)	1,877	(95)
Currency options	18	(1)	49	(1)
<b>Derivatives not eligible for hedge accounting</b>	<b>2,833</b>	<b>(150)</b>	<b>2,195</b>	<b>(75)</b>
Forward exchange transactions and currency swaps	1,228	1	352	(7)
Currency options	72	(5)	81	(1)
Cross-currency swaps	1,533	(145)	1,761	(68)
<b>TOTAL</b>	<b>5,432</b>	<b>(371)</b>	<b>5,086</b>	<b>(191)</b>

A significant share of undocumented financial instruments in 2015 and 2014 corresponds to derivatives subscribed to hedge foreign exchange risk on monetary assets and liabilities, which constitutes a natural hedge. Financial instruments reported as "Not formally documented" in accordance with IAS 39 also include derivative transactions to hedge requests for proposals in foreign currencies.

Based on market data at the date of closing, the impact on the group's consolidated equity at year-end 2015 of currency derivative instruments qualified as cash flow hedges would be 70 million euros in the case of a 5% instantaneous increase in exchange rates against the euro, or -77 million euros in the case of a 5% decrease in exchange rates. Using these same assumptions, the impacts were +56 million euros and -62 million euros at year end 2014.

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 versus the euro is relatively neutral.

## COMMODITY RISK

The group has little exposure to commodities. In 2015, the nominal value of the group's commodity hedges (fuel forwards contracts) was less than 1 million euros.

**INTEREST RATE RISK MANAGEMENT**

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 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, 2015, interest rate swaps were the main financial instruments used in the management of external debt.

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.

Inflation rate swaps in US dollars were set up to cover a specific and isolated commercial risk on behalf of the Mining Business Group.

At December 31, 2015, the following financial instruments were used to hedge interest rate exposure:

	Notional amounts by maturity date at December 31, 2015							Market value
(in millions of euros)	Total	2016	2017	2018	2019	2020	> 5 years	
Interest rate swaps – variable lender – EUR								
Fixed borrower – EUR	400	200					200	(3)
Interest rate swaps – variable lender – EUR								
EUR variable borrower	100						100	(0)
USD variable borrower	983						983	(31)
CAD variable borrower	490	132	60		298			1
Interest rate swaps – fixed lender – EUR								
EUR variable borrower	1,626	376			150	450	650	105
Interest rate swaps – JPY fixed lender								
EUR variable borrower	61			61				0
Inflation rate swaps – variable lender – USD								
USD fixed lender	161					161		(56)
GRAND TOTAL	3,820	708	60	61	448	611	1,933	16

At December 31, 2015, the group used the following derivatives to hedge 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)	
Interest rate swaps – variable lender – EUR					
Fixed borrower – EUR	400	(0)		(3)	(3)
Interest rate swaps – variable lender – EUR					
EUR variable borrower	100			(0)	(0)
USD variable borrower	983			(31)	(31)
CAD variable borrower	490			1	1
Interest rate swaps – fixed lender – EUR					
EUR variable borrower	1,626		105		105
Interest rate swaps – JPY fixed lender					
EUR variable borrower	61			0	0
Inflation rate swaps – variable lender – USD					
USD fixed lender	161			(56)	(56)
TOTAL	3,820	(0)	105	(89)	16

(1) Gain / (loss).

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

The following tables summarize the group's net rate risk exposure, before and after rate management transactions, at the end of 2015 and 2014.

**Maturities of the group's financial assets and borrowings at December 31, 2015**

<i>(in millions of euros)</i>	<b>Less than one year</b>	<b>1 year to 2 years</b>	<b>2 years to 3 years</b>	<b>3 years to 4 years</b>	<b>4 years to 5 years</b>	<b>More than 5 years</b>	<b>Total</b>
<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)

**Maturities of the group's financial assets and borrowings at December 31, 2014**

<i>(in millions of euros)</i>	<b>Less than one year</b>	<b>1 year to 2 years</b>	<b>2 years to 3 years</b>	<b>3 years to 4 years</b>	<b>4 years to 5 years</b>	<b>More than 5 years</b>	<b>Total</b>
<b>Financial assets</b>	<b>1,762</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,762</b>
including fixed rate assets	(0)	0	0	0	0	0	(0)
including floating rate assets	1,742	0	0	0	0	0	1,742
including non-interest-bearing assets	20	0	0	0	0	0	20
<b>Borrowings</b>	<b>(597)</b>	<b>(1,286)</b>	<b>(876)</b>	<b>(119)</b>	<b>(825)</b>	<b>(3,788)</b>	<b>(7,491)</b>
including fixed rate borrowings	(162)	(1,085)	(876)	(64)	(825)	(3,580)	(6,593)
including floating rate borrowings	(367)	(201)	0	(55)	0	(207)	(830)
including non-interest-bearing borrowings	(68)	0	0	0	0	0	(68)
<b>Net exposure before hedging</b>	<b>1,164</b>	<b>(1,286)</b>	<b>(876)</b>	<b>(119)</b>	<b>(825)</b>	<b>(3,788)</b>	<b>(5,729)</b>
share exposed to fixed rates	(162)	(1,085)	(876)	(64)	(825)	(3,580)	(6,593)
share exposed to floating rates	1,375	(201)	0	(55)	0	(207)	912
non-interest-bearing share	(48)	0	0	0	0	0	(48)
<b>Off-balance sheet hedging</b>							
on borrowings: fixed rate swaps	(28)	156	0	0	156	1,366	1,649
on borrowings: floating rate swaps	28	(156)	0	0	(156)	(1,366)	(1,649)
<b>Net exposure after hedging</b>	<b>1,164</b>	<b>(1,286)</b>	<b>(876)</b>	<b>(119)</b>	<b>(825)</b>	<b>(3,788)</b>	<b>(5,729)</b>
share exposed to fixed rates	(190)	(929)	(876)	(64)	(670)	(2,214)	(4,944)
share exposed to floating rates	1,403	(357)	0	(55)	(156)	(1,573)	(738)
non-interest-bearing share	(48)	0	0	0	0	0	(48)

Based on the group's exposure at December 31, 2015, 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 -1 million euros at year end 2014.

### RISK FROM EQUITY INVESTMENTS

The group holds publicly traded shares in a significant amount and is exposed to changes in the financial markets.

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

These holdings are of two types:

- equities held in the portfolio of financial assets earmarked for end-of-lifecycle operations (see Note 13. *End-of-lifecycle operations*); and

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, 2015 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,515</b>	-
Income statement impact	-	-
Impact on shareholders' equity	252	-

#### Lower scenario (10% decrease in the value of equity investments)

December 31, 2015 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,515</b>	-
Income statement impact	(0)	-
Impact on shareholders' equity	(251)	-

#### Upper scenario (10% increase in the value of equity investments)

December 31, 2014 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,472</b>	-
Income statement impact	-	-
Impact on shareholders' equity	247	-

#### Lower scenario (10% decrease in the value of equity investments)

December 31, 2014 (in millions of euros)	Available-for-sale securities	Securities recognized at fair value through profit or loss
<b>Balance sheet position</b>	<b>2,472</b>	-
Income statement impact	(2)	-
Impact on shareholders' equity	(245)	-

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

# 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 involve exposure 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. 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 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.

# BALANCE SHEET NETTING OF THE FAIR VALUE OF DERIVATIVES

At December 31, 2015

Effect of clearing agreements

(in millions of euros)	Gross carrying amount	Financial instruments	Fair value of financial collateral	Net exposure
Assets	211	(205)		6
Shareholders' equity and liabilities	(535)	205	56	(275)
<b>TOTAL</b>	<b>(324)</b>	<b>0</b>	<b>56</b>	<b>(268)</b>

# LIQUIDITY RISK

The group's department of Financial Operations is in charge of liquidity risk management and provides the subsidiaries with appropriate long term and short term financing resources.

Cash management optimization is based on a centralized system to provide liquidity and manage the cash surpluses of the subsidiaries, regardless of AREVA's equity stake. Management is provided by the group's department of Financial Operations, chiefly through cash pooling agreements and inter-company loans, subject to local regulations. The group's consolidated cash surpluses are managed to optimize financial returns while ensuring that the financial instruments used are liquid.

Borrowings are centralized by the department of Treasury Management to optimize borrowing costs and facilitate access to the banking system.

The system for monthly updates of cash forecasts (with a monthly view of the first four months, then quarterly thereafter) was bolstered with an additional system for updates of the first four months on a weekly basis, based on (i) a weekly update of positions to month end and (ii) a system of alerts initiated by the Business Groups and operating entities for cash flows (excluding internal cash flows) that are unexpected, unreported, unplanned or cancelled in any amount greater than 5 million euros. If a pre-determined short-term position is exceeded, the Cash Management and Financing Department (DOFT) will send out a special communication to the Business Groups and the group's executive management (including the group's Chief Financial Officer) to decide on protective measure to be taken.

At December 31, 2015, the group had a 1.250-billion-euro syndicated line of credit and bilateral lines of credit totaling 845 million euros, all of which were confirmed and unused.

At December 31, 2015

(in millions of euros)	Amount	Unused amount	Maturity		
			2016	2017	2018
Syndicated line of credit	1,250	1,250			1,250
Confirmed bilateral lines of credit	845	845	50	795	
<b>TOTAL</b>	<b>2,095</b>	<b>2,095</b>	<b>50</b>	<b>795</b>	<b>1,250</b>

In early 2016, AREVA drew a total of 2.045 billion euros on its syndicated line of credit and on bilateral lines of credit and negotiated an interim financing from banks in the amount of 1.1 billion euros. These resources will ensure the group financing for 2016.

External financing arrangements are not subject to specific covenants. However, certain loan agreements include change of control clauses stipulating that the group should maintain control over the AREVA subsidiary that concluded the agreement, or that the French State should maintain control over AREVA. The concept of control is understood either under the meaning of article L. 233-3 of the French Commercial Code or in relation to the percentage of share capital ownership, which should remain higher than 50.1%. Under certain circumstances, the debt may become due immediately if AREVA ceases to control the subsidiary, or if the French State ceases to control AREVA.

The group's liquidity risks and situation are presented in Note 1.

AREVA met two key milestones of the financing plan announced during the publication of the half-year 2015 financial statements with the proposal received from EDF valuing AREVA NP (excluding OL3) at 2.5 billion euros and validation from the AREVA Board of Directors for a capital increase of 5 billion euros.

## CREDIT RISK

AREVA's only exposure to credit risk relates to investments of cash surpluses in marketable securities and 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 money market funds and monetary SICAV (open-ended mutual 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

2015

#### Assets

	Including							
(in millions of euros)	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	Fair value of financial assets
Non-current assets	17,747	11,069	1,131		4,814	610	123	6,813
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						
Current assets	11,240	9,278	1,542	356			65	1,962
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						
TOTAL ASSETS	28,987	20,347	2,673	356	4,814	610	187	8,775

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.

(in millions of euros)	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>

**Analysis of assets in the level 3 category**

<i>(in millions of euros)</i>	Amount at December 31, 2014	Increase	Disposals	Discontinued operations	Other	Amount at December 31, 2015
Other non-current assets	21	4	-	(14)	1	12

**Liabilities and equity**

<i>(in millions of euros)</i>	Including					
	Balance sheet value	Non-financial assets and liabilities	Liabilities at amortized cost	Fair value recognized in profit or loss	Assets available for sale	Fair value of financial liabilities
<b>Equity and minority interests</b>	<b>(2,281)</b>	<b>(2,281)</b>				
Share 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>			
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			
Deferred tax liabilities	100	100				
<b>Current liabilities</b>	<b>16,592</b>	<b>13,080</b>	<b>3,261</b>			
Current provisions	3,990	3,990				
Current borrowings	1,440		1,426			
Advances and prepayments received	2,895	2,895				
Trade accounts payable and related accounts	941	18	923			
Other operating liabilities	1,904	817	849			
Current tax liabilities	39	39				
Other non-operating liabilities	64	1	63			
Liabilities of discontinued operations	5,320	5,320				
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>28,987</b>	<b>19,571</b>	<b>8,944</b>			

<i>(in millions of euros)</i>	Leve 1	Level 2	Level 3	Total
<b>Non-current liabilities</b>	-	221	-	221
Long-term borrowings	-	221	-	221
<b>Current liabilities</b>	-	251	-	251
Current borrowings	-	14	-	14
Other operating liabilities	-	238	-	238
<b>TOTAL LIABILITIES</b>	-	472	-	472

20.2 Notes to the consolidated financial statements for the year ended December 31, 2015

2014

Assets

(in millions of euros)	Including						
	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	Fair value of financial assets
<b>Non-current assets</b>	<b>21,709</b>	<b>15,431</b>	<b>881</b>		<b>4,659</b>	<b>716</b>	<b>6,426</b>
Goodwill on consolidated companies	3,667	3,667					
Intangible assets	2,267	2,267					
Property, plant and equipment	8,719	8,719					
End-of-lifecycle assets (third party share)	188	188					
Assets earmarked for end-of-lifecycle operations	6,015		725		4,573	716	6,163
Investments in joint ventures and associates	143	143					
Other non-current assets	273	10	155		86		263
Deferred tax assets	437	437					
<b>Current assets</b>	<b>8,211</b>	<b>4,635</b>	<b>2,052</b>	<b>1,478</b>			<b>3,576</b>
Inventories and work-in-process	2,020	2,020					
Trade accounts receivable and related accounts	2,079	739	1,340				1,340
Other operating receivables	1,786	1,335	426			25	452
Current tax assets	85	85					
Other non-operating receivables	104	80	24				24
Cash and cash equivalents	1,686	1	241	1,443			1,685
Other current financial assets	76		21	35		20	76
Assets of operations held for sale	375	375					
<b>TOTAL ASSETS</b>	<b>29,920</b>	<b>20,067</b>	<b>2,933</b>	<b>1,478</b>	<b>4,659</b>	<b>716</b>	<b>10,001</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.

(in millions of euros)	Level 1	Level 2	Level 3	Total
<b>Non-current assets</b>	<b>5,359</b>	<b>165</b>	<b>21</b>	<b>5,545</b>
Assets earmarked for end-of-lifecycle operations	5,340	97		5,437
Other non-current assets	19	68	21	107
<b>Current assets</b>	<b>1,478</b>	<b>45</b>		<b>1,523</b>
Other operating receivables		25		25
Cash and cash equivalents	1,443			1,443
Other current financial assets	35	20		55
<b>TOTAL ASSETS</b>	<b>6,837</b>	<b>210</b>	<b>21</b>	<b>7,068</b>

***Liabilities and equity***

<i>(in millions of euros)</i>	Including					
	Balance sheet value	Non-financial assets and liabilities	Liabilities at amortized cost	Fair value recognized in profit or loss	Assets available for sale	Fair value of financial liabilities
<b>Equity and minority interests</b>	<b>(244)</b>	<b>(244)</b>				
Share capital	1,456	1,456				
Consolidated premiums and reserves	(1,738)	(1,738)				
Actuarial gains and losses on employee benefits	(583)	(583)				
Deferred unrealized gains and losses on financial instruments	204	204				
Currency translation reserves	(12)	(12)				
Minority interests	428	428				
<b>Non-current liabilities</b>	<b>16,527</b>	<b>9,656</b>	<b>6,870</b>			<b>7,071</b>
Employee benefits	2,235	2,235				
Provisions for end-of-lifecycle operations	6,985	6,985				
Other non-current provisions	267	267				
Share in negative net equity of joint ventures and associates	103	103				
Long-term borrowings	6,870		6,870			7,071
Deferred tax liabilities	66	66				
<b>Current liabilities</b>	<b>13,638</b>	<b>9,703</b>	<b>3,792</b>		<b>143</b>	<b>3,935</b>
Current provisions	3,473	3,473				
Current borrowings	624		619		5	624
Advances and prepayments received	4,444	4,444				
Trade accounts payable and related accounts	1,824	14	1,810			1,810
Other operating liabilities	2,750	1,320	1,292		138	1,430
Current tax liabilities	58	58				
Other non-operating liabilities	73	1	71			71
Liabilities of discontinued operations	392	392				
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>29,920</b>	<b>19,115</b>	<b>10,663</b>		<b>143</b>	<b>11,006</b>

<i>(in millions of euros)</i>	Level 1	Level 2	Level 3	Total
<b>Current liabilities</b>		<b>143</b>		<b>143</b>
Current borrowings		5		5
Other operating liabilities		138		138
<b>TOTAL LIABILITIES</b>	-	<b>143</b>	-	<b>143</b>

## NET GAINS AND LOSSES ON FINANCIAL INSTRUMENTS

### Available-for-sale securities

#### 2015

(in millions of euros)	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	146	-		(23)	145
<b>TOTAL</b>	<b>146</b>	<b>-</b>	<b>173</b>	<b>(23)</b>	<b>59</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.

#### 2014

(in millions of euros)	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*			61		(145)
Statement of Income	139	-		(19)	134
<b>TOTAL</b>	<b>139</b>	<b>-</b>	<b>61</b>	<b>(19)</b>	<b>(10)</b>

\* excluding tax impact.

At December 31, 2014, 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 411 million euros.

### Loans and receivables

#### 2015

(in millions of euros)	Interest	Impairment	Debt forgiveness
Net income	38	(18)	-

#### 2014

(in millions of euros)	Interest	Impairment	Debt forgiveness
Net income	48	-	-

### Financial assets and liabilities at fair value recognized through profit or loss

The income recorded on financial assets and financial liabilities recognized at fair value through profit and loss was 2 million euros at December 31, 2015 and 5 million euros at December 31, 2014.

**Financial liabilities at amortized cost****2015**

<i>(in millions of euros)</i>	Interest expense and commissions	Other income and expenses
Net income	(277)	-

**2014**

<i>(in millions of euros)</i>	Interest expense and commissions	Other income and expenses
Net income	(258)	-

**Derivatives used for hedging**

At December 31, 2015, the ineffective share of derivatives used for hedging recognized in profit or loss is as follows:

- Cash flow hedges: (9) million euros
- Fair value hedges: 1 million euros

**CASH FLOW HEDGES**

<i>(in millions of euros)</i>	Value before tax at December 31, 2014	New transactions	Change in value	Recognition through profit and loss	Value before tax at December 31, 2015
Cash flow hedging instruments	(110)	(39)	(102)	52	(199)

**LASTING IMPAIRMENT OF AVAILABLE-FOR-SALE SECURITIES**

<i>(in millions of euros)</i>	Amount at December 31, 2014	Charges	Reversal of depreciation on disposals	Currency translation adjustments	Other changes	Value before tax at December 31, 2015
Earmarked funds	(15)	(2)	-	-	(95)	(112)
Other available-for-sale securities	(133)	(21)	29	-	95	(29)
<b>TOTAL</b>	<b>(148)</b>	<b>(23)</b>	<b>29</b>	<b>-</b>	<b>-</b>	<b>(141)</b>

**UNREALIZED CAPITAL LOSSES ON AVAILABLE-FOR-SALE SECURITIES NOT RECOGNIZED THROUGH PROFIT AND LOSS**

<i>(in millions of euros)</i>	Unrealized capital losses at December 31, 2015	Including maturity in less than 1 year	Including maturity in 1-2 years
Mandate	(46)	(8)	(39)
Bond funds	(9)	(7)	(2)
<b>TOTAL</b>	<b>(55)</b>	<b>(15)</b>	<b>(40)</b>

## NOTE 33. COMMITMENTS GIVEN AND RECEIVED

<i>(in millions of euros)</i>	December 31, 2015	Less than one year	1 to 5 years	> 5 years	December 31, 2014
<b>Commitments given</b>	<b>3,022</b>	<b>1,142</b>	<b>1,142</b>	<b>738</b>	<b>2,526</b>
Operating commitments given	2,487	856	959	672	2,277
• Contract guarantees given	2,251	774	938	538	2,161
• Other operating guarantees	235	82	20	133	116
Commitments given on financing	428	233	144	51	152
Other commitments given	108	53	40	15	97
<b>Commitments received</b>	<b>2,705</b>	<b>689</b>	<b>2,007</b>	<b>8</b>	<b>1,355</b>
Operating commitments received	2,613	650	1,955	8	1,303
Commitments received on collateral	3	-	3	-	1
Other commitments received	89	39	50	-	51
<b>Reciprocal commitments</b>	<b>2,915</b>	<b>284</b>	<b>2,469</b>	<b>162</b>	<b>3,171</b>

The amounts above include off-balance-sheet commitments of discontinued operations; they do not include construction contracts for which the group is currently in negotiations.

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.

### 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

### 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 has bilateral lines of credit available to it in the amount of 50 million euros maturing in 2016 and 795 million euros maturing in 2017. As of the end of December 2015, none of these lines had been used.

Reciprocal commitments at December 31, 2015 include the future minimum payments to be made on operating leases, as follows:

<i>(in millions of euros)</i>	December 31, 2015	Less than one year	1 to 5 years	> 5 years	December 31, 2014
	507	63	302	143	594

**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 ICC with regard to delays and disruptions suffered in connection with the performance of the contract and the resulting extra costs ("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 which had been retained in contravention of contractual provisions. This decision was duly executed by TVO.

As of the end of 2015, after seven years of legal proceedings (exchanges of briefs by the parties and intermediate 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. The proceeding is following its course.

The Consortium and its counsel still consider the allegations of serious/intentional offense made in TVO's counterclaim to remain unfounded.

Discussions with TVO have been initiated aiming at ensuring the completion of OL3 project and to settle the disputes. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

**Disputes involving AREVA related to the T&D business, sold on June 7, 2010**

Following the European Commission decision of January 24, 2007 in which 11 companies were fined, including AREVA, for anti-competitive practices concerning the gas-insulated switchgear market (GIS), the Court of Justice of the European Union, in its decision of April 10, 2014, partly upheld certain appeals which had been lodged in this matter by AREVA, causing a modification of the distribution of the penalty, but not a reduction of the overall penalty. The total amount of the

penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. Alstom paid this amount in full to the European Commission.

The disagreement between the two groups on the share of the fine to be paid by AREVA was settled amicably between them, and AREVA paid the sum of 5.1 million euros to Alstom pursuant to the settlement.

Disputes involving AREVA related to the T&D business, sold on June 7, 2010, are now closed.

**UraMin case**

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 and the presentation of the company's financial statements relative to this purchase from 2009 to 2012.

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

**CFMM**

A request for arbitration was submitted to the International Chamber of Commerce on July 28, 2014 against the CFMM company by a partner, Mr. Georges Arthur Forrest, in which the petitioner challenges the decision of the General Meeting of Shareholders on June 24, 2013 to liquidate ArevExplo RCA. CFMM has submitted counterclaims in response to this petition. An arbitration tribunal has been constituted and the proceeding, which is to take place in 2015 and 2016, is expected to result in a decision in 2017.

**Miscellaneous investigations**

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

**NOTE 35. EVENTS SUBSEQUENT TO YEAR-END**

In early January 2016, AREVA started to use confirmed lines of credit in the amount of 2.045 billion euros made available by its banking pool. The lines of credit now drawn represent 795 million euros maturing in 2017 and 1.250 billion euros maturing in January 2018.

## NOTE 36. MAIN CONSOLIDATED COMPANIES AND ASSOCIATES

Name of unit or controlling entity: Company name, legal form	Business reg. no.		December 31, 2015		December 31, 2014	
	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	83.58	FC	83.58
Eurodif SA	France	723 001 889	FC	59.65	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	88	FC	88
ETC	Great Britain		EM	50	EM	50
AREVA Mines	France	501 493 605	FC	100	FC	100
Somair	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
<b>Renewable Energies</b>						
AREVA Wind GmbH	Germany		Deconsolidated		FC	100
<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

FC: full consolidation

EM: equity method

## NOTE 37. TRANSITION OF 2014 FINANCIAL STATEMENTS AS REPORTED TO RESTATED 2014 FINANCIAL STATEMENTS

This note recapitulates the main impacts of the adoption of IFRS 5 on the financial statements for the period ended December 31, 2014.

## RECONCILIATION OF STATEMENT OF INCOME AS REPORTED TO RESTATED STATEMENT OF INCOME

<i>(in millions of euros)</i>	2014 reported	adjustments IFRS 5	2014 restated
<b>REVENUE</b>	<b>8,336</b>	<b>(4,383)</b>	<b>3,954</b>
Other income from operations	18	(13)	5
Cost of sales	(8,744)	4,206	(4,538)
<b>Gross margin</b>	<b>(390)</b>	<b>(190)</b>	<b>(579)</b>
Research and development expenses	(231)	97	(134)
Marketing and sales expenses	(188)	128	(59)
General and administrative expenses	(316)	103	(213)
Other operating expenses	(1,584)	439	(1,145)
Other operating income	64	(48)	16
<b>OPERATING INCOME</b>	<b>(2,645)</b>	<b>530</b>	<b>(2,115)</b>
Share in net income of joint ventures and associates	(154)	140	(14)
<b>OPERATING INCOME AFTER SHARE IN NET INCOME OF JOINT VENTURES AND ASSOCIATES</b>	<b>(2,799)</b>	<b>512</b>	<b>(2,129)</b>
Income from cash and cash equivalents	32	-	32
Gross borrowing costs	(275)	58	(217)
<b>Net borrowing costs</b>	<b>(243)</b>	<b>58</b>	<b>(185)</b>
Other financial expenses	(505)	52	(453)
Other financial income	350	-12	338
<b>Other financial income and expenses</b>	<b>(155)</b>	<b>40</b>	<b>(115)</b>
<b>NET FINANCIAL INCOME</b>	<b>(397)</b>	<b>98</b>	<b>(299)</b>
<b>Income tax</b>	<b>(1,000)</b>	<b>262</b>	<b>(739)</b>
<b>NET INCOME FROM CONTINUING OPERATIONS</b>	<b>(4,197)</b>	<b>1,030</b>	<b>(3,167)</b>
Net income after tax from operations sold, discontinued or held for sale	(648)	(1,030)	(1,678)
<b>NET INCOME FOR THE PERIOD</b>	<b>(4,845)</b>	<b>-</b>	<b>(4,845)</b>
Including:			
Group:			
Net income from continuing operations	(4,198)	1,039	(3,159)
Net income from operations sold, discontinued or held for sale	(635)	(1,038)	(1,674)
<b>NET INCOME ATTRIBUTABLE TO OWNERS OF THE PARENT</b>	<b>(4,834)</b>	<b>-</b>	<b>(4,833)</b>
Minority interests:			
Net income from continuing operations	1	(9)	(8)
Net income from operations sold, discontinued or held for sale	(12)	9	(4)
<b>NET INCOME ATTRIBUTABLE TO MINORITY INTERESTS</b>	<b>(11)</b>	<b>-</b>	<b>(12)</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	857,551		857,551
Average number of shares outstanding, excluding treasury shares	382,347,301		382,347,301
Earnings per share from continuing operations	(10.98)		(8.26)
Basic earnings per share	(12.64)		(12.64)
Consolidated net income per diluted share	(12.64)		(12.64)

**RECONCILIATION FROM STATEMENT OF COMPREHENSIVE INCOME AS REPORTED TO RESTATED STATEMENT  
OF COMPREHENSIVE INCOME**

<i>(in millions of euros)</i>	<b>2014 reported</b>	<b>adjustments IFRS 5</b>	<b>2014 restated</b>
<b>Net income</b>	<b>(4,845)</b>		<b>(4,845)</b>
<b>Items not recyclable to the income statement</b>	<b>(261)</b>		<b>(260)</b>
Actuarial gains and losses on the employee benefits of consolidated companies	(305)	105	(200)
Income tax related to non-recyclable items	61	(37)	24
Share in non-recyclable items from joint ventures and associates, net of tax	(16)		(16)
Non-recyclable items related to operations sold, discontinued or held for sale, net of tax	-	(68)	(68)
<b>Items recyclable to the income statement</b>	<b>(85)</b>		<b>(85)</b>
Currency translation adjustments on consolidated companies and other	118	15	133
Change in value of available-for-sale financial assets	(84)	6	(78)
Change in value of cash flow hedges	(124)	10	(114)
Income tax related to recyclable items	50	(5)	45
Share in recyclable items from joint ventures and associates, net of tax	6	(6)	-
Recyclable items related to operations sold, discontinued or held for sale, net of tax	(51)	(19)	(70)
<b>Total other items of comprehensive income (net of income tax)</b>	<b>(346)</b>		<b>(346)</b>
<b>COMPREHENSIVE INCOME</b>	<b>(5,190)</b>		<b>(5,190)</b>
• Attributable to equity owners of the parent	(5,155)		(5,155)
• Minority interests	(36)		(36)

## RECONCILIATION OF STATEMENT OF CASH FLOWS AS REPORTED TO RESTATED STATEMENT OF CASH FLOWS

<i>(in millions of euros)</i>	2014 reported	adjustments IFRS 5	2014 restated
<b>Net income for the period</b>	<b>(4,845)</b>		<b>(4,845)</b>
Less: income from operations sold	648	1,030	1,678
<b>Net income from continuing operations</b>	<b>(4,197)</b>	<b>1,030</b>	<b>(3,167)</b>
(Profit) / loss of joint ventures and associates	154	(140)	14
Net amortization, depreciation and impairment of PP&E and intangible assets and marketable securities maturing in more than 3 months	1,828	(550)	1,278
Goodwill impairment losses	214		214
Net increase in (reversal of) provisions	900	(178)	723
Net effect of reverse discounting of assets and provisions	372	(26)	346
Income tax expense (current and deferred)	1,000	(262)	739
Net interest included in borrowing costs	223	(58)	165
Loss (gain) on disposals of fixed assets and marketable securities maturing in more than 3 months; change in fair value	(151)	22	(129)
Other non-cash items	(10)	6	(4)
Dividends from joint ventures and associates	15	(12)	2
<b>Cash flow from operations before interest and taxes</b>	<b>348</b>	<b>(167)</b>	<b>181</b>
Net interest received (paid)	(218)	58	(160)
Income tax paid	(140)	27	(113)
<b>Cash flow from operations after interest and tax</b>	<b>(10)</b>	<b>(82)</b>	<b>(92)</b>
Change in working capital requirement	199	(143)	56
<b>NET CASH FLOW FROM OPERATING ACTIVITIES</b>	<b>190</b>	<b>(225)</b>	<b>(36)</b>
Investment in PP&E and intangible assets	(1,151)	173	(978)
Loans granted and acquisitions of non-current financial assets	(1,234)	61	(1,174)
Acquisitions of shares of consolidated companies, net of acquired cash	-	-	-
Disposals of PP&E and intangible assets	10	(4)	7
Loan repayments and disposals of non-current financial assets	1,311	(42)	1,268
Disposals of shares of consolidated companies, net of disposed cash	(11)	0	(11)
<b>NET CASH FLOW FROM INVESTING ACTIVITIES</b>	<b>(1,076)</b>	<b>187</b>	<b>(889)</b>
Share issues in the parent company and share issues subscribed by minority shareholders in consolidated subsidiaries	-		
Treasury shares sold/(acquired)	(2)		(2)
Transactions with minority interests	(8)		(8)
Dividends paid to minority shareholders of consolidated companies	(31)	1	(30)
Increase in borrowings	979	(824)	155
<b>NET CASH FLOW FROM FINANCING ACTIVITIES</b>	<b>939</b>	<b>(823)</b>	<b>116</b>
Increase (decrease) in securities recognized at fair value through profit and loss	(2)		(2)
Impact of foreign exchange movements	19	24	44
<b>NET CASH FROM OPERATIONS HELD FOR SALE</b>	<b>(97)</b>	<b>837</b>	<b>740</b>
<b>INCREASE (DECREASE) IN NET CASH</b>	<b>(26)</b>		<b>(26)</b>
<b>NET CASH AT THE BEGINNING OF THE YEAR</b>	<b>1,582</b>		<b>1,582</b>
<b>NET CASH AT THE END OF THE YEAR</b>	<b>1,556</b>		<b>1,556</b>

## 20.3 2015 FINANCIAL STATEMENTS

### 20.3.1 STATUTORY AUDITORS' REPORT ON THE ANNUAL FINANCIAL STATEMENTS

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, 2015, on:

- The audit of the accompanying financial statements of AREVA;
- 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, 2015 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 Note 1.1 to the financial statements, regarding the context of the closing, the Company's liquidity situation and the information relating to the application of the going concern principle.

#### 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 Note 1.1 to the financial statements. We acknowledged the cash flow forecasts, the debt schedules, the current credit lines and the related covenants.

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.

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 the voting rights has been properly disclosed in the management report.

Courbevoie - Paris La Défense, March 31, 2016

The statutory auditors

French original signed by

MAZARS

ERNST & YOUNG Audit

Cédric Haaser

Jean-Louis Simon

Aymeric de La Morandière

Jean Bouquot

## 20.3.2 STATEMENT OF FINANCIAL POSITION

<b>Assets</b> <i>(In thousands of euros)</i>	<b>Note</b>	<b>2015</b>			<b>2014</b>
		<b>Gross</b>	<b>Amortization &amp; Depreciation</b>	<b>Net</b>	<b>Net</b>
Uncalled share capital					
<b>Non-current assets</b>					
Research and development expenses					
Concessions, patents, licenses, software and similar rights		148,061	95,171	52,890	51,096
Business intangibles					
Other intangible assets					
Intangible assets in progress		2,639		2,639	12,752
Advances and prepayments on intangible assets					
<b>Total intangible assets</b>	20.4.4.1/4.2	<b>150,701</b>	<b>95,171</b>	<b>55,529</b>	<b>63,849</b>
Land		204		204	204
Buildings		114	114		
Plant, equipment and tooling		174	75	98	1
Other property, plant and equipment (PPE)		86,825	67,402	19,423	20,604
Plant, property and equipment in progress		5,766		5,766	10,166
Advances and prepayments on PPE					
<b>Total property, plant and equipment</b>	20.4.4.1/4.2	<b>93,082</b>	<b>67,591</b>	<b>25,491</b>	<b>30,974</b>
Associates		8,467,665	6,155,573	2,312,092	2,313,045
Loans to associates		5,597,158	549,455	5,047,703	5,297,680
Long-term shareholdings in trading portfolio					
Other equity securities		183	59	124	14,359
Loans					
Other long-term investments		22,422	5,921	16,501	21,593
<b>Total long-term investments</b>	20.4.4.3/4.4	<b>14,087,428</b>	<b>6,711,008</b>	<b>7,376,420</b>	<b>7,646,677</b>
<b>Total non-current assets</b>		<b>14,331,211</b>	<b>6,873,770</b>	<b>7,457,441</b>	<b>7,741,499</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>23,753</b>		<b>23,753</b>	<b>23,647</b>
Accounts receivable and related accounts		101,685		101,685	113,492
Other accounts receivable		479,105	749	478,355	377,132
Subscribed capital called for, unpaid					
<b>Total receivables</b>	20.4.4.5	<b>580,790</b>	<b>749</b>	<b>580,041</b>	<b>490,625</b>
Marketable securities		428,467	286	428,181	1,481,032
Cash instruments		55,700		55,700	12,600
Cash and cash equivalents		1,911,363	9,722	1,901,641	1,776,828
<b>Total cash and marketable securities</b>	20.4.4.7	<b>2,395,530</b>	<b>10,009</b>	<b>2,385,522</b>	<b>3,270,460</b>
<b>Prepaid expenses</b>		<b>15,657</b>		<b>15,657</b>	<b>2,672</b>
<b>Total current assets</b>		<b>3,015,730</b>	<b>10,758</b>	<b>3,004,972</b>	<b>3,787,404</b>
Deferred charges		12,768		12,768	16,480
Bond redemption premiums		17,095		17,095	20,690
Unrealized foreign exchange gains					
<b>GRAND TOTAL</b>		<b>17,376,804</b>	<b>6,884,529</b>	<b>10,492,275</b>	<b>11,566,074</b>

**Shareholders' equity and liabilities***(in thousands of euros)*

	Note	2015	2014
<b>Share capital</b>	20.4.4.8	<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		-1 413 175	3,896,177
Net income for the year		-2,915,938	-5,309,351
Investment subsidies		654	986
Tax-driven provisions		7,895	6,230
<b>Total shareholders' equity</b>	20.4.4.9	<b>-1,560,931</b>	<b>1,353,674</b>
<b>Other shareholders' equity</b>			
Proceeds from issues of equity securities			
Advances subject to covenants		83	73
<b>Total other shareholders' equity</b>		<b>83</b>	<b>73</b>
<b>Provisions for contingencies and losses</b>			
Provisions for contingencies		1,515,629	200,656
Provisions for losses		40,871	48,127
<b>Total provisions for contingencies and losses</b>	20.4.4.10	<b>1,556,500</b>	<b>248,783</b>
<b>Liabilities</b>			
Convertible bond issues			
Other bond issues		5,867,450	5,861,685
Bank borrowings		201,797	459,495
Miscellaneous loans and borrowings		3,575,483	2,979,907
Advances and prepayments on orders			
Trade accounts payable and related accounts		99,811	127,771
Taxes and employee-related liabilities		17,510	22,167
Accounts payable on non-current assets and related accounts		471	147
Other liabilities		518,259	377,356
Financial instruments		147,455	70,293
Unearned income		68,388	64,722
<b>Total liabilities</b>	20.4.4.11	<b>10,496,623</b>	<b>9,963,543</b>
Unrealized foreign exchange losses			
<b>TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES</b>		<b>10,492,275</b>	<b>11,566,074</b>

### 20.3.3 STATEMENT OF INCOME

<i>(in thousands of euros)</i>	Note	2015	2014
<b>Operating income</b>			
Sales of goods			
Sales of products			
Services performed		452,145	487,137
<b>Revenue <sup>(1)</sup></b>		<b>452,145</b>	<b>487,137</b>
Production in inventory			
Self-constructed assets		10,148	15,549
Operating subsidies			
Reversals of provisions, amortization and depreciation		4,817	4,035
Transferred expenses		10	3,188
Other income		494	440
<b>Total operating income</b>		<b>467,614</b>	<b>510,349</b>
<b>Operating expenses</b>			
Sales of goods			
Change in inventory (goods)			
Purchases of raw materials and other supplies		- 1,662	- 154
Change in inventory (raw materials and supplies)			
Other purchases and expenses		553,739	610,740
Taxes and related expenses		3,521	4,189
Salaries and other compensation		10,791	8,991
Social security taxes		6,385	7,140
Amortization, depreciation and provisions		27,756	37,093
Other expenses		4,565	5,442
<b>Total operating expenses</b>		<b>605,094</b>	<b>673,442</b>
<b>Current operating income</b>	20.4.5.1	<b>-137,480</b>	<b>-163,093</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		223,799	209,553
From other marketable securities and capitalized receivables		70	152
Other interest and related income		170,747	113,399
Reversals of provisions, amortization and depreciation		992,036	1,238
Transferred expenses			
Foreign exchange gains		796,818	438,962
Net income from disposals of marketable securities		1,529	4,327
<b>Total financial income</b>		<b>2,184,999</b>	<b>767,631</b>
<b>Financial expenses</b>			
Amortization, depreciation and provisions		3,676,817	5,162,720
Interest and related expenses		465,583	322,936
Foreign exchange losses		794,808	441,457
Net loss on disposals of marketable securities		565	1,117
<b>Total financial expenses</b>		<b>4,937,773</b>	<b>5,928,229</b>
<b>net financial income</b>	20.4.5.2	<b>-2,752,774</b>	<b>-5,160,598</b>
<b>Income before tax and exceptional items</b>		<b>-2,890,254</b>	<b>-5,323,691</b>
<i>(1) including direct exports</i>		60,408	54,052

**STATEMENT OF INCOME (CONTINUED)**

<i>(in thousands of euros)</i>	<b>Note</b>	<b>2015</b>	<b>2014</b>
<b>Exceptional items</b>			
On financial management transactions		3,648	298
On capital or non-current asset transactions		21,664	26,439
Reversals of provisions, amortization and depreciation		171,886	240,665
Transferred expenses			
<b>Total exceptional income</b>		<b>197,198</b>	<b>267,402</b>
<b>Exceptional expenses</b>			
On financial management transactions		5,229	26,419
On capital or non-current asset transactions		46,197	101,870
Amortization, depreciation and provisions		260,775	197,270
<b>Total exceptional expenses</b>		<b>312,201</b>	<b>325,559</b>
<b>Exceptional items</b>	20.4.5.3	<b>-115,002</b>	<b>-58,157</b>
Employee profit-sharing			
Income tax	20.4.5.4	-89,319	-72,496
<b>NET INCOME</b>		<b>-2,915,938</b>	<b>-5,309,351</b>

## 20.4 NOTES TO THE FINANCIAL STATEMENTS

The notes hereunder supplement the statement of financial position for the period ended December 31, 2015 showing total assets of 10,492,275 thousand euros, and the statement of income, showing a net loss of 2,915,938 thousand euros. These statements are for the 12-month period beginning January 1 and ending December 31, 2015.

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 financial statements approved by Board of Directors on February 25, 2016. The financial statements will be presented to the Annual General Meeting of Shareholders for approval on May 19, 2016.

For the record, on January 8, 2015, the extraordinary general meeting of AREVA SA decided to transform the company's governance from that of a corporation with a Supervisory Board and an Executive Board into a corporation with a Board of Directors. On that same day, the newly appointed Board of Directors decided to split the positions of Chairman of the Board and Chief Executive Officer. Mr. Philippe Varin was appointed Chairman of the Board of Directors and Mr. Philippe Knoche was appointed CEO of AREVA.

### 20.4.1. ITEMS OF NOTE IN THE 2015 FINANCIAL STATEMENTS

#### 20.4.1.1. CONTEXT OF THE 2015 FINANCIAL STATEMENTS

The year of 2015 saw the implementation of measures announced on March 4, 2015 during the publication of the financial statements for the year ended December 31, 2014, and guidance for the transformation of the French nuclear industry announced on June 3, 2015 by the President of the French Republic. Important milestones were met in 2015 and in the first weeks of 2016, in particular for the following items:

- Advanced discussions with EDF for the sale of at least 75% of AREVA NP's share capital, excluding the OL3 contract;
- Refocusing of AREVA on nuclear fuel cycle operations with the announced termination or sale of operations that are not part of its core business;
- A competitiveness plan aiming for 1 billion euros in cost reductions by 2017, including a restructuring plan;
- The preparation of a 2015-2017 financing plan including in particular an increase in AREVA's share capital of 5 billion euros.

#### Discussions with EDF for the sale of AREVA NP

AREVA and EDF continue their discussions for the sale of at least 75% of AREVA NP to EDF.

- The two companies signed a preliminary memorandum of understanding on July 29, 2015 presenting the principal terms and conditions of the project with a view to finalizing definitive agreements.
- The next milestone was met during the AREVA Board of Directors meeting of January 27, 2016, which was favorable to the convergence of negotiations entered into with EDF concerning the valuation of AREVA NP's operations and gave the Chief Executive Officer authority to finalize the negotiations. AREVA reached an agreement with EDF on an indicative value of 2.5 billion euros for 100% of the share capital at the closing date of the transaction, excluding the OL3 project, with a price supplement mechanism as a function in particular of AREVA NP's performance over the 2017-2018 period, and which could reach a maximum amount of 350 million euros. This proposal is likely to be adjusted upwards or downwards as a function of the financial statements drawn up at the closing date of the transaction.
  - AREVA would keep a strategic interest in AREVA NP of at least 15%, with which governance rights would be associated suited to AREVA's status as a strategic minority shareholder.
  - Finalization of the transaction remains subject in particular to (i) the favorable outcome of verifications in progress concerning the compliance of the

Flamanville 3 reactor vessel and (ii) the definition of procedures for transferring the OL3 contract from AREVA NP to AREVA SA.

- The parties' objective is to carry out this transaction in 2017, after consultation with the employee representative bodies, receipt of regulatory authorizations and the lifting of the other conditions precedent of the transaction.

#### Refocusing on nuclear fuel cycle operations

The sale, termination or transformation into a joint venture of operations that are not part of the new AREVA's core business, refocused on the nuclear fuel cycle, have been announced or carried out in 2015:

- Offshore Wind: On March 9, 2015, AREVA and Gamesa finalized the creation of the Adwen joint venture;
- Solar Energy: Discussions with potential buyers were not successful, and the last project in execution was the subject of an agreement with the customer on January 16, 2016 to terminate the contract;
- Nuclear Measurements: Following a call for offers issued in June 2015 aimed at selling its subsidiaries Canberra Industries Inc. and Canberra France S.A.S., which specialize in nuclear measurement instrumentation and systems. After examining the offers, AREVA selected the Mirion proposal (supported by the Charterhouse investment capital fund) on December 24, 2015;
- AREVA TA: The principle of an acquisition by the Agence des participations de l'État of a majority interest in AREVA TA was announced in a press release on December 17, 2015 and confirmed on January 27, 2016.

#### Restructuring plan

The group announced a personnel expense reduction target of 18% worldwide (15% in France) based on renegotiation of compensation, the organization of working time, and manpower adjustments leading to the elimination of 5 to 6,000 jobs, including 3 to 4,000 in France, by the end of 2017.

In France, a group agreement was signed on October 19, 2015 between management and labor. Measures are based on voluntary action. The consultation procedures with employee representative bodies are in progress and, subject to approval by the labor administration, the voluntary departure plans will enter into force in early April 2016.

#### Capital increase

The Board of Directors, meeting on January 27, 2016, approved the principle of a capital increase in the amount of 5 billion euros designed to restore a sound balance sheet to the group. On that same day, the President of the French Republic

announced that the State, as leading shareholder, would subscribe to this capital increase, to which minority third-party investors would be invited, and would ensure its full success, in compliance with regulations and European procedures applicable to such transactions.

### Liquidity situation and business continuity

At December 31, 2015, the liquidity risk was covered for the year of 2016 by:

- a positive gross cash position of 2.4 billion euros (compared with 3.3 billion euros at December 31, 2014) consisting of 738 million euros of external cash and 1.647 billion euros of internal non-trade current accounts (see Note 20.4.4.7). Gross cash was kept at this level through a combination of optimization activities initiated during the year (strengthened cash management, implementation of the competitiveness plan, factoring transactions and the sale of tax credit receivables). These cash optimization measures will continue in 2016;
- an unused balance of confirmed lines of credit in the approximate amount of 2.1 billion euros, including a syndicated line of credit and bilateral lines of credit.

Since December 31, 2015:

- as it announced on January 27, 2016, AREVA drew the full amount of these lines of credit, including a syndicated line of credit and bilateral lines of credit totaling 2.045 billion euros, on January 4 and 5, 2016;
- a bridge loan of 1.1 billion euros provided by a banking pool was negotiated and will supplement these resources to ensure the group's business continuity.

At December 31, 2015, short-term borrowings amounted to 4.834 billion euros and consisted mainly of the following (see Note 20.4.4.11):

External debt in the amount of 1.284 billion euros, including:

- the last installment in the amount of 200 million euros of a loan granted by the European Investment Bank, paid in January 2016;
- the scheduled repayment of 975 million euros of a bond issue in September 2016;
- accrued interest on bond issues in the amount of 81 million euros in September 2016;
- commercial paper in the amount of 26 million euros; and
- current bank facilities in the amount of 2 million euros.

Internal debt in the amount of 3.549 billion euros, including:

- debt related to associates in the amount of 6 million euros; and
- non-trade current accounts in the amount of 3,543 million euros.

Beyond 2016, and up to the end of 2018, significant debt repayments include repayment of the bond issue expiring in October 2017 in the nominal remaining amount of 798 million euros, reimbursement of the bridge loan of 1.1 billion euros in January 2017, assuming it is used in 2016, repayment of the bilateral lines of credit in the amount of 795 million euros in 2017, repayment of the syndicated line of credit in the amount of 1.250 billion euros in January 2018, and a private placement in yen equivalent to 60 million euros in September 2018. Over that timeframe, business continuity will be ensured by taking the measures set forth in the group's financing plan, whose objective is to give the company the means to implement its transformation plan and to present a financial profile enabling it to refinance in the markets on a long-term basis. These measures include among others the capital increase, the sale of the majority of AREVA NP to EDF, and the other subsidiary sales described in the preceding paragraphs.

### Contract for construction of the Olkiluoto 3 EPR

Over the course of 2015, the Olkiluoto 3 EPR project made progress, meeting critical path milestones.

Discussions have begun with TVO with the objective of jointly laying the foundations for cooperation to complete the project and settle the dispute. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

#### 20.4.1.2. WRITE-DOWN OF EQUITY SECURITIES AND LOANS TO ASSOCIATES

In connection with the review undertaken in late 2015-early 2016 of the business outlook for the different Business Groups, and considering the current market environment and the difficulties experienced on certain construction or modernization contracts 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 equity securities, of non-trade current accounts, of loans to associates held by AREVA SA (see Note 20.4.4.4.1), and of the provision for financial risk (see Note 20.4.4.10.2). The principal subsidiaries concerned are:

- AREVA NP,
- AREVA Business Support,
- AREVA Energies Renouvelables.

At December 31, 2015, the write-down for equity securities and loans to associates for the year contributed the amount of 2,684,781 thousand euros to AREVA SA's loss of 2,915,938 thousand euros. AREVA SA equity became negative on that same date.

#### 20.4.1.3. CREATION OF ADWEN

On March 9, 2015, through its subsidiary AREVA Energies Renouvelables, 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.

#### 20.4.1.4. CONTRACTS FOR THE DESIGN AND CONSTRUCTION OF AN EXPERIMENTAL REACTOR

A tripartite memorandum of understanding was signed on July 20, 2015 by AREVA SA, AREVA TA and the customer. The memorandum of understanding is based on reciprocal concessions under which AREVA agrees to bear a capped share of the extra costs deemed necessary to the completion of its contracts, excluding errors of its doing and extra costs specifically related to its project manager responsibilities to steer overall testing. This memorandum of understanding will very substantially limit the group's financial exposure to this project (see Note 20.4.4.10.2).

## 20.4.2. ACCOUNTING PRINCIPLES AND METHODS

The financial statements of AREVA SA for the year ended December 31, 2015 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 recognized at acquisition or production cost, including startup expenses.

They are depreciated based on the approach 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 recorded when a specific asset's book value exceeds its net carrying amount. The resulting net carrying amount may be considered to be economically justified.

### 20.4.2.2. LONG-TERM INVESTMENTS

Long-term investments are recognized on the balance sheet at cost on the day of contribution or acquisition. The acquisition cost includes the purchase price plus costs directly related to the purchase, such as commissions paid to acquire securities.

A provision for impairment of investments in associates is recorded when their original cost exceeds their value in use, determined security by security.

Impairment is computed based on interest in each associate's equity at year end. This assessment also takes into account the subsidiaries' estimated profitability or market value, as well as events or developments subsequent to year-end.

Loans to equity 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 debt are recorded at nominal value. Receivables may be written down 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 liabilities 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 derivative instruments 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. Derivative instruments 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 symmetrical derivative transactions between AREVA SA and the banks.
- Interest rate derivatives traded 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 period-end value. A provision for impairment is recorded when the valuation at the end of the period shows an overall loss by class of securities. The current value 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 20.4.4.10).

#### 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, 2015.

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 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

In early January 2016, AREVA started to use confirmed lines of credit in the amount of 2.045 billion euros made available by its banking pool. The lines of credit now drawn represent 795 million euros maturing in 2017 and 1.250 billion euros maturing in January 2018.

Discussions with TVO began in early 2016 with the objective of jointly laying the foundations for cooperation to complete the project and settle the dispute. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry. The parties agree that significant progress has been made, making an agreement foreseeable in the coming weeks.

**20.4.4. NOTES TO THE BALANCE SHEET****20.4.4.1. GROSS VALUES OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS**

Gross amount (in thousands of euros)	Note Appendix	2014	Merger Spin-off	Increase	Decrease	Transfers from account to account	2015
<b>Intangible assets</b>							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		128,957		19,362	253	-4	148,061
Leasehold							
Other intangible assets							
Intangible assets in progress		12,752		7,305	17,418		2,639
Advances and prepayments							
<b>TOTAL INTANGIBLE ASSETS</b>	20.4.4.1.1	<b>141,709</b>		<b>26,668</b>	<b>17,672</b>	<b>-4</b>	<b>150,701</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		64		109			174
• End-of-lifecycle assets							
Other PPE:							
• Miscellaneous facilities, fixtures and improvements		62,562		4,289		-82	66,769
• Transportation equipment							
• Office equipment, computer equipment and furniture		19,226		765	22	86	20,056
• Other property, plant and equipment							
Plant, property and equipment in progress		10,166		4,404	8,804		5,766
Advances and prepayments on PPE							
<b>TOTAL PROPERTY, PLANT AND EQUIPMENT</b>	20.4.4.1.2.	<b>92,335</b>		<b>9,568</b>	<b>8,826</b>	<b>4</b>	<b>93,082</b>

**20.4.4.1.1. The increase in intangible assets is mainly related to the startup of the following projects:**

- Windows 7 project (11,289 thousand euros) – Information Systems Department
- ETE-EVAL project (2,202 thousand euros) - Software for dismantling scenarios

- Phileas project (2,858 thousand euros) – SAP merger of the legal entities
- Smart/Sepa project (644 thousand euros) – Cash management software

**20.4.4.1.2. The increase in property, plant and equipment (PPE) is mainly due to the deployment of improvements and fixtures on certain floors of the AREVA Tower.**

## 20.4.4.2. AMORTIZATION AND DEPRECIATION OF PROPERTY, PLANT AND EQUIPMENT AND INTANGIBLE ASSETS

Amortization and impairment (in thousands of euros)	Note	2014	Merger Spin-off	Increase	Decrease	From account to account	2015
<b>Intangible assets</b>							
Research and development expenses							
Concessions, patents, licenses, software and similar rights		77,861		17,454	143		95,171
Leasehold							
Other intangible assets							
Intangible assets in progress							
<b>TOTAL INTANGIBLE ASSETS</b>		<b>77,861</b>		<b>17,454</b>	<b>143</b>		<b>95,171</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		64		12			75
• End-of-lifecycle assets							
Other PPE:							
• Miscellaneous facilities, fixtures and improvements		45,568		5,015			50,583
• Transportation equipment							
• Office equipment, computer equipment and furniture		15,616		1,211	8		16,819
• Other property, plant and equipment							
Plant, property and equipment in progress							
<b>TOTAL PROPERTY, PLANT AND EQUIPMENT</b>		<b>61,362</b>		<b>6,237</b>	<b>8</b>		<b>67,591</b>

## 20.4.4.3. LONG-TERM INVESTMENTS

Gross amount (in thousands of euros)	Note	2014	Merger Contribution Spin-off	Increase	Decrease	2015
Associates	20.4.4.3.1	6,419,276	-700	2,050,160	1,071	8,467,665
Loans to associates	20.4.4.3.2	6,423,123		1,156,801	1,982,766	5,597,158
Investment portfolio						
Other long-term securities	20.4.4.3.3	43,488			43,305	183
Loans						
Other long-term investments:						
• Receivables related to end-of-lifecycle operations						
• End-of-lifecycle assets - Third party share						
• Other long-term investments	20.4.4.3.4	24,781		3,242	5,600	22,422
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>12,910,668</b>	<b>-700</b>	<b>3,210,203</b>	<b>2,032,742</b>	<b>14,087,428</b>

**20.4.4.3.1. The “Associates” line totaling 8,467,665 thousand euros primarily comprises the following securities:**

■ AREVA NP	5,092,280 thousand euros
■ AREVA Mines	2,356,194 thousand euros
■ AREVA NC	523,292 thousand euros
■ CERE	251,541 thousand euros
■ AREVA Énergies Renouvelables	155,003 thousand euros
○ In 2015, AREVA subscribed to the capital increase of its subsidiary AREVA NP in the amount of 2,050,115 thousand euros by incorporation of receivables.	
○ The decrease of the period corresponds to the liquidation of AREVA Canada Inc. in the amount of 1,066 thousand euros.	
○ The amounts for mergers, contributions and spin-offs corresponds to the complete transfer of assets and liabilities carried out between AREVACom and AREVA SA in the amount of 700 thousand euros.	

**20.4.4.3.2. The “Loans to associates” line in the amount of 5,597,158 thousand euros concerns medium-term loans granted to companies of the group, including accrued interest (see Note 20.4.4.6). At December 31, 2015, these companies were mainly:**

■ Société enrichissement Tricastin	1,922,921 thousand euros
■ AREVA Inc.	990,855 thousand euros (1,078,744 thousand USD)
■ CRI Canada	880,800 thousand euros (1,331,418 thousand CAD)
■ CFMM	595,745 thousand euros
■ AREVA Énergies Renouvelables	446,281 thousand euros
■ Eurodif	145,200 thousand euros

■ UraMin Centrafrique	113,502 thousand euros (123,569 thousand USD)
■ AREVA Solar Inc.	111,292 thousand euros (121,164 thousand USD)
■ Atmea	106,500 thousand euros
■ AREVA Enrichment Services LLC	65,240 thousand euros (71,027 thousand USD)

The increases correspond mainly to the financing granted to CFMM in the amount of 590,000 thousand euros and to AREVA Énergies Renouvelables in the amount of 266,281 thousand euros. The principal decrease in this item corresponds to the incorporation of the receivable of 1,794,000 thousand euros in connection with the AREVA NP capital increase (see *supra*).

**20.4.4.3.3. The change in the “Other long-term securities” item corresponds to the sale of Japan Steel securities in the amount of 43,305 thousand euros.**

**20.4.4.3.4. “Other long-term investments” include:**

- security deposits related to commercial leases for the AREVA Tower in Courbevoie and the rue La Fayette offices in Paris in the approximate amount of 4,818 thousand euros at December 31, 2015, after reimbursement of 50% of the security deposit on rue Lafayette following the sale of 50% of the lease;
- AREVA's equity interest in European Liability Insurance for the Nuclear Industry (Elini), a mutual insurance company, representing 6,741 thousand euros at December 31, 2015, and in the mutual BlueRE in the amount of 320 thousand euros;
- treasury shares acquired from the Framépargne fund under a liquidity agreement for 9,937 thousand euros;
- the liquidity contact with Natixis in the amount of 396 thousand euros, with purchases and sales of these shares constituting the principal changes in this item.

**20.4.4.4. IMPAIRMENT OF LONG-TERM INVESTMENTS**

Write-downs (in thousands of euros)	Note	2014	Merger-Spin-off	Increase	Decrease	2015
Associates	20.4.4.4.1	4,106,231	-471	2,050,218	405	6,155,573
Loans to associates	20.4.4.4.2	1,125,442		379,013	955,000	549,455
Investment portfolio						
Other long-term securities	20.4.4.4.3	29,130			29,071	59
Loans						
Other long-term investments:						
● Receivables related to end-of-lifecycle operations						
● End-of-lifecycle assets - Third party share						
● Other long-term investments	20.4.4.4.4	3,188		2,733		5,921
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>5,263,991</b>	<b>-471</b>	<b>2,431,964</b>	<b>984,476</b>	<b>6,711,008</b>

**20.4.4.4.1 In view of the accounting rules and methods (see Note 20.4.2.2), charges to provisions for shares in associates correspond to write-downs of the shares as follows:**

■ AREVA NP	2,050,115 thousand euros,
■ AREVA Business Support	69 thousand euros,

■ FRACOQ 2	18 thousand euros,
■ AREVADelfi	15 thousand euros.

Reversals correspond to provisions on the shares:

■ Cilas	395 thousand euros,
■ AREVACom	10 thousand euros.

**20.4.4.4.2 The change in provisions for loans to associates corresponds to charges to provisions for receivables:**

- AREVA Énergies Renouvelables 363,953 thousand euros,
- UraMin Centrafrique 15,060 thousand euros.

and to reversals of provisions for receivables:

- AREVA NP 955,000 thousand euros.

**20.4.4.4.3 The change in provisions for other long-term securities is composed of the reversal of the provision for impairment of Japan Steel Works shares in the amount of 29,071 thousand euros (interest sold in 2015).**

**20.4.4.4.4 The change in the provision for other long-term investments corresponds to the write-down of AREVA SA treasury shares in the amount of 2,733 thousand euros based on the market price of the AREVA share at December 31, 2015.**

**20.4.4.5. STATEMENT OF RECEIVABLES**

<i>(in thousands of euros)</i>	<b>Note</b>	<b>Gross amount</b>	<b>Maturing in less than 1 year</b>	<b>Maturing in more than 1 year</b>
<b>Non-current assets</b>				
Loans to associates		5,597,158	402,575	5,194,583
Loans				
Other long-term investments:				
• Receivables related to end-of-lifecycle operations				
• End-of-lifecycle assets - Third party share				
• Other long-term investments		22,422	429	21,993
<b>TOTAL CAPITALIZED RECEIVABLES</b>		<b>5,619,580</b>	<b>403,005</b>	<b>5,216,575</b>
<b>Current assets</b>				
<b>Suppliers: advances and prepayments made</b>		<b>23,753</b>	<b>23,753</b>	
<b>Working capital: receivables</b>				
Doubtful accounts				
Other trade accounts receivable		101,685	101,685	
Accounts payable to employees and related accounts		372	372	
Social security administration and other social institutions		1	1	
French State and local governments:				
• Income tax		68,936	68,936	
• Value added tax		34,186	34,186	
• Other taxes and related expenses		149	149	
• Miscellaneous French State				
Group and associates		34,425	34,425	
Trade accounts and other receivables		341,037	341,037	
<b>TOTAL GROSS RECEIVABLES – WORKING CAPITAL</b>		<b>580,790</b>	<b>580,790</b>	
<b>Prepaid expenses</b>		<b>15,657</b>	<b>15,657</b>	
<b>TOTAL GROSS RECEIVABLES</b>		<b>6,239,780</b>	<b>1,023,204</b>	<b>5,216,575</b>

#### 20.4.4.6. ACCRUED INCOME

(French decree 83-1020 of November 29, 1983, article 23)

(in thousands of euros)	Note	2015	2014
<b>Long-term investments</b>			
Loans to associates	20.4.4.6.1.	27,072	38,726
Other long-term investments			
<b>TOTAL LONG-TERM INVESTMENTS</b>		<b>27,072</b>	<b>38,726</b>
<b>Working capital: receivables</b>			
Trade accounts receivable and related accounts		18,131	17,046
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	20.4.4.6.2.	309,388	195,395
<b>TOTAL RECEIVABLES – WORKING CAPITAL</b>		<b>327,519</b>	<b>212,440</b>
<b>Marketable securities</b>			<b>8</b>
<b>Cash and cash equivalents</b>			
<b>TOTAL INCOME RECEIVABLE</b>		<b>354,592</b>	<b>251,174</b>

##### 20.4.4.6.1 The change in accrued interest for loans to associates comes mainly from loans to:

- AREVA Resources Canada Inc. -1,925 thousand euros
- AREVA NP -23,710 thousand euros

- SET 7,092 thousand euros
- CFMM 5,745 thousand euros

##### 20.4.4.6.2 The change in trade accounts and other receivables is mainly due to the revaluation of cash instruments at the closing rate.

#### 20.4.4.7. NET CASH

(in thousands of euros)	Note	2015	2014
Other marketable securities		428,467	1,481,032
Write-downs		-286	
	20.4.4.7.1.	428,181	1,481,032
Cash instruments		55,700	12,600
Non-trade current accounts		1,657,221	1,728,017
Write-downs		-9,722	-1,268
	20.4.4.7.2.	1,647,499	1,726,749
Cash and cash equivalents		254,142	50,079
<b>TOTAL CASH AND MARKETABLE SECURITIES</b>		<b>2,385,522</b>	<b>3,270,460</b>

##### 20.4.4.7.1. 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.

The write-down of 286 thousand euros corresponds to the change in the value of the treasury shares as a function of stock market prices at December 31, 2015.

At December 31, 2014, other marketable securities consisted primarily of certificates of deposit in the amount of 80,000 thousand euros, of money market funds and treasury bonds in the amount of 1,399,328 thousand euros, and of

treasury shares acquired in connection with the liquidity contract in the amount of 1,498 thousand euros.

##### 20.4.4.7.2. The increase in write-downs of non-trade current accounts corresponds to the hedging of the non-recoverability risk of certain subsidiaries:

- FRACQ 2 6,591 thousand euros
- AREVADelfi 459 thousand euros
- AREVA Ressources Centrafrique 1,405 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 year-end
		at the beginning of the year	Increase	Decrease	
Ordinary shares	3.80 euros	383,204,852			383,204,852

Since May 30, 2011, the AREVA share is traded on compartment A of the NYSE Euronext stock exchange in Paris under ISIN code FR0011027143.

The authorized capital of AREVA SA at December 31, 2015 was as follows:

	2015	2014	2013
CEA	54.4%	54.4%	61.5%
French State	28.8%	28.8%	21.7%
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**

(in thousands of euros)	Note	2014	Appropriation of the result	Contribution Spin-off	Net income for the year	Increase	Decrease	2015
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
Carry-forward		3,896,177	-5,309,351					-1,413,175
Net income for the year		-5,309,351	5,309,351		-2,915,938			-2,915,938
Net investment subsidies		986					332	654
Tax-driven provisions		6,230				1,665		7,895
<b>TOTAL SHAREHOLDERS' EQUITY</b>	20.4.4.9.1	<b>1,353,674</b>	<b>-</b>	<b>-</b>	<b>-2,915,938</b>	<b>1,665</b>	<b>332</b>	<b>-1,560,931</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 LOSSES

<i>(in thousands of euros)</i>	Note	2014	Merger- Spin-off	Increase	Decrease	Reclassifications	2015
<b>Provisions for contingencies</b>							
Provisions for litigation							
Provisions for customer warranties							
Provisions for taxes	20.4.4.10.1	856		10,164			11,019
Provisions for foreign exchange losses							
Other provisions for contingencies	20.4.4.10.2	199,800		1,473,347	168,537		1,504,610
<b>TOTAL PROVISIONS FOR CONTINGENCIES</b>		<b>200,656</b>		<b>1,483,511</b>	<b>168,537</b>		<b>1,515,629</b>
<b>Provisions for losses</b>							
Provisions for retirement and similar benefits		1,857		426	2		2,281
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 losses	20.4.4.10.3	46,270		7,946	15,627		38,590
<b>TOTAL PROVISIONS FOR LOSSES</b>		<b>48,127</b>		<b>8,372</b>	<b>15,629</b>		<b>40,871</b>
<b>TOTAL PROVISIONS FOR CONTINGENCIES AND LOSSES</b>		<b>248,783</b>		<b>1,491,883</b>	<b>184,166</b>		<b>1,556,500</b>
Including charges and reversals							
• Operating				353	4,817		
• Financial				1,232,420	7,463		
• Exceptional				259,110	171,886		

**20.4.4.10.1 The change in the provision for taxes corresponds mainly to the set-asides 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 3,843 thousand euros;
- a net provision reversal of 97,000 thousand euros set up for the experimental reactor construction project, for which AREVA 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 provision for the negative net situation of AREVA Business Support in the amount of 121,504 thousand euros;

- a provision for financial risk as regards AREVA NP in the amount of 1,107,000 thousand euros;
- a provision of 180,000 thousand euros for costs resulting from the transfer of the OL3 contract from AREVA NP to AREVA SA in connection with the subsidiary's restructuring.

**20.4.4.10.3 The change in other provisions for losses corresponds mostly to commitments made in connection with 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	5,867,450	1,056,414	2,111,036	2,700,000
Bank borrowings	20.4.4.11.2	201,797	201,797		
Miscellaneous loans and borrowings	20.4.4.11.3	3,575,483	3,575,396		86
<b>TOTAL BORROWINGS</b>		<b>9,644,729</b>	<b>4,833,607</b>	<b>2,111,036</b>	<b>2,700,086</b>
<b>Advances and prepayments on orders</b>					
<b>Other liabilities</b>					
Trade accounts payable and related accounts		99,811	99,811		
Taxes and employee-related liabilities:					
• Accounts payable to employees and related accounts		4,281	4,281		
• Social security administration and other social institutions		1,305	1,305		
• French State and local governments:					
• Value added tax		8,858	8,858		
• Other taxes		1,714	1,714		
• Income tax		1,353	1,353		
Accounts payable on non-current assets and related accounts		471	471		
Group and associates		175,109	23,288	151,821	
Other liabilities		343,150	343,150		
Cash instruments		147,455	147,455		
<b>TOTAL OTHER LIABILITIES</b>		<b>783,506</b>	<b>631,686</b>	<b>151,821</b>	
Unearned income	20.4.4.11.4	68,388	14,440	33,064	20,884
<b>TOTAL UNEARNED INCOME</b>		<b>68,388</b>	<b>14,440</b>	<b>33,064</b>	<b>20,884</b>
<b>TOTAL GROSS BORROWINGS</b>		<b>10,496,623</b>	<b>5,479,733</b>	<b>2,295,920</b>	<b>2,720,970</b>

## 20.4.4.11.1. Bond issues

<i>(in currency thousands)</i>				
Issue date	Nominal	Currency	Nominal rate	Maturity
September 23, 2009	975,000	EUR	3.875%	2016
September 23, 2009	1,000,000	EUR	4.875%	2024
November 6, 2009	750,000	EUR	4.375%	2019
September 22, 2010	750,000	EUR	3.500%	2021
October 5, 2011	800,000	EUR	4.625%	2017
April 4, 2012	200,000	EUR	TEC 10 +2.125%	2022
September 4, 2013	500,000	EUR	3.250%	2020
September 20, 2013	8,000,000	JPY	1.156%	2018
March 20, 2014	750,000	EUR	3.125%	2023
<b>TOTAL</b>	<b>5,786,036</b>	<b>(*) EUR</b>		

(\*) exchange rate used: 1 EUR = 131.07 JPY

The total drawn on the bond issues comes to a total of 5.786 billion euros in nominal value. Of this total, 1,800 million euros were hedged for a variable rate in euros with rate swaps.

#### 20.4.4.11.2. Bank borrowings

Loans and borrowings came to 201,797 thousand euros at December 31, 2015, mainly including:

- bank account credit balances of 1,709 thousand euros;
- a European Investment Bank credit in the amount of 200,000 thousand euros contracted in 2009 and maturing in January 2016.

#### 20.4.4.11.3. Miscellaneous loans and borrowings

Loans and borrowings came to 3,575,483 thousand euros at December 31, 2015, mainly including:

- commercial paper in the amount of 26,000 thousand euros;
- debt related to associates in the amount of 5,948 thousand euros; and
- non-trade current liabilities in the amount of 3,543,448 thousand euros. At December 31, 2015, these companies were mainly:
  - AREVA NC 1,223,310 thousand euros
  - AREVA TA 425,584 thousand euros

○ AREVA GmbH	357,710 thousand euros
○ CERE	245,265 thousand euros
○ SET	166,841 thousand euros
○ TN International	153,819 thousand euros
○ Sofidif	137,426 thousand euros
○ AREVA Mines	116,219 thousand euros
○ AREVA Inc.	111,964 thousand euros
○ AREVA IR	92,065 thousand euros

#### 20.4.4.11.4 Unearned income

AREVA unwound rate swaps that had been set up to cover bond issues (fixed rate receiver / variable rate payer). In line with market conditions, the swap terminations generated a gain recognized as unearned income, which will be spread out over the remaining period of the borrowings to reflect their effective interest rate over their term. These gains are in addition to unwinding carried out in 2011 and 2013.

	At December 31, 2015	At December 31, 2014
Unearned operating income	1,411	387
Unearned financial income	66,977	64,337
<b>TOTAL</b>	<b>68,388</b>	<b>64,722</b>

#### 20.4.4.12. ACCRUED EXPENSES

(in thousands of euros)	Note	2015	2014
<b>Borrowings</b>			
Convertible bond issues			
Other bond issues		81,414	81,600
Bank borrowings		88	165
Miscellaneous loans and borrowings		1	
<b>TOTAL BORROWINGS</b>		<b>81,503</b>	<b>81,766</b>
<b>Other liabilities</b>			
Trade accounts payable and related accounts		73,978	88,306
Taxes and employee-related liabilities		6,522	6,757
Accounts payable on non-current assets and related accounts		334	
Other liabilities	20.4.4.12.1.	294,734	185,104
<b>TOTAL OTHER LIABILITIES</b>		<b>375,568</b>	<b>280,167</b>
<b>TOTAL ACCRUED EXPENSES</b>		<b>457,071</b>	<b>361,933</b>

20.4.4.12.1. The change in other liabilities is mainly due to the revaluation of cash instruments at the closing rate.

**20.4.5. NOTES TO THE INCOME STATEMENT****20.4.5.1. CURRENT OPERATING INCOME**

Reported revenue includes:

- charge allocations to subsidiaries, corresponding to shared services and the right to use a trademark, for a total of 368,326 thousand euros;

The trademark license fee is charged to 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 sales. Shared services are billed based on a catalogue of services;

- proceeds from real estate operations (33,004 thousand euros); and
- the charge allocation for personnel expenses (10,357 thousand euros).

Operating expenses reflect holding company activities and services provided to subsidiaries. The operating loss thus came to 137,480 thousand euros.

**20.4.5.2. NET FINANCIAL INCOME**

The net financial income of -2,752,774 thousand euros includes in particular:

- |  |  |
|--|--|
| ■ dividends from equity interests                                      | 3,485 thousand euros                     |
| ■ net income on non-trade accounts and loans to equity associates      | 229,370 thousand euros                   |
| ■ debt forgiveness towards AREVA TA in connection with the RJH project | -66,175 thousand euros                   |
| ■ net income on financial instruments                                  | 12,426 thousand euros                    |
| ■ interest expenses on loans   | -250,159 thousand euros                  |
| ■ foreign exchange gain  | 2,011 thousand euros                     |
| ■ charges to provisions for shares in associates                       | -2,050,315 thousand euros <sup>(1)</sup> |
| ■ charges to provisions for loans to associates                        | -379,013 thousand euros <sup>(2)</sup>   |
| ■ charges to provisions for financial risk                             | -1,228,504 thousand euros <sup>(3)</sup> |
| ■ reversal of provisions for loans to associates                       | 955,000 thousand euros <sup>(4)</sup>    |
| ■ net gain from disposals of securities                                | 963 thousand euros                       |

**20.4.5.3. EXCEPTIONAL ITEMS**

Exceptional items amounting to -115,002 thousand euros correspond mainly to:

- |   |                         |
|---|-------------------------|
| ■ loss on the disposal of Japan Steel Works shares  | -23,102 thousand euros  |
| ■ income from the liquidation of AREVA Canada Inc.  | 60 thousand euros       |
| ■ Payment to Alstom in connection with the unwinding of the GIS litigation  | -5,100 thousand euros   |
| ■ net reversals of provisions related to the restructuring of the company's Paris-area real estate  | 4,567 thousand euros    |
| ■ net reversal of provisions for contingencies related to a prototype experimental reactor  | 97,000 thousand euros   |
| ■ impacts of tax audits   | -10,164 thousand euros  |
| ■ provision for costs resulting from the transfer of the OL3 contract from AREVA NP to AREVA SA in connection with the subsidiary's restructuring | -180,000 thousand euros |

**20.4.5.4. INCOME TAX**

As provided in article 223A of the French Tax Code, AREVA SA opted to be solely responsible for income tax due on combined income recognized by the integrated group.

In 2015, AREVA SA and its integrated subsidiaries generated a combined tax loss of 1,342,626 thousand euros.

The tax income recognized for 2015 came to 89,319 thousand euros

It is broken down as follows:

- |  |                       |
|--|-----------------------|
| ■ Tax savings generated by the tax integration regime      | 63,489 thousand euros |
| ■ Income tax on earnings from all previous financial years | 22,773 thousand euros |
| ■ Tax credits  | 3,057 thousand euros  |

(1) mainly AREVA NP SAS

(2) mainly AREVA Énergies Renouvelables

(3) mainly AREVA NP SAS and AREVA Business Support

(4) mainly AREVA NP SAS

## 20.4.6. ADDITIONAL INFORMATION

### 20.4.6.1. WORKFORCE

The company employed 23 people on December 31, 2015, as indicated in the following table:

	2015	2014	2013
Management personnel	23	29	34
Supervisors	0	0	3
Support staff	0	0	0
<b>TOTAL</b>	<b>23</b>	<b>29</b>	<b>37</b>

### 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)	2015	2014	2013
<b>TOTAL PROVISIONS FOR PENSION OBLIGATIONS AND OTHER EMPLOYEE BENEFITS</b>	<b>2,281</b>	<b>1,857</b>	<b>2,700</b>

The main actuarial assumptions used in determining the group's obligations are as follows:

	2015	2014	2013
Inflation	1.60%	1.60%	1.80%
Discount rate	2.15%	1.85%	3.25%

- 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%	< 30 years	1.00%	1.00%
30-39	1.60%	1.60%	30-39	0.50%	0.50%
40-49	1.60%	1.60%	40-49	0.00%	0.00%
50-54	1.60%	1.60%	50-54	-0.30%	-0.30%
55 and above	0.00%	0.00%	55 and above	-0.50%	-0.50%

### Net carrying amount of defined benefit obligations

(in thousands of euros)	2015	2014	2013
Defined benefit obligation	3,753	3,772	3,660
Fair value of plan assets			
Unrecognized actuarial losses	-1,157	-1,566	-903
Unrecognized past service gains	-315	-349	-57
<b>TOTAL DEFINED BENEFIT OBLIGATION</b>	<b>2,281</b>	<b>1,857</b>	<b>2,700</b>

**Change in the provision**

<i>(in thousands of euros)</i>	2015	2014	2013
Change in the provision:			
Restated opening balance	1,857	2,700	2,759
Mergers and acquisitions / Transfers <sup>(1)</sup>		-1,134	-450
Total expense	426	293	418
Contributions collected/benefits paid	-2	-2	-27
<b>BENEFIT OBLIGATION AT DECEMBER 31</b>	<b>2,281</b>	<b>1,857</b>	<b>2,700</b>

(1) Change in liability related to incoming transfers from AREVA NC and outgoing transfers to AREVA Business Support.

**Total expense for the year**

<i>(in thousands of euros)</i>	2015	2014	2013
Current service cost	198	172	245
Interest cost	73	108	117
Expected return on plan assets			
Amortization of actuarial gains or losses	34	4	33
Past service cost	121	9	24
Plan creation, curtailment or liquidation			
<b>TOTAL EXPENSE FOR THE YEAR</b>	<b>426</b>	<b>293</b>	<b>418</b>

**20.4.6.3. INFORMATION ON LEASE ARRANGEMENTS**

Finance lease contracts in Euriware's were taken over by AREVA SA on April 30, 2014.

Balance sheet accounts	Fees paid		Accrued fees				Residual purchase price
	for the year	cumulative	up to 1 year	1 year to 5 years	> 5 years	Total to be paid	
Computer equipment	6,222	12,288	3,517	1,292	-	4,809	-
<b>TOTAL</b>	<b>6,222</b>	<b>12,288</b>	<b>3,517</b>	<b>1,292</b>	<b>-</b>	<b>4,809</b>	<b>-</b>

**20.4.6.4. COMPANY EXPOSURE TO MARKET RISK****General objectives**

AREVA 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'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's currency translation adjustments, equity and income.

**Balance sheet risk:** Loans and borrowings granted by AREVA 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 uses a liability in the same currency to offset the asset.

**Trade exposure:** AREVA'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 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, 2015, derivatives used by AREVA to manage foreign exchange risk were as follows:

(Notional amounts by maturity date at December 31, 2015)	2016	2017	2018	2019	2020	> 5 years	Total	Market value
Forward exchange transactions and currency swaps	4,573	1,579	698	277	-	-	7,126	13
Currency options	136	67	-	-	-	-	203	-
Cross-currency swaps	132	60	61	298	-	983	1,533	-145
<b>TOTAL</b>	<b>4,841</b>	<b>1,705</b>	<b>759</b>	<b>575</b>	<b>-</b>	<b>983</b>	<b>8,863</b>	<b>-68</b>

### Interest rate risk management

AREVA 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 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, 2015, interest rate swaps were the main financial instruments used in the management of external debt. Receiver inflation rate swaps in USD were set up with banks to cover payer inflation rate swaps in USD set up with AREVA Mines.

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.

At December 31, 2015, 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, 2015						Market value
		2016	2017	2018	2019	2020	> 5 years	
<b>Interest rate swaps – variable lender – EUR</b>								
Fixed borrower – EUR	400	200					200	-3
<b>Interest rate swaps – variable lender – EUR</b>								
EUR variable borrower	100						100	-0
USD variable borrower	983						983	-31
CAD variable borrower	490	132	60		298			1
<b>Interest rate swaps – fixed lender – EUR</b>								
EUR variable borrower	1,626	376			150	450	650	105
<b>Interest rate swaps – fixed lender – JPY</b>								
EUR variable borrower	61			61				0
<b>Interest rate swaps – US inflation lender</b>								
USD fixed lender	161					161		-56
<b>Interest rate swaps – US inflation borrower</b>								
USD fixed borrower	161					161		56
<b>GRAND TOTAL</b>	<b>3,981</b>	<b>708</b>	<b>260</b>	<b>61</b>	<b>448</b>	<b>771</b>	<b>1,933</b>	<b>72</b>

**Commodity risk**

AREVA does not have significant exposure to commodities.

**Equity risk**

To manage its long-term investment positions, AREVA 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 is exposed to the credit risk of counterparties linked to its use of financial derivatives to cover its risks. AREVA 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 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.

To minimize this risk, AREVA'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 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'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 department of Financial Operations is in charge of liquidity risk management and provides the subsidiaries with appropriate long term and short term financing resources.

Cash management optimization is based on a centralized system to provide liquidity and manage the cash surpluses of the subsidiaries, regardless of AREVA's equity stake. Management is provided by the group's department of Financial Operations, chiefly through cash pooling agreements and inter-company loans, subject to local regulations. The group's consolidated cash surpluses are managed to optimize financial returns while ensuring that the financial instruments used are liquid.

Borrowings are centralized by the department of Treasury Management to optimize borrowing costs and facilitate access to the banking system.

In addition, the system for monthly updates of cash forecasts (with a monthly view of the first four months, then quarterly thereafter) was recently bolstered with an additional system for updates of the first four months on a weekly basis, based on (i) a weekly update of positions to month end and (ii) a system of alerts initiated by the Business Groups and operating entities for cash flows (excluding internal cash flows) that are unexpected, unreported, unplanned or cancelled in any amount greater than 5 million euros. If a pre-determined short-term position is exceeded, the Cash Management and Financing Department (DOFT) will send out a special communication to the Business Groups and the group's executive management (including the group's Chief Financial Officer) to decide on protective measure to be taken.

At December 31, 2015, the group had a 1.250-billion-euro syndicated line of credit and bilateral lines of credit totaling 845 million euros, all of which were confirmed and unused.

In early 2016, AREVA drew a total of 2.045 billion euros on its syndicated line of credit and on bilateral lines of credit and negotiated a bridge loan with a banking pool in the amount of 1.1 billion euros. These resources ensure the group's funding for the year of 2016.

External financing arrangements are not subject to specific covenants. However, certain loan agreements include change of control clauses stipulating that the group should maintain control over the AREVA subsidiary that concluded the agreement, or that the French State should maintain control over AREVA. The concept of control is understood either under the meaning of article L. 233-3 of the French Commercial Code or in relation to the percentage of share capital ownership, which should remain higher than 50.1%. Under certain circumstances, the debt may become due immediately if AREVA ceases to control the subsidiary, or if the French State ceases to control AREVA.

AREVA met two key milestones of the financing plan announced during the publication of the half-year 2015 financial statements with the proposal received from EDF valuing AREVA NP (excluding OL3) at 2.5 billion euros and validation from the AREVA Board of Directors for a capital increase of 5 billion euros.

20.4.6.5. ASSOCIATES

<i>(in thousands of euros)</i>	Transactions with	
	related parties	associates
<b>Advances and prepayments to fund non-current assets</b>		
Intangible assets		
Property, plant and equipment		
<b>Long-term investments</b>		
Associates	8,467,435	230
Loans to associates	5,597,158	
Loans		
Other long-term securities		
Other long-term investments	9	
	<b>14,064,602</b>	<b>230</b>
<b>Accounts receivable</b>		
Suppliers: advances and prepayments made	857	
Accounts receivable and related accounts	88,260	
Other accounts receivable	281,501	
Subscribed capital issued and not paid		
	<b>370,618</b>	
<b>Cash and cash equivalents</b>		
Non-trade current accounts	1,647,720	
	<b>1,647,720</b>	
<b>Miscellaneous loans and borrowings</b>		
Bond issues	13,646	
Miscellaneous debt	27	
Loans to associates	5,948	
Miscellaneous loans and borrowings		
Non-trade current accounts	3,543,448	
	<b>3,563,070</b>	
<b>Liabilities</b>		
Customers: advanced and prepayments received		
Trade accounts payable	37,675	973
Accounts payable on non-current assets		
Other liabilities	200,440	
	<b>238,115</b>	<b>973</b>
<b>FINANCIAL EXPENSES</b>	<b>-3,920,780</b>	
<b>FINANCIAL INCOME</b>	<b>1,708,237</b>	

## 20.4.6.6. OFF-BALANCE-SHEET COMMITMENTS

<i>(in thousands of euros)</i>	Note	Total	< 1 year	1 to 5 years	> 5 years
<b>Commitments given</b>					
Bid guarantees					
Performance warranties		828,530	232,010	379,276	217,243
Down payment guarantees		378,976		543	378,433
Guarantees for waivers of warranty retentions					
After-sales warranties					
Other operating commitments		128,590			128,590
<b>Total operating commitments given</b>		<b>1,336,096</b>	<b>232,010</b>	<b>379,820</b>	<b>724,266</b>
Comfort letters given		70,211	70,211		
Guarantees and surety		1,167,000	282,182	834,484	50,334
Liens given					
Mortgages given					
Other funding guarantees		58,803	45,053	13,750	
<b>Total commitments and collateral given on financing</b>		<b>1,296,014</b>	<b>397,446</b>	<b>848,234</b>	<b>50,334</b>
Guarantees of assets and liabilities		15,000		15,000	
Guarantees pertaining to rental obligations given		7,296	21	7,275	
Other commitments given		1,648	148	1,500	
<b>Total other commitments given</b>		<b>23,944</b>	<b>169</b>	<b>23,775</b>	
<b>I. TOTAL COMMITMENTS GIVEN</b>		<b>2,656,054</b>	<b>629,626</b>	<b>1,251,829</b>	<b>774,600</b>
<b>Commitments received</b>					
Contract guarantees received		3,787	3,787		
Vendor warranties received		677	677		
Other commitments received					
<b>II. TOTAL COMMITMENTS RECEIVED</b>		<b>4,464</b>	<b>4,464</b>		
<b>Reciprocal commitments</b>					
Firm multiyear purchase commitments					
Firm multiyear sales commitments					
Unused lines of credit		2,095,000	50,000	2,045,000	
Future minimum payments on operating leases		154,370	42,179	112,191	
Other reciprocal commitments					
<b>III. TOTAL RECIPROCAL COMMITMENTS</b>		<b>2,249,370</b>	<b>92,179</b>	<b>2,157,191</b>	

**Commitments given**

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****Unused lines of credit**

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 has bilateral lines

of credit available to it in the amount of 50 million euros maturing in 2016 and 795 million euros maturing in 2017. As of the end of December 2015, none of these lines had been used. In early January 2016, AREVA started to use these lines of credit in the amount of 2.045 billion euros.

## 20.4.6.7. COMPENSATION OF DIRECTORS AND OFFICERS

A total of 1,537 thousand euros in compensation and benefits was paid during the year to directors and officers (members of the Executive Board and of the Supervisory Board until January 8, 2015, and members of the Board of Directors as from that same date) by the company and companies it controls or the company that controls it, as per article L. 225-102-1 of the French Commercial Code created by the New Economic Regulations Law of May 15, 2001 and amended by the Financial Security Law of August 1, 2003.

#### 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 ICC on account of delays and disruptions suffered in the performance of the contract 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 retained in contravention of the contractual provisions. This decision was duly executed by TVO.

As of the end of 2015, after seven years of legal proceedings (exchanges of briefs by the parties and intermediate 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. The proceeding is following its course.

The Consortium and its counsel still consider the allegations of serious/intentional offense made in TVO's counterclaim to be unfounded.

Discussions have begun with TVO with the objective of jointly laying the foundations for cooperation to complete the project and settle the dispute. All parties consider that preliminary discussions have proceeded positively. If this agreement materializes, the OL3 contract will be transferred from AREVA NP to AREVA SA within the framework of the restructuring of the French nuclear industry.

##### **Disputes involving AREVA related to the T&D business, sold on June 7, 2010**

Following the European Commission decision of January 24, 2007 in which 11 companies were fined, including AREVA, for anti-competitive practices

concerning the gas-insulated switchgear market (GIS), the Court of Justice of the European Union, in its decision of April 10, 2014, partly upheld certain appeals which had been lodged in this matter by AREVA, causing a modification of the distribution of the penalty, but not a reduction of the overall penalty. The total amount of the penalty, including interest, is 79 million euros, including 28 million euros for Alstom and AREVA severally. Alstom paid this amount in full to the European Commission.

The disagreement between the two groups on the share of the fine to be paid by AREVA was settled amicably between them, and AREVA paid the sum of 5.1 million euros to Alstom pursuant to the settlement.

Disputes involving AREVA related to the T&D business, sold on June 7, 2010, are now closed.

##### **UraMin case**

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 and the presentation of the company's financial statements relative to this purchase from 2009 to 2012.

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

##### **Miscellaneous investigations**

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

## 20.4.6.9. SUBSIDIARIES AND ASSOCIATES (ARTICLE L.233-15 OF THE FRENCH COMMERCIAL CODE)

	Equity share (in%)	Authorized 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					
A - Detailed financial information on subsidiaries and associates (net carrying amount exceeds 1% of the company's equity)										
1 - Subsidiaries (more than 50% of the equity held)										
AREVA NP SAS										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	100.00	400,000	-275,291	5,092,280				2,312,821	-1 233 253	
AREVA MINES SAS										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	99.99	25,207	460,257	2,356,194	1,452,194	50,109		1,577,113	138,192	
AREVA NC SA										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	100.00	100,259	-1,036,510	523,292	523,292			2,481,006	-480,496	
Compagnie d'Etude et de Recherche pour l'Energie (CERE)										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	100.00	247,500	12,006	251,541	251,541				291	
AREVA ENERGIES RENOUVELABLES SAS										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	100.00	155,003	-226,912	155,003		446,281		2,694	-430,471	
CEDEC SA										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	90.14	36,532	4,883	33,466	33,466				-13	
AREVA IR										
Tour AREVA - 92084										
Paris La Défense										
Cedex – France	100.00	6,375	96,922	30,940	30,940				-59	2,975
2 - Associates (10% to 50% of the equity held)										
B. - Summary information on other subsidiaries and associates										
1 - Subsidiaries not included in section A 1										
French subsidiaries				15,300	14,087					
Foreign subsidiaries				3,323	3,323					
2 - Associates not included in section A 2										
French companies				6,098	3,020					510
Foreign companies				230	230					

## 20.5. FIVE-YEAR FINANCIAL SUMMARY

(thousands of euros)					
Type of indicator	2011	2012	2013	2014	2015
<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	450,606	430,415	490,444	487,137	452,145
Income before tax, employee profit-sharing b) and amortization, depreciation and provisions (including reversals)	1,246,778	310,831	- 294,177	- 230,703	- 208,647
c) Income tax	34,541	63,115	100,847	72,496	89,319
d) Employee profit-sharing for the year	0	0	0	0	0
Income after tax, employee profit-sharing and amortization, e) depreciation and provisions (increases-decreases)	1,182,443	241,683	- 180,155	- 5,309,351	- 2,831,938
f) Net income distributed	0	0	0	0	0(*)
<b>III - Earnings per share (in euros)</b>					
Income after tax and employee profit-sharing, before a) amortization, depreciation and provisions (increases- decreases)	3.00	0.98	- 0.50	- 0.41	- 0.31
Income after tax, employee profit-sharing and amortization, b) depreciation and provisions (increases-decreases)	3.00	0.63	- 0.47	- 13.86	- 7.39
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	119	125	45	33	28
b) Total payroll for the year	25,243	26,994	12,724	10,925	10,110
Payroll taxes and other benefit expenses (social security, c) benefits programs, etc.)	10,431	13,543	2,762	4,606	4,329

(\*) 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 (1) and D. 441-4 of the French Commercial Code, by maturity dates:

<i>(in thousands of euros)</i>	2015	2014
Matured	- 2,694	- 491
0 to 30 days	22,032	39,615
31 to 45 days	769	485
More than 45 days	17	3
<b>TOTAL</b>	<b>20,124</b>	<b>39,612</b>

## 20.7. DIVIDEND DISTRIBUTION 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 fiscal year.

Dividends properly received are not subject to recovery. Dividends that have not been collected within five years from the date set for distribution are forfeited to the French State.

### 20.7.2. DIVIDEND DATA

<i>(euros)</i>	Dividend	Tax credit	Gross dividend
2012	-	-	-
2013	-	-	-
2014	-	-	-
<b>2015</b>	<b>-</b>	<b>-</b>	<b>-</b>

With a consolidated loss attributable to owners of the parent of -2,038 million euros, application of the group's dividend policy led the AREVA Board of Directors to recommend to the Shareholders that no dividend be paid for 2015.

### 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 2016, taking into account 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 business, financial situation or reputation.

Appropriate provisions are recorded to cover expenses that may result from these disputes or proceedings, based on case-by-case analysis.

In addition, some disputes concern damages or injury 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, legal or arbitration proceeding pending or threatened that had or could have a significant impact on the financial situation, profitability or reputation of AREVA and/or of the group in the past twelve months.

For information, on June 21, 2013, CCCM instituted an arbitration request to 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 in this regard. Following the hearing and the post-hearing written evidence of the parties in 2015, the case is presently under deliberation, with a decision expected in 2016.

## 20.9. SIGNIFICANT CHANGE IN THE ISSUER'S FINANCIAL OR TRADING POSITION

Significant events between year-end closing for 2015 (December 31, 2015) 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, 2015*, and in section 9.3. *Events subsequent to year end closing for 2015 of this Reference Document*.

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## 21.1. SHARE CAPITAL

### 21.1.1. AMOUNT OF SUBSCRIBED CAPITAL

The share capital of the company was fully paid up at December 31, 2015 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.

All of the shares are quoted on Compartment A of NYSE Euronext Paris under Euroclear code 062059150 and ISIN code FR 0011027143.

Custodian services are provided by:

Société Générale Securities Services

Issuer Service

32, rue du Champ-de-Tir

BP 81236

44312 Nantes Cedex 3

France

Tel.: +33 2 51 85 67 89

[www.nominet.socgen.com](http://www.nominet.socgen.com)

[www.sg-securities-services.com](http://www.sg-securities-services.com)

### 21.1.2. SHARES NOT REPRESENTATIVE OF CAPITAL

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None.

### 21.1.3. TREASURY SHARES

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The Board of Directors did not use the authorization given by the Shareholders on January 8, 2015 to purchase its own shares.

At December 31, 2015, AREVA held 933,598 of its own shares (740,490 shares in treasury and 193,108 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 agreement for AREVA shares (Paris – ISIN code FR0011027143) 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 OBLIGATION ATTACHED TO CAPITAL SUBSCRIBED BUT NOT PAID, OR ANY PLAN TO INCREASE THE SHARE CAPITAL

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None.

### 21.1.7. INFORMATION ON THE CAPITAL OF ANY MEMBER OF THE GROUP WHICH IS THE SUBJECT OF AN OPTION OR A FIRM OR CONTINGENT AGREEMENT CALLING FOR IT TO BE PLACED UNDER 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 and the Kuwait Investment Authority (KIA) <sup>(1)</sup> for a term of 10 years as from December 28, 2010, the French State has a purchase option in the event that KIA violates its commitment

regarding the preemptive right. The exercise price for the purchase option will be calculated as a function of the average weighted closing price of AREVA shares during the 90 trading days preceding the exercise date of the option.

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(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. KIA was created in 1953. With 592 billion dollars of assets under management in December 2015, it was the sixth largest fund in the world in terms of managed assets at year-end 2015 according to the Sovereign Wealth Fund Institute.

### 21.1.8. DELEGATIONS OF COMPETENCE AND AUTHORITY GRANTED TO THE BOARD OF DIRECTORS BY THE SHAREHOLDERS ON JANUARY 8, 2015 REGARDING CAPITAL INCREASES

The table hereunder summarizes the delegations of competence and authority granted to the Board of Directors by the Shareholders on January 8, 2015 regarding capital increases.

Type of authorization	Date of authorization	Maturity	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 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 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 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 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 March 8, 2017	145,000,000 euros
Capital increase by capitalization of earnings, retained earnings or premiums	AGM January 8, 2015 (19 <sup>th</sup> resolution)	26 months 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> and 18 <sup>th</sup> resolutions	AGM January 8, 2015 (21 <sup>st</sup> resolution)		595,000,000 euros

### 21.1.9. LIENS

There are no liens on AREVA's share capital as of this date.

## 21.2. CERTIFICATE OF INCORPORATION AND ARTICLES OF ASSOCIATION

### 21.2.1. CORPORATE PURPOSE

Article 3 of AREVA's articles of association defines the corporate purpose of the company as follows, in France and abroad:

- 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, executive and supervisory bodies, please refer to Sections 14 and 16 and to Appendix 1 of this Reference Document.

### 21.2.3. 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 Directors 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

At December 31, 2015, the decree no. 83-1116 of December 21, 1983 amended on the Société des participations du CEA (AREVA) stipulates that the CEA is obliged to keep more than half of AREVA's capital.

That decree was amended on January 14, 2016 and now 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 keep more than half the capital of the company.

### 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 five 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.

Two agreements enter into this category:

1. Amendment dated February 27, 2015 to the memorandum of understanding between AREVA NC and the CEA signed December 22, 2004 concerning the transfer of CEA obligations pertaining to future cleanup and dismantling expenses at the la Hague site and at Cadarache's CFCa facility to COGEMA.
2. Tripartite memorandum of understanding between the CEA, AREVA SA and Technicatome (AREVA TA) concerning the RJH project.

This memorandum of understanding is described in Appendix 2 of this Reference Document, inasmuch as it is considered to be an agreement subject to the provision of articles L.225-38 *et seq* between the CEA, AREVA SA and AREVA TA.

## 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 24, 2016, of agreements authorized 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.

The following three agreements, corresponding to that situation, were the subjects of that review:

1. Agreement signed July 16, 2004 under which AREVA NC gave AREVA SA authority to manage or organize and control, in the 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.

It should be noted that, during its first review, on March 3, 2015, the Board of Directors had already decided to maintain this agreement for its execution in financial year 2014.

### 2. Subordination agreement

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. This agreement is described in Appendix 2 of this Reference Document.

3. Letter of support from the company to its subsidiary AREVA TA in the event that the latter were not to have the ability by itself to cope with large financial losses. This letter is described in Appendix 2 of this Reference Document.

The Board of Directors, meeting on February 24, 2016, decided to maintain these three agreements.

Except for the contracts described in Chapters 6 and 9 of this Reference Document, AREVA did not enter into major contracts in 2014 and 2015 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.

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## 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, 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 Financial Officer;
- Manuel Lachaux, Director of Financial Communications and Investor Relations.

### The team is also composed of:

- Anne-Sophie Jugean, Investor Relations Manager;
- Sabine Kueny, Marketing, Communications and Retail Shareholding Manager;
- Sophie Richard, Financial Analysis 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.areva.com](http://www.areva.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
February 26, 2016	2015 results (press release, conference and webcast)
May 19, 2016	Combined Annual General Meeting of Shareholders
July 28, 2016	First half 2016 results (press release, telephone conference and webcast)

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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 anti-dilution right in the event of a capital increase with cancellation of the preemptive right (except for capital increases reserved for employees of AREVA);
- 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.

#### 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.

## 25.2.2. MAIN SHAREHOLDERS' AGREEMENTS CONCERNING AREVA'S EQUITY INTERESTS

### EURODIF/SOFIDIF

AREVA NC presently holds, directly or indirectly through Sofidif, 60% 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 (AEOL), with 60% held by AREVA NC.

Sofidif's sole asset is a 25% equity 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. Due to national and international sanctions, no dividend has been paid to the AEOL since 2007.

### AREVA TA

AREVA holds 24.90% of AREVA TA, 65.10% is held by CEDEC (90.14% AREVA, 9.86% DCN-I), and 10% is held by EDF Développement. A memorandum of understanding concerning AREVA TA's body of shareholders was signed on March 12, 1993 and subsequently amended. It provides in particular that the Board

of Directors of AREVA TA is composed of 15 members, 5 of whom are elected by the employees, 6 of whom are appointed on the recommendation of Cedec, 3 of whom are appointed on the recommendation of AREVA, and 1 of whom is appointed on the recommendation of the EDF group. In the event that EDF group wished to sell all or part of its interest in AREVA TA, AREVA has priority in relation to Cedec to acquire this interest. If either Cedec or AREVA contemplates the sale of all or part of its shares or rights in AREVA TA, Cedec and AREVA have a reciprocal and irrevocable agreement under which each would first offer the shares for sale to the other party (unless AREVA were to sell the shares to the CEA).

### 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 INTERNAL CONTROL AND RISK MANAGEMENT PROCEDURES

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On January 8, 2015, AREVA's General Meeting of Shareholders decided to transform the company's governance, composed of a Supervisory Board and an Executive Board, into a single structure with a Board of Directors. This transformation corresponds to the wish of the majority shareholders, the French State and the CEA. Its purpose is to align the company's governance with best practices in effect in France and to better support the company's executive management through a clear division of roles and effective collaboration between the Board of Directors and executive management.

It also changed the company's articles of association to implement the new provisions of order no. 2014-948 of August 20, 2014 on governance and transactions involving the capital of publicly owned companies.

This report presents, for the year ended December 31, 2015, 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. Information on the functioning of the Supervisory Board and of the Executive Board appear in the 2014 Reference Document (Appendix 1).

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 in application of article L. 225-37 of the French Commercial Code, under which *"In publicly traded companies, the Chairman of the Board of Directors reports on [...] the composition of the Board and on the application of the principle of balanced representation of men and women in its midst, conditions for the preparation and organization of the work 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 the following:

- *"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.

- *"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 according to 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 16, 2016, and to the Audit and Ethics Committee on February 17, 2016. The Board of Directors approved the report during its meeting of February 24, 2016.

## 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 June 2015 ("Afep-Medef Code").

In accordance with the "apply or explain" principle incorporated in article L. 225-37 of the French Commercial Code, AREVA provides hereunder the reasons that led it to depart from certain rules stated in the Afep-Medef Code. AREVA's capital structure and the specific provisions that apply to AREVA limit the full application of the governance recommendations in the Afep-Medef Code.

(1) The Code is available on the Medef website ([www.medef.fr](http://www.medef.fr)).

## 1. Legislative and regulatory framework

Afep-Medef recommendation	Departure	Explanation or corrective action taken
The Afep-Medef Code recommends that a “relatively significant number” of shares be held by the members of the Board of Directors – article 20 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.	This recommendation is not suited to AREVA, considering the structure of its share ownership and the resulting composition of the Board of Directors.
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 the first members of the Board of Directors appointed on January 8, 2015 are set to expire on the same date.	In the framework of the adoption of the new governance and in view of the composition of the Board of Directors, it was not deemed necessary to stagger the terms of the directors. AREVA does not rule out the appointment of new directors for a term of four years from the date of their appointment, thus allowing terms to be staggered.
The Afep-Medef Code recommends that at least two thirds of the members of the Audit Committee be independent – article 16.1 of the Code	The Board of Directors' Audit and Ethics Committee is comprised of five members, two of whom are independent, <i>i.e.</i> 50%.	The composition of the Audit and Ethics Committee is intended to reflect the different categories of members present on the Board of Directors (including, in addition to the independent members, a representative of the French State and a representative of company personnel). This committee is chaired by an independent member, Mrs. Sophie Boissard, who has recognized accounting and finance expertise. In addition, Mr. Denis Morin, Director of Budget at the French Ministry of Finance, is also a member of the committee.
The Afep-Medef Code recommends that severance pay for which executives may be eligible be paid only when the executive is asked to leave in connection with a change of control or strategy - article 23.2.5 of the Code.	On April 29, 2015, the Board of Directors having approved AREVA commitments corresponding to severance pay or benefits likely to be due to the Chief Executive Officer in connection with the termination of or change in his duties, indicated that the severance pay would be paid only for dismissal, excluding dismissal for just cause, in particular in the event of a change of control or strategy.	Compulsory redundancies in cases other than the change of control or of strategy may exist.

## 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 DIRECTORS' WORK

Information on the preparation and organization of the Supervisory Board's work until January 8, 2015, when a governance structure with a Board of Directors was

adopted, appear in the 2014 Reference Document (Appendix 1).

### 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 a 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 in order to enrich the knowledge and experience of the Board and to bring in an external view and a diversity of skills and experience among its members, in particular in the management of large publicly-traded groups, with solid expertise in international business relations, industrial vision, and recognized skills in accounting, finance, strategic planning and development.

As of the date of this report, the percentage of women represented on the Board of Directors is 22%, bearing in mind that directors representing employees are not counted in establishing this percentage.

In accordance with article 15 of the articles of association, the company is governed by a Board of Directors comprised of no less than three and no more than eighteen members, including, if applicable, a 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 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 this date, the Board of Directors is composed of twelve members:

- eight members appointed\* by the Shareholders (including two members 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 not elected by company personnel expire at the end of the Ordinary General Meeting convened to approve the financial statements for the year ended and held during the year of expiration of said member's term.

The members of the Board of Directors appointed by the Shareholders may be dismissed at any time by them.

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, (ii) or upon the termination of his or her employment contract, (iii) or 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 the decree no. 83-1116 of December 21, 1983, as amended, and to decree no. 55-733 of May 26, 1955 the following persons also attend the meetings

\* Or for whom the cooptation was ratified.

## 3. Preparation and organization of the Board of directors' work

of the Board of Directors in an advisory capacity: the Director general for Energy and Climate at the Ministry of Energy, serving as Government Commissioner, and the representative of the Head of the Control Mission "Atomic Energy" of the General Economic and Financial Control Department as a member of the company's General Economic and Financial Control Board. They may also attend meetings of committees reporting 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 comprises three independent members out of a total of twelve members, bearing in mind that the directors representing company personnel are not counted to establish this proportion. The proportion of at least one third of the members as independents, as recommended by the Afep-Medef Code of Governance, is thus met.

Pursuant to these criteria, and based on a recommendation of the Compensation and Nominating Committee, the Board of Directors, meeting on February 2, 2015 (then meeting on February 24, 2016), considered the following members of the Board of Directors to be independent:

- Mrs. Sophie Boissard;
- Mr. Claude Imauven;
- Mrs. Pascale Sourisse.

None of the independent members of the Board of Directors has significant business relations with the company. The main criterion used for this determination was the insignificant share of revenue resulting from existing business relations, if any, in comparison with the revenue of the company and of the members in question.

3.1.3. **CHANGES IN THE COMPOSITION OF THE BOARD OF DIRECTORS IN 2015**

Mr. Daniel Verwaerde was coopted as a member of the Board of Directors and appointed Vice Chairman on February 2, 2015, replacing Mr. Bernard Bigot, who had been appointed to those duties on January 8, 2015. The Combined Annual General Meeting of Shareholders ratified his cooptation on May 21, 2015.

**Bernard Bigot (age 65 – French nationality)**

Mr. Bernard Bigot is a graduate of Ecole normale supérieure of Saint-Cloud and holds the *aggregation* in physical sciences and a PhD in chemistry.

**Terms in progress**

- Director-General of Iter Organization (since 03/05/15);
- Chairman of the Fondation de la Maison de la chimie;
- Chairman of the Université de Lyon Foundation (since 12/08/15);
- Vice Chairman of the Fondation Jean Dausset – Centre d'études du polymorphisme humain;
- Vice Chairman of the Association Laboratoires des énergies du Sud Rhône-Alpes;

(1) Publicly traded company.

- Chairman of the Association de l'École supérieure de chimie électronique de Lyon (CPE) and of its Board of Directors;
- Chairman of the Board of Directors of École nationale supérieure d'électricité et de mécanique/Université de Lorraine- School of Energy;
- Director representing the French State, on behalf of the minister of Industry, to the Board of Directors of AREVA NC (AREVA) (term expired 03/16/15).

**Terms expired exercised outside the company during the last five years**

- Chairman of the Board of Directors of the Institut national de la recherche pédagogique.

No other change was made to the composition of the Board of Directors in 2015.

3.1.4. **MEMBERS OF THE BOARD OF DIRECTORS AT DECEMBER 31, 2015****Members appointed by the Shareholders/ coopted by the Board of Directors**

The members of the Board of Directors are:

- Mr. Philippe Varin (Chairman);
- Mrs. Sophie Boissard;
- Mr. Claude Imauven;
- Mr. Philippe Knoche;
- Mr. Christian Masset (appointed on the proposal of the French State);
- Mr. Denis Morin (appointed on the proposal of the French State);
- Mrs. Pascale Sourisse;
- Mr. Daniel Verwaerde.

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.

**Philippe Varin (age 63 – French nationality) – Chairman**

Mr. Philippe Varin was appointed director by the Shareholders on January 8, 2015 and as Chairman of the Board by the Board of Directors, meeting on that same date. Mr. Philippe Varin is a graduate of École polytechnique and of École des mines de Paris.

**Other offices held**

- Director of EDF <sup>(1)</sup>;
- 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.

**Other offices held during the past five years**

- Chairman of the Managing Board of Peugeot SA;
- 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;
- Director of BG Group Plc.

## 3. Preparation and organization of the Board of directors' work

**Sophie Boissard (age 45 – French nationality)**

Mrs. Sophie Boissard was appointed director by the Shareholders on January 8, 2015. A graduate of École normale supérieure and École nationale d'administration, Mrs. Boissard is also *Conseiller d'État*.

Mrs. Boissard has been the Chief Executive Officer of Korian<sup>(1)</sup> since January 26, 2016.

**Other offices held**

- Director of Sanef;
- Chairman of the ICF Habitat group (SNCF) (term expired 01/25/16);
- Chairman of Espaces Ferroviaires (SNCF) (term expired in 02/01/16);
- Director of Eurostar International Limited (SNCF) (term expired 05/28/15).

**Other offices held during the past five years**

- General Manager in charge of organizing SNCF Immobilier (SNCF);
- Chairman of SNCF Participations (SNCF);
- Director of GIAT Industries;
- Director of AREP;
- Chairman and Chief Executive Officer of A2C;
- Vice Chairman of the Union des Transports publics.

**Claude Imauven (age 58 – French nationality)**

Mr. Claude Imauven was appointed director by the Shareholders on January 8, 2015. He is a graduate of École polytechnique and holds the rank of *Ingénieur* in the Corps des Mines.

Mr. Claude Imauven is Deputy Chief Executive Officer of Saint-Gobain<sup>(1)</sup> since January 1, 2016.

**Other offices held**

- Director of Banque CIC Est;
- Director of Artelia Holding SAS;
- Chairman of the Board of Directors of the Institut Mines-Télécom (EPST) (since 02/15/16);
- Chairman of Saint-Gobain Matériaux de Construction SAS and Saint-Gobain Produits pour la Construction SAS (Saint-Gobain) (term expired 12/31/15);
- Director and Chairman of the Board of Directors of Saint-Gobain PAM (Saint-Gobain) (term expired 12/31/15);
- Director and Chairman of the Board of Directors of Saint-Gobain Isover (Saint-Gobain) (term expired 12/31/15);
- Member of the Supervisory Board and Chairman of Saint-Gobain Weber (Saint-Gobain) (term expired 12/31/15).

**Other offices held during the past five years**

- Chief Executive Officer and Director of BPB Limited;
- Chairman of the Board of SG Rakennustutkimus Oy;
- Director of Inversiones BPB Chile Ltda.

**Philippe Knoche (age 46 – 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 a graduate of École polytechnique and of École des mines.

Mr. Philippe Knoche holds 100 AREVA shares.

(1) Publicly traded company.

**Other offices held**

- Chairman, Chief Executive Officer and director of AREVA NC (AREVA);
- Chairman of the Board of Directors of AREVA Mines (since 02/18/16) (AREVA);
- Chairman of AREVA NP SAS (AREVA);
- Member of the Supervisory Board of AREVA GmbH (AREVA);
- Chairman of the Board of Canberra Industries Inc.;
- Member of the Executive Board of AREVA SA (term expired 01/08/15);
- Permanent representative of AREVA SA to the Board of Directors of AREVA TA (term expires November 1, 2016) (AREVA).

**Other offices held during the past five years**

- Chairman of the Board of Directors of AREVA Inc. (AREVA).

**Christian Masset (age 59 – French nationality)**

Mr. Christian Masset was appointed director by the Shareholders on the proposal of the French State on January 8, 2015. He is a graduate of École nationale d'administration, Institut d'études politiques of Paris and 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 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 Comité de l'énergie atomique (French atomic energy board).

**Other offices held during the past five years**

- Member of the Board of the Institut du monde arabe (Arab World Institute);
- Director of Agence pour l'enseignement du français à l'étranger;
- Director of France expertise international;
- Director of the Cultures France, which became Institut Français in 2010;
- Director of the Agence française de développement (French Development Agency);
- Director of the France-Israel Foundation.

**Denis Morin (age 60 – French nationality)**

Mr. Denis Morin was appointed director of the company by the Shareholders on January 8, 2015 on the proposal of the French State. He is a graduate of École des hautes études commerciales de Paris (HEC), Institut d'études politiques of Paris and École nationale d'administration.

Mr. Denis Morin is Director of Budget at the French Ministry of Economy and Finance.

**Other office held**

- Director of SNCF<sup>(1)</sup>.

**Other offices held during the past five years**

- Director of EDF.

**Pascale Sourisse (age 53 – French nationality)**

Mrs. Pascale Sourisse was appointed director by the Shareholders on January 8, 2015. She is a graduate of École nationale supérieure des télécommunications (ENST) and École polytechnique.

Mrs. Pascale Sourisse is Senior Executive Vice President, 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 (Thalès);
- Director of the Agence nationale des fréquences (French frequency agency);
- Director of the Agence Nationale de la Recherche;
- Chairman of the Board of Ecole de Télécom Paris Tech;
- Permanent representative of Thales as Director of Odas.

**Other offices held during the past five years**

- Member of the collective body of Thales Security Solutions & Services SAS;
- Chairman of Sitac SAS (previously 181 Centelec SAS);
- Member of the Board of Directors of the Institut Télécom;
- Chairman and Chief Executive Officer of Thales 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 Thales UK Ltd. (United Kingdom);
- Director of Thales Electronics Ltd. (United Kingdom);
- Member of the Supervisory Board of Thales Nederland BV (Netherlands);
- Director of Thales USA Inc. (USA);
- Director of ADI Engineering & Vehicles Pty Ltd (Australia);
- Director of ADI Group Holdings Pty Ltd (Australia);
- Director of ADI Group Pty Ltd (Australia);
- Director of ADI Lithgow Pty Ltd (Australia);
- Director of ADI Munitions Pty Ltd (Australia);
- 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 61 – 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 his cooptation on May 21, 2015. He is a graduate of École centrale de Paris.

Mr. Daniel Verwaerde is Managing Director and Chairman of the Board of Directors of CEA.

**Other offices held**

- Chairman of the Board of Directors of the CEA;
- 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 39 – 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 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 on the condition of 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 53 – 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 the department that handles product quality deviations for AREVA NC.

(1) Publicly traded company.

**Other offices held**

None.

**Other offices held during the past five years**

- Member of the Board of Directors of MELOX.

**Odile Matte (age 56 – 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);
- Manager of SCI Les Cèdres.

**Other offices held during the past five years**

- None.

**Françoise Pieri (age 48 – 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.

**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 the Economy, Industry and Employment on June 24, 2008, served as the Economic and Financial Comptroller General of the company in application of article 3 of decree no. 83-1116 of December 21, 1983, as amended. Mr. Rossi was represented by Mr. Christian Bodin, who reported to him on his control of AREVA and in that capacity attended meetings of the Board of Directors and of its specialized committees.

**Government Commissioner**

Mr. Laurent Michel, appointed 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.

**Censors**

In application of article 18 of AREVA's articles of association, adopted January 8, 2015, the Board of Directors appointed Mr. Pascal Faure and the CEA, represented by Mr. Christophe Gégout, as censors.

The censors' mission is to assist the Board of Directors in the performance its duties; they attend meetings of the Board of Directors 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**

In 2015, Mr. Pierre Charreton, General Counsel and Chief Administrative Officer of AREVA, served as Secretary of the Board of Directors.

Mrs. Malak Tazi, Legal Director of Governance, Companies and Securities & Finance, serves as Deputy Secretary of the Board of Directors.

## 3.2. RESPONSIBILITIES AND FUNCTIONING OF THE BOARD OF DIRECTORS

### 3.2.1 RESPONSIBILITIES

The responsibilities of the Board of Directors and the preparation and organization of its work are defined in the legislative and regulatory framework governing corporations (*sociétés anonymes*) in France, 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 situation, cash position and commitments; 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. 225-37 of the French Commercial Code;

(1) The articles of association and rules of procedure are available on the AREVA website, [www.areva.com](http://www.areva.com).

## 3. Preparation and organization of the Board of directors' work

- approves the company's annual budget and multiyear 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 and 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.

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 as often as the interests of the company so require and 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* videoconference 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 process may not be used for the approval of the annual financial statements and management report, the decision on the dissociation or non-dissociation of the duties of Chairman of the Board of Directors and of Chief Executive Officer, and the appointment of the Chairman of the Board of Directors, the Chief Executive Officer and the Chief Operating Officer(s) as the case may be.

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 (5) calendar days before the meeting, except in an emergency or 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, if he/she deems it necessary, training 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.

In addition:

- the company has set up a specific procedure to prevent and settle situations which might generate conflicts of interest for the Chairman of the Board of Directors due to his service as a director on the Board of Directors of EDF;
- as part of the negotiations between EDF and AREVA concerning the proposed strategic and industrial partnership between the two groups, the Chairman of the Board of Directors decided to suspend his participation in the EDF Board of Directors in order to devote himself to his duties as Chairman of the Board of Directors of AREVA SA;
- Mr. Christian Masset, who also sits on the EDF Board of Directors, indicated in a letter addressed to the Chairman of the AREVA Board of Directors that he would take the customary measures to avoid any potential conflict of interest when the AREVA Board and its committees deal with relations between AREVA and EDF.

## 3.2.6 BUSINESS ETHICS OF DIRECTORS

The director shall perform his or her duties with independence, integrity, uprightness and professionalism.

The Rules of Procedure published on the company's website describe the duties of directors, in particular:

- respect for laws, 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;

## 3. Preparation and organization of the Board of directors' work

- 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.

In connection with the program launched in 2015 to strengthen ethics and compliance, the group updated and brought together in 2016 a code of applicable

principles and rules to be followed in connection with the prevention of direction of duty or insider trading. This code was presented to AREVA's Executive Committee on February 15, 2016. In parallel with the issuance of this code, actions to raise awareness of stock exchange rules are being conducted with the group's employees.

### 3.3. WORK OF THE BOARD OF DIRECTORS

The Board of Directors' work concerned in particular the establishment of the new governance and the composition of the committees; examination of the half-year and annual financial statements and the observations of the statutory auditors on those statements; the report of the Chairman of the Board of Directors on the Board's work and internal control procedures for 2014; the report on internal controls pursuant to article 7 of the decree of February 23, 2007 on the securement of funding for nuclear expenses; the Chief Executive Officer's objectives; and related party agreements.

The Board of Directors also reviewed:

- the group's performance plan;
- the financing plan, including the asset disposal plan;

- the annual budget for 2016;
- the proposed industrial and strategic partnership with EDF;
- the proposed disposal of Canberra;
- the company's policy of equal opportunity, equal pay and gender diversity.

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 these committees.

In 2015, the Board met 12 times with an attendance rate of 87.5%.

### 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 for discussion on the order of business to examine 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 (3) 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.

During the Board of Directors meeting of December 17, the chairman of the Compensation and Nominating Committee indicated the schedule and stages for the annual evaluation of the Board of Directors for 2015, carried out internally. The evaluation questionnaires drawn up by that committee were sent to the members of the Board on December 18, 2015.

The results were examined by the Compensation and Nominating Committee on February 16, 2016 and presented to the Board of Directors on February 24, 2016. It transpires from this that the directors are satisfied with the composition, functioning

and organization of the Board and of its committees. Among the areas identified for improvement are:

- increasing the number of women sitting on the Board of Directors;
- dialogue between employee representatives, the Chief Executive Officer and the Senior Executive Vice President of Human Resources prior to Board meetings;
- reducing the length of extraordinary meetings of the Board to facilitate schedule management;
- formalizing the follow-up of decisions and strengthening information provided between Board sessions;
- resuming visits of the sites.

Actions will be taken along these lines in 2016.

The Board of Directors meeting of February 24, 2016 included the evaluation of the performance of the Chairman and Chief Executive Officer on its order of business; those parties were not in attendance.

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 at 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 (*sociétés anonymes*) in France, 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.

On June 5, 2015, the Board of Directors also created a temporary Ad Hoc Committee in connection with the establishment of a financing plan and restructuring to be carried out within the group.

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 exceptional circumstances, the meeting documents are sent to the committee members at least five (5) 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, the Audit and Ethics Committee has five members: Sophie Boissard <sup>(1)</sup> (Chairman), Denis Morin, Françoise Pieri <sup>(2)</sup>, Pascale Sourisse <sup>(1)</sup> and Alexis Zajdenweber.

(1) Independent director.

(2) Director representing the employees.

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*.

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 map.

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 (3) 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 2015, the Audit and Ethics Committee met 15 times, with an attendance rate of 78.66%.

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 map; 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 and the annual Ethics report.

#### 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

## 3. Preparation and organization of the Board of directors' work

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 (see paragraph 3.6 below). 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 2015, the Strategy and Investments Committee met 8 times, with an attendance rate of 89.8%.

It studied the following subjects in particular: the strategic roadmap, the financing plan, the asset disposal plan and the group's financial trajectory.

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 6 times in 2015, with an attendance rate of 83.35%.

3.5.3. **COMPENSATION AND NOMINATING COMMITTEE**

As of the date of this report, the Compensation and Nominating Committee has four members: Claude Imauven <sup>(1)</sup> (Chairman), Sophie Boissard <sup>(1)</sup>, Jean-Michel Lang <sup>(2)\*</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 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 officers participate in the committee meeting dedicated to reviewing the compensation policy for key executives who are not company officers.

In 2015, the Compensation and Nominating Committee met 8 times, with an attendance rate of 85.50%

It studied the following subjects in particular: the establishment of a succession plan for executive officers; the qualification of independent director of directors; the distribution of attendance fees among the members of the Board of Directors; the compensation policy for principal non-officer executives; the company policy on equal opportunity and gender diversity; the launching of the annual evaluation

process of the Board of Directors; the compensation of executive officers; and the objectives of the Chief Executive Officer.

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: Pascale Sourisse <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 5 times in 2015, with an attendance rate of 55%.

In 2015, the committee was asked, among other things, for an opinion on the status of end-of-lifecycle liabilities at the end of 2015; the management of assets and liabilities, and the rate of coverage at year-end 2015; and changes in cost estimates for current and future dismantling operations.

3.5.5. **AD HOC COMMITTEES**

As of the date of this report, the Ad Hoc Committee has four members: Pascale Sourisse <sup>(1)</sup> (Chairman), Sophie Boissard <sup>(1)</sup>, Claude Imauven <sup>(1)</sup> and Daniel Verwaerde.

Created on June 5, 2015 in connection with the establishment of a 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 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 15 times in 2015, with an attendance rate of 93.32%.

In particular, it studied the industrial and strategic partnership and the commercial agreements with EDF, EDF valuation of AREVA NP and the financing plan.

The Ad Hoc Committee was assisted by its own legal and financial advisors.

In addition, a committee comprised of Philippe Varin (Chairman), Pascale Sourisse <sup>(1)</sup>, Bernard Bigot, Claude Imauven <sup>(1)</sup> and Alexis Zajdenweber met on January 8, 2015 following the first Board of Directors meeting to discuss the group's major strategic topics.

(1) Independent director.

(2) Director representing the employees

\*Jean-Michel Lang replaced Françoise Pieri on March 3, 2015.

\*\* Alexis Zajdenweber replaced Denis Morin on March 3, 2015.

## 3.5.6. INDIVIDUAL ATTENDANCE RATE

Attendance rate per person and per meeting in 2015 (in %)

Board members							
First and last names	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
Philippe Varin	100	100	NA	100	NA	NA	NA
Sophie Boissard	100	NA	87.5	NA	100	NA	100
Claude Imauven	75	75	100	66.7	NA	NA	80
Philippe Knoche	100	NA	NA	NA	NA	NA	NA
Jean-Michel Lang <sup>(1)</sup>	58.3	NA	40	NA	NA	40	NA
Christian Masset	83.3	87.5	NA	NA	NA	NA	NA
Odile Matte	100	87.5	NA	NA	NA	NA	NA
Denis Morin	33.3	NA	NA	NA	20	0 <sup>(2)</sup>	NA
Françoise Pieri	100	NA	100	NA	100	NA	NA
Pascale Sourisse	100	NA	NA	NA	73.3	100	100
Daniel Verwaerde	100	85.7 <sup>(3)</sup>	NA	66.7	NA	60	93.3
Alexis Zajdenweber	100	100	100	100	100	75 <sup>(2)</sup>	NA

(1) Mr. Jean-Michel Lang was absent due to illness from February to July 2015.

(2) Mr. Denis Morin was a member of the Committee only during the first meeting, held in February 2015. He was then replaced by Mr. Alexis Zajdenweber.

(3) Mr. Daniel Verwaerde was appointed in February 2015 and thus did not attend the first meeting, held in January 2015.

Attendance rate per person and per meeting in 2015 (in %)

Standing invitees							
First and last names	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
Christian Bodin	100	100	75	100	100	100	NA
Pascal Faure	66.7	50	NA	NA	NA	NA	NA
Christophe Gégout	50	NA	NA	NA	20	20	NA
Laurent Michel (or his representative)	91.7	100	0	66.7	46.7	20	NA

### 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 executive 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 defined and implements fundamental commitments regarding the conduct of its operations. The environment for internal controls is based on these commitments, among other things.

The Values Charter is the reflection of the group's culture of business ethics and the expression of its commitments, in particular sustainable development and anti-corruption commitments. It sets forth Values, Action Principles and Rules of Conduct that apply to all of the group's executives and employees and to the members of the Board of Directors. The group's values are performance, safety and security, customer satisfaction, responsibility, integrity, partnership and transparency.

In 2015, the group's business ethics advisor coordinated the annual report of compliance with the Values Charter and presented the 2014 executive summary of the report to the Board of Directors' Audit and Ethics Committee.

## 4. System of internal controls

The group calls attention to its commitment to fighting corruption in its code of ethics, which can be accessed on the group's intranet. The policy presents the main characteristics of the British anti-corruption law which came into effect in mid-2011 and emphasizes the law's supranational reach, similar to that of the US anti-corruption law (FCPA), which had served as the international benchmark until then.

The group's business ethics advisor also works to ensure that the management of the relevant AREVA units continues to implement the Nuclear Power Plant Exporters' Principles of Conduct, an industry ethics initiative launched by the Carnegie Endowment for International Peace, which AREVA actively helped to define.

To the maximum extent possible, the group also ensures employee compliance with the obligations resulting from competition law. To this end, the Legal Department in charge of European and Competition Law is asked to review the group's projects and serves as an advisor on competition law at every level of the company. The department distributed Best Practices (*Competition Charter*) aimed in particular at enabling the Legal Department to better identify and address early in the process competition issues with which the group is regularly confronted, such as requests for proposals, meetings with competitors, and consortiums. These Best Practices are supplemented by training sessions for the operating teams.

In the second half, at the initiative of the Chief Executive Officer and with the full support of the governing bodies, the group initiated the start of a program to strengthen compliance and ethics. The initiative, the first phase of which is expected to last 18 months, reflects AREVA's commitment to rising quickly to the level of the best references in this field.

Within this framework, the warning system was strengthened in 2015 and an "individual compliance commitment letter" process was set up for all of the group's executives. Priorities for 2016 were also set, aimed in particular at increasing the robustness of existing systems. The latter are aimed in particular at improving existing systems, mainly concerning the prevention of corruption, compliance with competition rules and the prevention of risks in financial and stock market ethics.

## 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 as regards the Values and Sustainable Development Charter.

## 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

Following the Combined General Meeting held on January 8, 2015, and in order to strengthen the group's existing internal control system, AREVA changed its corporate governance structure, going from a structure with a Supervisory Board and Executive Board to a single structure with a Board of Directors.

In this new framework, 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 that it created (see Section 4.3. *Committees of the Board of Directors*).

For his part, the Chief Executive Officer is responsible for the company's executive management and represents it in his 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.

In 2015, in the framework of weekly meetings, the Chief Executive Officer associated the members of his Executive Committee (ExCom) with his work, particularly that related to the design and supervision of internal control systems for which he is responsible.

At December 31, 2015, the ExCom members were:

- the Senior Executive Vice President of the Mining and Front End Business Group;
- the Senior Executive Vice President of the Reactors & Services Business Group, who is also the Chief Operating Officer of AREVA NP;
- the Senior Executive Vice President of the Back End Business Group;
- the Senior Executive Vice President of Engineering & Projects;
- the Senior Executive Vice President, Asia Region, in charge of the reorganization of the international commercial function;
- the Senior Executive Vice President of Operations Support, in charge of the corporate transformation project;
- the Senior Executive Vice President of Human Resources;
- the Chief Financial Officer.

During the year, under the direction of the Chief Executive Officer and his ExCom, operational leadership for the group's activities was provided by:

- five Business Groups (BG), which regularly organize meetings with the relevant corporate functions to review and monitor major projects for which they are responsible (MPC - Major Projects Committee);
- crosscutting departments, in particular an Engineering & Projects organization (E&P);
- functional departments and three regions.

The Chief Executive Officer and his ExCom drew on three coordination and steering committees which had broad delegation of authority:

- the Major Proposals Committee, in charge of approving commercial proposals in compliance with the limits set by the Board of Directors;
- the Risk Committee, charged with coordinating analysis of the group's principal risks;
- the Resources and Reserves Committee (including independent experts) to validate data relating to the group's mineral resources and reserves.

#### 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 of in a manner consistent with applicable laws and regulations.

The organization and delegations of authority are defined to comply 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 authority.

#### 4.2.3. HUMAN RESOURCES MANAGEMENT PLAN

Against the backdrop of an economically and financially difficult environment, the human resources policy had three priorities in 2015:

- 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 securing the retention of key skills;
- develop executive and manager leadership skills, a driver for the commitment and mobilization of the managerial body.

#### 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 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 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;

## 4. System of internal controls

- 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**

Information is rolled up and processed at two operational levels: the operating entities (basic level of information production) and the Business Groups (management and performance analysis at the group level).

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 Finance Department modeled the group's main financial processes and provides a complete, up-to-date database shared by all of the parties involved in these processes (corporate departments and Business Groups). This system:

- documents the processes while acting as an interface for applicable group procedures;
- identifies areas for improvement and optimization of those processes.

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) and by the Business Groups, 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 specific 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 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 strengthen 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 PRACTICES AND MANAGEMENT

Internal control relies on all of these components as well as on the practices of all employees, which are themselves based on the group's commitments (Values Charter, 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 Groups, 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 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 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 financial information is rolled up and processed in accordance with specific processes using shared tools to record and check the data (*i.e.* a single, secure reporting and consolidation software program shared by the entire group and supervised by the Finance Department),
  - achievement of performance objectives and progress on the transformation plan through related action plans are monitored through regular monthly and quarterly business reviews;
- top-down information:
  - the relevant departments and the group 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. Organizational notes, rules, standards and procedures are disseminated in accordance with applicable organizational rules, standards and procedures.

Communications with stakeholders are framed in plans designed to ensure 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 map 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 Insurance Department, working with the risk managers of the Business Groups (which themselves have a network of Risk Managers in their operating entities), carries out an annual update.

In 2015, the latter was reviewed by the Risk Committee and approved by the ExCom. The business risk map was presented to the Board of Directors/Audit and Ethics Committee.

In particular:

- the operational management teams have approved the assessment of risk in their operations. For example, 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 Executive Committee 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 Committee and the company's governing bodies;

- 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, with probable significant changes to the group's consolidation scope and organization in which a number of entities will be involved, all of the management and control bodies will have to ensure strict compliance with applicable rules during the transition period, and the proper functioning of all processes that go into making the internal control system robust.

In addition, the Safety-Health-Security-Sustainable Development Department is tasked with supervising industrial risk management and, on a practical level, working with the relevant Business Groups to ensure the implementation and effectiveness of action plans that aim to reduce these risks.

In 2015, the Finance Department regularly presented the group's major investment and commercial projects to the Audit and Ethics Committee, providing an opportunity to discuss changes in the risks associated with those projects with the control bodies.

#### 4.4.2. SETTING OBJECTIVES

In 2015, the process of setting objectives for the group was framed by the 2015-2017 Transformation Plan.

### 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.

## 4. System of internal controls

Preventive controls are carried out according to specific procedures, whether manual or computerized, involving validations 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 group's specific goals.

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 2015, AREVA continued to take action to optimize its internal control systems. These actions were conducted under the supervision of the Chief Executive Officer and his ExCom, and with the oversight of the Board of Directors through the Audit and Ethics Committee.

The Chief Administrative Officer deployed the annual compliance letter process, which applied to all executives in the subsidiaries, the Business Group's senior executive vice presidents, the directors of the Business Units, the regional directors, and the directors of the group's corporate functions.

AREVA's 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 hierarchical and functional authority of the Audit Director, carried out its activities independently in compliance with the Audit Charter and according to international standards for the profession.

In 2015, the missions were conducted in accordance with the annual audit plan approved by the Chief Executive Officer, presented to the ExCom, 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 with and the effectiveness of the internal control systems deployed within the group. In particular, this assessment takes into account the risks identified using the full range of the group's tools (business risk map, internal control self-audit tools, interviews conducted by the Audit Department with the General Inspectorate, a hundred of the group's 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 Audit Director presented his internal controls review report to the Chief Executive Officer and his ExCom as well as 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 2015 across the entire consolidation scope of the group, representing 106 entities in some 20 countries. By entity, it covered 200 control items organized into 14 business cycles, and led management to commit to action plans to address the weaknesses identified.

The entities' responses to this self-audit questionnaire are reviewed by the 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 (Business Groups and functional departments in particular). The main elements are summarized in the annual report by the Audit Director on the examination of internal controls.

This report does not contain an analytical section. This is consistent with practices in France and the recommendations of the Autorité des Marchés Financiers, as described in its December 13, 2011 report on corporate governance and internal controls.

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*  
AREVA Tower – 1 place Jean Millier  
92084 Paris-La Défense Cedex, France

### Mr. Daniel Verwaerde

*Chairman of the Commissariat à l'énergie atomique et aux énergies alternatives*  
CEA/SACLAY  
CAB/AG  
Headquarters Building (no. 447)  
91191 Gif-sur-Yvette Cedex, France

### Mrs. Sophie Boissard

*Chief Executive Officer*  
Korian Group  
21-25 rue Balzac  
75008 Paris, France

### Mr. Claude Imauven

*Chief Operating Officer*  
Saint-Gobain  
Construction Products Division  
Les Miroirs  
18 avenue de l'Alsace  
92400 Courbevoie, France

### Mr. Christian Masset

*Secretary General*  
Ministry of Foreign Affairs and International Development  
37 Quai d'Orsay  
75007 Paris, France

### Mr. Denis Morin

*Budget Director*  
139 rue de Bercy  
Teledoc 241  
75572 Paris Cedex 12, France

### Mrs. Pascale Sourisse

*Senior Executive Vice President, International Development*  
Thales Group  
Carpe Diem Tower  
31 place des Corolles  
CS 20001  
92098 La Défense, France

### DIRECTOR REPRESENTING THE FRENCH STATE

### Mr. Alexis Zajdenweber

*Director of Energy Shareholdings*  
Agence des participations de l'État  
Ministry of Economy and Finance  
Teledoc 228  
139 rue de Bercy  
75572 Paris Cedex 12, France

**MEMBERS OF THE BOARD ELECTED BY COMPANY PERSONNEL****Mr. Jean-Michel Lang**

AREVA NC  
BP 124  
30203 Bagnols-sur-Cèze Cedex, France

**Mrs. Françoise Pieri**

AREVA NC  
Pierrelatte Establishment  
DSI/LOG  
BP 175  
26702 Pierrelatte, France

**Mrs. Odile Matte**

AREVA TA  
Aix-en-Provence AREVA TA  
CS 50497  
13593 Aix-en-Provence Cedex 03  
France

**OTHER PERSONS ASSISTING THE BOARD IN AN ADVISORY CAPACITY****Mr. Laurent Michel**

*Director General of Energy and Climate*  
Government Commissioner  
Ministry of Ecology, Sustainable Development and Energy  
MEDDE  
Sequoia Tower  
1 place Carpeaux  
92800 Puteaux, France

**Mr. Christian Bodin**

*Economic and Financial Controller General*  
*Head of the control mission*  
Energy Mission  
AREVA Tower  
1 place Jean Millier  
94084 Paris – La Défense Cedex, France

**Mr. Marcel Otterbein**

*Representative of the Works Council to the Board of Directors*  
AREVA Business Support  
AREVA Tower – 1 place Jean Millier  
92084 Paris-La Défense Cedex, France

**Mr. Pascal Faure (Censor)**

*General Director*  
Ministry of Economy, Industry and the Digital Economy  
General Directorate of Competitiveness and Energy (DGE)  
67 rue Barbès  
BP 80001  
94201 Yvry-sur-Seine Cedex, France

**Mr. Christophe Gégout (Censor)**

CEA/Saclay  
CAB/AG  
Headquarters Building (no. 447)  
91191 Gif-sur-Yvette Cedex, 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	319
2.	STATUTORY AUDITORS' REPORT ON RELATED PARTY AGREEMENTS AND COMMITMENTS	321

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 31/12/2015.

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, 2016

The statutory auditors

French original signed by

MAZARS

ERNST & YOUNG Audit

Jean-Louis Simon

Cédric Haaser

Aymeric de La Morandière

Jean Bouquot

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 standards applicable in France.

## 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 is consistent with the documentation from which it has been extracted.

### EEMENTS AND COMMITMENTS SUBMITTED FOR APPROVAL BY THE GENERAL MEETING OF SHAREHOLDERS

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 EDF, a 2.24% shareholder of your company

##### Persons concerned

Mr Christian Masset (EDF director), Mr Philippe Varin (EDF Board Member) and Mr Alexis Zajdenweber (representative of the State and EDF director).

##### Nature, purpose and conclusions: conclusion of a framework agreement

In its meeting on 29 July 2015, the Board of Directors authorized the conclusion of a framework agreement signed the next day between EDF and AREVA SA 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.

##### Grounds justifying the benefit of the agreement for the company

Your Board of Directors provided the following grounds for this agreement: this framework agreement is an essential element of AREVA SA's strategic roadmap.

#### 2. With AREVA TA (Technicatome SA), an 83.56%-owned subsidiary of your company

##### A) LETTER AMENDING THE LETTER DATED 26 NOVEMBER 2014

##### Person concerned

Ms Odile Matte, member of the Boards of both AREVA SA and AREVA TA.

##### Nature, purpose and conditions

In the interest of the group, notably in light of the strategic nature of the activity of its subsidiary AREVA TA, by letter dated 26 November 2014, AREVA SA undertook to support its subsidiary AREVA TA within the limit of €200m should AREVA TA not have the ability itself to handle significant additional financial losses (exceeding a fixed threshold of €50m) relating to the projects in which it is currently engaged. This letter was authorized by AREVA SA's Supervisory Board on 26 November 2014 and approved by the General Meeting of Shareholders held on 21 May 2015 (cf. herebelow the "Agreements and commitments approved during the year").

The implementation of this commitment was to 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%), it being specified that the agreement formalizing the aforementioned forgiveness of debt would include a better fortunes clause concerning the projects generating the aforementioned losses.

Then, as AREVA SA's current financial situation constrained it to limit the use of its equity, it wished to limit the financial impact of the support mechanism thereon.

By amendment letter dated 2 July 2015, authorized by the Board of Directors meeting held on the same day, it was therefore agreed to spread the implementation of the support mechanism over time, and to not systematically make the forgiveness of each debt granted to its subsidiary conditional on this latter's undertaking to propose to the General Meeting of its Shareholders a capital increase for the same amount, within two years of the forgiveness of debt.

##### Grounds justifying the benefit of the agreement for the company

Your Board of Directors provided the following grounds for this agreement: the interest of the group with regard to the strategic nature of AREVA TA's activity. Further, the debt forgiveness agreements include a better fortunes clause for the projects that generate the losses. Better fortunes means a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

**B) DEBT FORGIVENESS AGREEMENT DATED 28 JULY 2015****Person concerned**

Ms Odile Matte, member of the Boards of both AREVA SA and AREVA TA.

**Nature, purpose and conditions**

In July 2015, further to the authorization of its Board of Directors on 2 July 2015, AREVA SA 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 generated by projects in progress in respect of financial year 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 a capital increase for AREVA TA to the advantage of AREVA SA for the same amount, no later than 31 December 2017.

**Grounds justifying the benefit of the agreement for the company**

This agreement is the implementation of the letter dated 26 November 2014, firstly, and secondly, the letter amendment dated 2 July 2015, both referred to hereabove.

Your Board of Directors provided the following grounds for this agreement: the interest of the group with regard to the strategic nature of AREVA TA's activity. Further, the debt forgiveness agreements include a better fortunes clause for the projects that generate the losses. Better fortunes means a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

**C) AGREEMENT TO ABANDON A RECEIVABLE DATED 18 DECEMBER 2015****Persons concerned**

Ms Odile Matte and Mr Philippe Knoche (representative of AREVA SA on the Board of Directors of AREVA TA), both members of the Board of Directors of AREVA SA and AREVA TA.

**Nature, purpose and conditions**

In December 2015, further to the authorization of its Board of Directors on 17 December 2015, AREVA SA made another shareholder current account contribution followed by a forgiveness of debt on 18 December 2015 for an amount of €17.2 m, corresponding to the amount of the losses generated by projects in progress 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 of debt will not be followed by a capital increase to the advantage of AREVA SA.

**Grounds justifying the benefit of the agreement for the company**

This agreement is the implementation of the letter dated 26 November 2014, firstly, and secondly, the letter amendment dated 2 July 2015, both referred to hereabove.

Your Board of Directors provided the following grounds for these agreements: the interest of the group with regard to the strategic nature of AREVA TA's activity. Further, the debt forgiveness agreements include a better fortunes clause for the projects that generate the losses. Better fortunes means a reduction in the loss upon completion or the return to profit margins on said projects before their completion.

**AGREEMENTS AND COMMITMENTS ALREADY APPROVED BY THE GENERAL MEETING OF SHAREHOLDERS****Agreements and commitments approved in prior years whose implementation continued during the year**

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 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 Mr Christophe Gégout (permanent representative of CEA), 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**

For the financing requirements of Société d'Enrichissement du Tricastin (SET), which owns and operates the Georges Besse II enrichment plant, the Supervisory Board of AREVA SA, at its meeting on 26 February 2014, authorized AREVA SA to sign a subordination agreement.

The purpose of this subordination agreement signed on 13 June 2014 is notably to subordinate the rights of AREVA SA, 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.

**2. With AREVA TA (Technicatome SA), an 83.56%-owned subsidiary of AREVA****Person concerned**

CEA, represented by 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: support provided by AREVA to its subsidiary AREVA TA**

At its meeting on 26 November 2014, your company's Supervisory Board authorized the signature of a letter formalizing your company's commitment to support its subsidiary AREVA TA should the latter suffer significant financial losses.

The conditions of this support are as follows: 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.

With the aim of providing AREVA TA, as a precautionary measure, with the financial resources to address a similar situation in the future, your company's commitment described above must be accompanied by a correlative commitment by AREVA TA to propose to the General Meeting of its shareholders a capital increase for the benefit of your company, for an amount at least equal to that of the forgiveness of debt granted, within two years of the forgiveness of debt. As shareholder of AREVA TA, your company undertakes to subscribe for this capital increase and pay for it in cash or by offsetting it against a receivable that it may hold from AREVA TA.

### 3. 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 Philippe Pinson, Mr Christophe Gégout (as permanent representative of CEA) and Mr Bernard Bigot (members of the Supervisory Board of your company until 8 January 2015) and directors of AREVA NC.

#### 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.

This agreement did not give rise to any billing in financial year 2014.

#### **Agreements and commitments approved during the year ended**

Further, we have been informed of the performance in the year ended of the following agreements and commitments, already approved by the General Meeting of Shareholders of 21 May 2015, on the basis of the statutory auditors' special report dated 27 March 2015.

#### **1. With AREVA TA (Technicatome SA), an 83.56%-owned subsidiary of AREVA and with 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 Managing Director of CEA).

Concerning the prior authorization of the signature of the tripartite Memorandum of Understanding, Mr Daniel Verwaerde (director of AREVA SA and Managing Director of CEA) and Ms Odile Matte (director of both your company and of AREVA TA).

#### Nature, purpose and conditions

On 26 February 2015, the Managing Director of CEA and CEO of AREVA SA 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 AREVA SA estimated at €469m economic conditions 2013), 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 must be reflected in the drafting of a tripartite memorandum of understanding (between CEA, AREVA SA 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, AREVA SA and AREVA 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 in the account closing 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', cancels and supersedes 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 the engineering team and as supplier of the Reactor Block (FRN BR. All or part of these provisions will be transposed where necessary into the engineering team and FRN BR contracts by means of amendments.

The tripartite Memorandum of Understanding is an important step for AREVA SA 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 AREVA SA to recognize an additional provision of €207m euros in the accounts as of 31 December 2014, in order to take into account the terms of the aforementioned agreement.

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 agreement was definitively signed on 20 July 2015.

In accordance with article L. 225-42 of the French Commercial Code (Code de commerce), the Combined Meeting of Shareholders of 21 May 2015 ratified the agreement signed between the Managing Director of CEA and the CEO of AREVA SA 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, AREVA SA and AREVA TA. CEA did not take part in the voting.

#### **2. With Mr Philippe Knoche, member of the Board of Directors**

#### Nature, purpose and conditions: commitments relating to a termination benefit, compensation for a non-compete clause and unemployment insurance

On 29 April 2015, upon proposal by the Appointments and Compensation Committee, the Board of Directors decided to terminate the commitments made by AREVA SA corresponding to indemnities or benefits 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.

The termination benefit shall be subject to the following performance conditions:

- if the average of the two previous financial years have given rise 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 have given rise to the achievement of less than 60% of the quantitative and qualitative objectives, the Board of

## 2 Statutory auditors' report on related party agreements and commitments

Directors will assess the performance of the party concerned with regard to the circumstances that affected the company's operation in the year ended.

The Board of Directors may decide to grant Mr Philippe Knoche compensation as consideration for a non-compete 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-compete clause shall be fixed by the Board of Directors in accordance with customary practice.

**Mr Philippe Knoche will benefit from:**

- the unemployment insurance provided for by the MEDEF with 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 Shareholders' Meeting of 21 May 2015 approved the commitments made by AREVA SA 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.

Courbevoie and Paris-La Défense, March 31, 2016

French original signed by

The Statutory Auditors

MAZARS

ERNST & YOUNG Audit

Cédric Haaser

Jean-Louis Simon

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 Values Charter. These different policies and charters 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 subscribes to the United Nations' Global Compact and, on the occasion of the 21<sup>st</sup> United Nations Climate Change Conference, reaffirms its commitment in its operations to:

- 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.

In addition, AREVA is pursuing its proactive continuous improvement initiative in its mining operations based on best international practices for corporate social responsibility, in particular through the ten principles of 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.

In France, following the group agreement signed in 2012, AREVA completed the deployment of the new occupational health service organization. The creation of a single health service (supported by regional offices) gives the group's employees in France comprehensive occupational health services with consistent quality. AREVA's occupational health service in France was approved by the administrative authorities in 2013.

In 2015, AREVA continued the work initiated in 2012 on safety culture.

Three new safety standards were made applicable in 2015 concerning overhead work, mechanical handling and movements. They supplement the group's other nine standards, which aim for a consistent approach and rules in all activities.

For the third consecutive year, the month of June was Safety Month. During this period, the sites 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 safety among its partners and employees.

In 2015, the group also adapted its initiative on hard working conditions to include the latest regulatory requirements on this subject.

With one of its suppliers, AREVA developed a new poke-resistant glove, drawing on its operating experience with the poking hazard in contaminated environments. The glove was adapted to the constraints of our operations and is designed for use in a nuclear environment. The development of these gloves with the users led to their approval and introduction this year.

In connection with work with the company's labor partners, AREVA's Health, Safety and Working Conditions Committee (CHSCT) set up a joint working group on the management of personal protection equipment and access conditions for areas regulated for radiation protection in the group's regulated nuclear facilities, which aims to identify and share best practices on this subject.

In 2015, the group continued to record improved occupational safety results.

After sharply reducing lost time injuries, AREVA set objectives for the reduction of injury rates, with and without lost time, to less than five per million hours worked in 2015. At the end of 2015, the frequency rate was 4.7, in line with our objective. The lost time injury rate remained stable at 1.44. For subcontractor personnel working on our operations, the number of lost time injuries was stable, confirming the reduction of more than 30% achieved from between 2013 and 2014.

AREVA was sad to report three deaths in 2015, one of which was work-related. That accident occurred in Kazakhstan during a drilling operation carried out by a subcontractor. The other two events concerned a temporary employee who died during a lunch break at the Uginé site and an employee of the Installed Based Business Unit who died at his place of lodging during a business trip.

### OCCUPATIONAL HEALTH AND SAFETY DATA

Occupational safety data for AREVA employees	2015	2014
Accident frequency rate with lost time (excluding commuting accidents)	1.44	1.37
Accident severity rate (accidents reported during the year, excluding commuting accidents)	0.04	0.03
Number of fatal accidents	3	1

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 remained very low, at 0.89 mSv in mid-2015, the same as the maximum dose to 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-2015, the maximum recorded dose was 16.01 mSv, with 85.9% of AREVA's employees having received a dose of 0 to 2 mSv and 55.9% a dose of less than the recording level set by regulation, i.e. less than 0.1 mSv. It should be noted that, in France, the average annual exposure to naturally occurring radiation is approximately 2.4 mSv (source: IRSN).

Radiation protection and occupational disease* data	2015	2014
Average employee dose from radiation exposure (mSv)	0.89	0.90
Total individual external dose to AREVA employees over 12 consecutive months (man-mSv)	14,621	16,328
Total individual internal dose to AREVA employees over 12 consecutive months (man-mSv)	4,894	4,337
Average subcontractor employee dose from radiation exposure (mSv)	0.39	0.51
Occupational diseases		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 2015, 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 Values Charter.

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.

#### 2.1.2. ORGANIZATION SET UP FOR ENVIRONMENTAL RISK PREVENTION AND CONTROL

The Safety-Health-Quality-Environment Department (SQED) is in charge of:

- safety management for the group's nuclear facilities and related activities carried out for its own account and for its customers;
- radiation protection and occupational health and safety for all of the group's employees and subcontractor personnel;
- product and service quality;
- prevention of industrial and environmental risks from the facilities;
- management of actions integral to the sustainable development process.

It draws on specific organizations within the Business Groups, the operating entities and the regions to perform its activities.

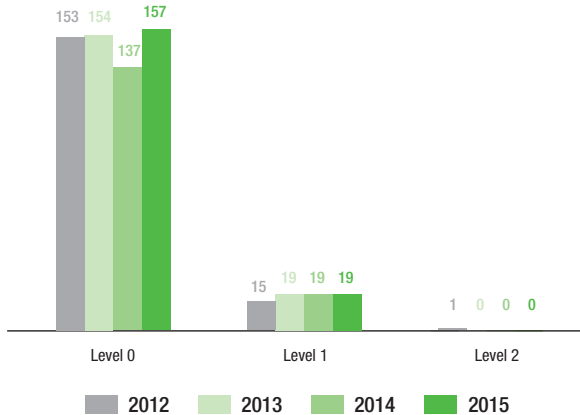
Within the SQED, the Environment and Sustainable Development function develops the group's policy on environmental hazards and the environmental footprint, along with all of the actions integral to the sustainable development initiative. This function brings together specialists in environmental hazards, eco-performance, conventional waste management, and corporate social and environmental responsibility.

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.

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 2015 RANKED ON THE INES SCALE IN THE GROUP'S NUCLEAR ENTITIES (OWNER-OPERATORS, CONTRACT OPERATORS AND SERVICE PROVIDERS) OR DURING THE SHIPMENT OF RADIOACTIVE MATERIALS**



Source: AREVA.

### Safety-Health-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, Safety-Health-Environment (SHSE) managers and project managers at AREVA's industrial sites.

The program includes a module devoted to SHSE management for site directors. Twelve site directors and production managers with delegation of authority took this module in 2015 in connection with new duties or to maintain their skills. A total of approximately 120 site directors have taken the program since its establishment.

A training program in Safety-Health-Environment 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 2015, and 80% of all facility managers have received the training to date.

Also in 2015, two self-assessment campaigns on SHSE skills were conducted following the Safety Excellence benchmark, one for SHSE managers at the sites and in the BGs and BUs (100 employees), and one for project managers with the contracting authority or the project management organization (more than 180 employees).

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.

### Induction sessions for new hires

AREVA organizes day-long induction sessions on company operations for each newcomer to the group in France. A special module was set up with AREVA

University to present risk prevention measures concerning safety, health and the environment in an educational format.

### Employee information

AREVA communicates regularly with its employees on SHSE 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.

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. One of the key actions involved recovering waste from the metal segment of the zirconium business for recycling as raw materials in the manufacturing of nuclear-quality zirconium sponge.

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 7.257 billion euros had been set aside as of December 31, 2015 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. The share of provisions for nuclear facility dismantling and waste retrieval and packaging total 6.921 billion euros,

with AREVA's share representing 6.743 billion euros (see Section 20.2. *Notes to the consolidated financial statements for the period ended December 31, 2015*, 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 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 will be 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).

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 4.3.2.1. *Seveso risks*).

## 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, Front End and Back End Business Groups, 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.

#### 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. All of the former mines have been 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 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 2,828,046 MWh in 2015, down 7.2% from 2014, when it was 3,046,986 MWh.

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 the second period of Energy Savings Certificates (ESC).

AREVA had four sites with ISO 50001 certification in 2015: AREVA NP UGINE, AREVA Advanced Nuclear Fuels in Lingen and Karlstein, Germany, and the Katco site of AREVA Mines.

All of the group's legal entities launched an energy audit in 2015 in accordance with the requirements of the Grenelle II environmental law.

### 2.3.3. WATER USAGE

The group consumed a total of 12.5 million m<sup>3</sup> of water in 2015, compared with 12.2 million m<sup>3</sup> in 2014, representing an increase of 2.5%, partly due to the ramp-up of operations at the McClean Lake mine in Canada.

It should also be noted that a change in the reporting protocol now takes into account all volumes of mine drainage water from the mining sites, water used in cooling and geothermal systems, and water tapped for the treatment of environmental liabilities and for hydraulic containment systems.

### 2.3.4. WASTE

#### Conventional waste

The gross production of conventional waste totaled 41,857 metric tons in 2015, as follows:

- 12,274 metric tons of hazardous waste, including 2,365 metric tons from exceptional operations;

- 29,584 metric tons of non-hazardous waste, including 10,796 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, 1996, 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 the operation, dismantling and cleanup of nuclear facilities. It is initially sorted following specific zoning to separate waste likely to be radioactive from conventional waste, then characterized based on its radiological activity (very low-level, low-level, medium-level or high-level) and the half-life of the radioelements it contains (very short-lived, short-lived or long-lived). Each type of waste requires a specific management method, as shown in the table below.

	Very short-lived (half-life < 100 days)	Short-lived (half-life ≤ 31 years)	Long-lived (half-life > 31 years)
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 the French law of June 28, 2006 (intermediate-depth disposal of 15-200 meters)
Medium-level waste (MLW)	followed by conventional disposal		Research carried out under the French law of June 28, 2006 (deep disposal, 500 meters)
High-level waste (HLW)		Research carried out under the French law of June 28, 2006 (disposal in a deep geological repository, 500 meters)	

Directives are sent to each operational unit that may produce radioactive waste specifying the objectives and the organizational and implementational means to be used for safe radioactive waste management. In particular, they outline the course of action pertaining to issues such as the strict separation and rigorous management of conventional waste and radioactive waste, the inclusion of performance improvements, shipping risks, the containment-concentration strategy, and the use of any final waste disposal method.

The operations in question are followed up during multiyear exchanges at AREVA France meetings of the waste coordinators, and safety and operating

performance experience from nuclear waste management is shared within the AREVA Radioactive Materials and Waste Department's network of coordinators, in addition to regular contacts. By pooling problems and solutions, the network of coordinators helps boost performance in radioactive materials and waste management. During group-level meetings of the network, a tour of the host facility is organized so that its members can gain an on-the-spot understanding of actions taken and improvements mentioned in previous meetings. The purpose of these visits is to avoid compartmentalizing the ideas and work of each facility.

The nuclear waste produced by AREVA's sites is processed in specific facilities at those sites, or by partners with appropriate facilities. As a minimum, processing consists of the following operations, in sequence:

- isotopic characterization and activity assessment to choose the right packaging for a given activity level;
- volume and/or size reduction (cutting operations);
- packaging in containers suitable to the type of waste and level of radioactivity (e.g. big bags for VLLW, metal drums for LLW, and stainless steel canisters for vitrified HLW).

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 and radiological impacts.

### Dissemination of information

Information related to waste flows and volumes stored in AREVA's nuclear facilities is communicated to the competent authorities in the form of annual waste inventories, supplemented by declarations made for the national inventory.

In France, AREVA contributes actively to updates of the national inventory of radioactive waste managed by the Agence nationale pour la gestion des déchets radioactifs (Andra, the national radioactive waste management agency), which is published every three years. The summary report for 2015 gives waste and materials inventories as of the end of 2013, along with forecasts post-2030 and for end of the operating period of existing or licensed facilities: <http://www.inventaire.andra.fr/>.

The inventory also gives:

- the storage capacities for radiferous and tritiated high-level waste (HLW), long-lived medium-level waste (LL/MLW) and long-lived low-level waste (LL/LLW);
- storage requirements for HLW and LL-MLW destined for deep disposal;
- the quantities of radioactive materials, radioactively contaminated sites, and information on storage sites for mill tailings.

The French National Radioactive Materials and Waste Management Plan (PNGMDR) draws up an exhaustive inventory of the different radioactive waste management methods, identifies gaps between them, and defines areas for improvement and performance improvement actions to be taken. AREVA considers the PNGMDR to be an essential performance improvement tool for radioactive waste management, especially when it comes to informing the public. AREVA is represented for the PNGMDR by the Radioactive Materials and Waste Department, which manages and coordinates cross-business actions and studies involved in developing and following the Plan.

### 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. Among other things, the "INB order" of February 7, 2012 sets general rules for reporting releases from regulated nuclear facilities.

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 (BNEN, 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, FBFC Romans, SEPA Bessines and Comurhex Malvési – were issued licenses by the French nuclear safety authority ASN for the analyses that they must carry out. These licenses are renewed periodically based on inter-laboratory comparison tests organized by the IRSN. The tests are based on an analytical framework defined by the French national environmental radiation measuring network (RNM).

AREVA performs some 100,000 measurements 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.

Taken together, uranium releases in aquatic media from the group's sites totaled a little less than 400 kilograms in 2015. They 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.

Direct emissions of greenhouse gases in 2015 amounted to 526,865 metric tons of CO<sub>2</sub> equivalent, compared to 444,629 metric tons of CO<sub>2</sub> equivalent in 2014. This increase is due to a breakdown in the N<sub>2</sub>O emissions treatment facility at the Malvési site. The releasing facility will be shut down in April 2016.

## 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  $\mu$ Sv/year, down from approximately 70  $\mu$ Sv in 1985. These efforts paved the way for compliance with more stringent regulatory standards in the European Union, as transposed into French law, which set the maximum added effective dose to the public at 1 mSv per year, compared to about 2.4 mSv per year for exposure to naturally occurring radiation in France 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 the use of best available technology (BAT) to the extent that this is technically and economically reasonable, considering 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 21 of the French law on transparency and nuclear safety ("TSN Law") 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.

## 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 in terms of 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 2015, 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.

(1) To be compared with the average of about 2.4 mSv per year for naturally occurring exposure in France.

## 2.4. ENVIRONMENTAL PERFORMANCE IMPROVEMENT

	2015	2014	2013
<b>Consumption</b>			
Quantity of energy consumed (MWh) of which for AREVA NC	2,828,046 1,558,251	3,046,986	3,193,661
Quantity of water tapped (m <sup>3</sup> ) of which for AREVA NC	12,495,078 4,081,233	12,190,745	13,475,084
<b>Conventional waste</b>			
Total tonnage of conventional waste (normal and exceptional operations) of which for AREVA NC	41,857 16,600	42,979	60,671
Quantity of hazardous waste (MT) related to normal operations	9,908	8,586	10,834
Quantity of non-hazardous waste (MT) related to normal operations	18,788	19,856	20,917
<b>Releases</b>			
Direct greenhouse gases (MT CO <sub>2</sub> ) of which for AREVA NC	✓ <sup>(1)</sup> 526,865 301,530	444,629	422,021
Volatile organic compounds (MT VOC) of which for AREVA NC	1,103 85	952	1,248

(1) Indicator subject to reasonable assurance.

## 3. SOCIETAL INFORMATION

### 3.1. LOCAL ECONOMIC AND LABOR IMPACTS OF OPERATIONS

#### CONTRIBUTING TO THE LOCAL ECONOMIC DEVELOPMENT

AREVA is actively pursuing its commitment to community involvement through regional programs.

At the group's industrial sites, AREVA's philanthropic initiatives further advance its community involvement agenda in countries in which it is based by supporting projects in the general interest and solidarity projects focused on health, education and culture. To be selected, these projects must be sustainable and meet a specific need identified at the local level.

In communities in which the Mining Business Group is based, Societal Committees for the Mines identify internal prospects for local development and commitment

with stakeholders, multiyear action plans and the corresponding budgets, and the priority community investment projects. As of 2015, the committees have covered all of AREVA Mines'scope of operations. The committees bring together the heads of the subsidiaries, local community development managers, teams in charge of project coordination, and corporate support staff.

For local economic development reasons, we prefer to hire our employees locally. AREVA Mines is also attentive to the local communities. This is the case, for instance, in North Saskatchewan, Canada, where several initiatives are in progress to promote local access to jobs and to give preference to local contractors. Today, in every country in which we are present, a majority of the employees at every level of the organization are local nationals.

### 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 2015, 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 Committee (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 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 2015, the AREVA corporate foundation supported 39 projects in 5 countries in which the group is based, 9 of which involved its employees.

With a budget of 7.5 million euros until 2017, the Foundation is pursuing 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

AREVA has defined and implements a purchasing policy that contributes to the company's economic performance while respecting human rights, protecting its environment, complying with the laws that protect them, anticipating risk, and committing to responsible initiatives with suppliers that create innovation and value.

As part of its responsible purchasing policy, the group incorporates its social and sustainable development commitments into the supply chain (purchasing) process and into the management of its supplier relations. In particular, AREVA asks its service providers to support its sustainable development policy by signing its "Sustainable Development Commitment applicable to suppliers", which sets the standards and commitments expected by the group.

In 2008, as part of a professional training program, the Supply Chain Department created a training module on responsible purchasing.

In 2015, the subject of subcontracting led to greater inclusion of safety-health-security-environment and sustainable requirements in the Supply Chain process, a strengthening of reporting and steering tools, and the implementation of local initiatives aimed at strengthening the inclusion of subcontractor companies in work collectives.

The Supply Chain and Safety-Health-Security-Quality-Environment Departments have been engaged with the operating entities in an initiative to strengthen consideration of protected interests (nuclear safety, public health, protection of

nature and the environment) in the supply chain process since 2013. The objective is to define and implement a group standard on each phase in the supply chain process, from the expression of requirements to the evaluation of proposals to the assessment of the service.

To that end, the group procedure defining the supply chain management system of AREVA and its operating entities was redefined. This procedure outlines a management process that formally integrates consideration of safety-health-security-environment and sustainable development issues. In particular, it introduces the concept of the proportionality of supply chain actions to market risks.

From that same perspective, the specification for the supplier management system was redefined. The specification formalizes requirements supplementing the ISO 9001:2008 standard with which a supplier or service provider must comply for the execution of a contract awarded by an AREVA entity that operates an INB, in connection with the protection of the AREVA site's interests. It was presented during the Supplier Days and was sent to all suppliers which have or could have a contract in which protected interests are an issue.

The group also launched work in the fourth quarter of 2014 to standardize tools used to analyze market risks (in advance of the drafting of the specification of requirements). Issuance of the group standard was planned for the end of 2015 with operational deployment in early 2016. It optimizes the organization of supply chain actions, supplier audits, requirements for expressing needs and service surveillance actions in terms of the protected interest issues.

In addition, in 2014 and 2015, AREVA provided training to more than 600 employees likely to carry out work or actions for the surveillance of services awarded to subcontractors. The program includes a module to raise awareness of protected interests, a safety culture awareness module, and a training module with a test of the knowledge acquired to define and fill in a surveillance plan.

Strengthening the repository of documents and implementing these tools will facilitate relations with subcontractor companies, in particular for consideration of safety, health, security and environment requirements.

In addition, in accordance with the commitment it made in July 2012, AREVA continued the operational roll-out of the Social Specification developed in the Commission on Nuclear Industry Strategy (CSFN).

The status of compliance with the requirements or directives of the Social Specification at all relevant AREVA sites in France was assessed in May and June 2015. The compliance statement, which has been filled in annually since 2013, shows that notable progress has been made. The average compliance with the Social Specification went from less than 50% to 75% in two years.

Twice a year, within the framework of the CSFN, AREVA also participates in a presentation to stakeholders on the status of its implementation of the Social Specification. Lastly, as it has done each year since 2011, AREVA drew up an annual subcontractor report for 2014 which was sent to a wide range of stakeholders in July 2015. A communication plan and actions to disseminate, explain and discuss the report were conducted from August to October 2015.

### 3.4. FAIR PRACTICES

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Actions to prevent corruption and support human rights are described in Appendix 6 of AREVA's 2015 Reference Document.

## 4. TABLE OF CONCORDANCE 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	Sections of the 2015 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 organizations 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>	<b>Section 17.7.</b>
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 2.1.3.

**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> </ul>	Section 3.1.
<ul style="list-style-type: none"> <li>on the local or neighboring population</li> </ul>	Section 3.1.

**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	Section 3.4.
Measures in favor of consumer health and safety	Section 3.4.
Other actions taken in favor of human rights	Section 3.4.

<b>1. REPORTING METHODOLOGY</b>	<b>339</b>	<b>2. INDEPENDENT VERIFICATION OF CONSOLIDATED SOCIAL, ENVIRONMENTAL AND SOCIETAL DATA IN THE MANAGEMENT REPORT</b>	<b>340</b>
		2.1. Certification of presence of CSR information	341
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		2.3. Report of reasonable assurance on a selection of CSR information	343

## 1. REPORTING METHODOLOGY

The indicators published in Section 17 and Appendix 3 of this report are used to measure the leading social, environmental and societal impacts and challenges related to the AREVA's activities.

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 GRI version 3 <sup>(1)</sup> and 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 in which AREVA's interest is 50% or more at December 31, 2015. 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 2015 were not included in the scope of reporting. Newly acquired entities are not consolidated in the year of their acquisition so that systems for collecting and inputting 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, the other fields of the reporting procedure 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 fully 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 investment 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 2015:

- Deconsolidated: Wind Energy and Solar Energy.

(1) Global Reporting Initiative ([www.globalreporting.org](http://www.globalreporting.org)).

(2) The Greenhouse Gas Protocol is 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 criteria are documented in an "AREVA sustainable development and continuous improvement measurement and reporting procedure". This procedure, 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 Groups.

**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 all 42 categories of information identified in the implementing order 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 Appendix 3 of the 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 2016, the data concern the period from July 2014 to June 2015. The mean 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 individual external 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

To the Shareholders,

In our capacity as an independent verifier accredited by COFRAC<sup>(1)</sup> under the 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 for the year ended December 31, 2015, presented in Section 6 of the management report, hereinafter referred to as "CSR Information", pursuant to the provisions of article L. 225-102-1 of the French Commercial Code.

(1) Scope of accreditation available at [www.cofrac.fr](http://www.cofrac.fr).

## **RESPONSIBILITY OF THE COMPANY**

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It is the responsibility of the Board of Directors to establish a management report including CSR Information referred to in article R. 225-105-1 of the French Commercial Code, in accordance with the company's internal social and environmental reporting standards (the "Guidelines"), a summary of which is provided in Appendix 4 of the Reference Document.

## **INDEPENDENCE AND QUALITY CONTROL**

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Our independence is defined by the regulatory requirements, the code of ethics of our profession and the provisions of article L. 822-11 of the French Commercial Code. In addition, we have implemented a quality control system including documented policies and procedures to ensure compliance with ethical requirements, 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, an appropriate explanation has been provided, in accordance with paragraph 3 of article R. 225-105 of the French Commercial Code (Attestation of presence of CSR Information);
- to express a limited assurance on whether the CSR Information is presented, in all material aspects, in accordance with the Guidelines (Opinion on fairness of CSR Information);
- to express, at the request of the company, a reasonable assurance on whether direct greenhouse gas emissions identified by the sign ✓ in Section 6 of the management report is presented, in all material respects, in accordance with the Guidelines.

Our verification work was undertaken by a team of five people from October 2015 and the date of signature of our report, for an estimated time period of fifteen weeks.

We conducted the work described below in accordance with the professional standards applicable in France and the order of May 13, 2013 determining the conditions under which an independent verifier performs its mission and, concerning the opinion of fairness, in accordance with the international standard ISAE 3000 <sup>(1)</sup>.

### **2.1. CERTIFICATION OF PRESENCE OF CSR INFORMATION**

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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 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 programs.

We compared the information presented in the management report with the list contained in article L. 225-105-1 of the French Commercial Code.

In the absence of certain consolidated information, we verified that the explanations were provided in accordance with the provisions of article R. 225-105, paragraph 3, of the French Commercial Code.

We verified that the CSR information covers the consolidation scope, namely the company and its subsidiaries under the meaning of article L. 233-1 of the French Commercial Code, 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 to the Reference Document.

Based on this work, and given the limitations mentioned above, we confirm the presence in the management report of the required CSR Information.

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<sup>(1)</sup> ISAE 3000 – Assurance engagements other than audits or reviews of historical information.

## 2.2. OPINION ON FAIRNESS OF CSR INFORMATION

### NATURE AND SCOPE OF WORK

We undertook about ten interviews with people responsible for the preparation of CSR Information in the departments charged with information gathering and for internal control procedures and risk management to:

- assess the appropriateness of the Guidelines as regards their relevance, completeness, neutrality, clarity and reliability, taking into consideration, where applicable, the good practices in the sector;
- verify the implementation of a 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 controls based on the nature and importance of the CSR Information in terms of company's characteristics, social and environmental issues related to its activities, its orientation 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 consolidation, and we verified their coherence and consistency with the other information contained in the management report;

- at the level of the representative selection of sites and entities which we chose <sup>(1)</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 a basis of samples, consisting in verifying the calculations and linking them with the information in supporting documentation. The sample selected represented 16% of the workforce and between 7% and 54% of the quantitative environmental information <sup>(3)</sup>.

For the other consolidated CSR Information, we assessed its fairness and 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 sampling methodologies and the size of the samples that we considered, by exercising our professional judgment, allowed us to formulate a limited assurance on the CSR Information, considered as a whole; an assurance of a higher level would have required more extensive verification work. Due to the 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.

## CONCLUSIONS

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 Guidelines.

## COMMENTS

Without qualifying our conclusion above, we draw your attention to the following points:

- AREVA does not communicate quantitative data relative to training in France. The data will be communicated in April;
- the sites of the AREVA Solar entity were not the subject of environmental indicator reporting. The estimated impacts of these exceptions to scope are not significant.

(1) **Environmental and societal information:** the general environmental policy (number of sites with ISO 14001 certification); prevention measures; air release reduction or restoration measures (VOC emissions); waste prevention, recycling and disposal measures (metric tons of conventional waste produced); the sustainable use of resources and climate change (energy consumption, water consumption, greenhouse gas emissions); the extent of subcontracting; and the inclusion of social and environmental aspects in the purchasing policy and in supplier and subcontractor relations.

**Social information:** employment (total workforce and distribution, hires and lay-offs); occupational injuries, including their frequency and severity; occupational diseases; and diversity and equal opportunity/equal treatment (measures taken for gender equality, anti-discrimination efforts).

(2) AREVA Mongol LLC (Mongolia), AREVA NC la Hague (France), AREVA NC Malvési (France), AREVA NC Melox (France), AREVA NP Jarrie (France, water indicator), AREVA NP Saint Marcel (France), AREVA TA Cadarache (France).

(3) Coverage rate by environmental theme: Energy 32%, Waste 30%, Greenhouse gas emissions 54%, Water consumption 19%, VOC emissions 7% for the group's footprint/ 69% excluding the sites of the Mining Business Group.

## **2.3. REPORT OF REASONABLE ASSURANCE ON A SELECTION OF CSR INFORMATION**

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### **NATURE AND SCOPE OF WORK**

Concerning scope 1 greenhouse gas emissions, we conducted work similar to that described in paragraph 2 above but in a more thorough manner for the CSR information considered to be most important, in particular as concerns the number of tests.

We believe that this work enables us to express reasonable assurance on this data.

## **CONCLUSION**

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In our opinion, direct greenhouse gas emissions identified with the sign ✓ in Section 6 of the management report were drawn up fairly in all material respects, in accordance with the Guidelines.

Paris-La Défense, March 31, 2016

Independent Verifier  
ERNST & YOUNG et Associés

Christophe Schmeitzky  
Sustainable Development Partner

Bruno Perrin  
Partner

#### ORDER OF BUSINESS

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#### PROPOSED RESOLUTIONS FOR THE ORDINARY ANNUAL MEETING OF SHAREHOLDERS OF MAY 19, 2016

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## ORDER OF BUSINESS

- Approval of the corporate financial statements of the financial year ended December 31, 2015 (**1<sup>st</sup> resolution**);
- Approval of the consolidated financial statements of the financial year ended December 31, 2015 (**2<sup>nd</sup> resolution**);
- Appropriation of the results of the financial year ended December 31, 2015 (**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 concerning an equity and industrial partnership between EDF SA and AREVA SA dated July 30, 2015 (**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 concerning the amendment of the letter of support from AREVA SA in favor of its subsidiary AREVA TA dated July 2, 2015 (**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 concerning the debt forgiveness by AREVA SA in favor of its subsidiary AREVA TA dated July 2, 2015 (**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 concerning the debt forgiveness by AREVA SA in favor of its subsidiary AREVA TA dated December 17, 2015 (**7<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Knoche as a member of the Executive Board and Chief Operating Officer until January 8, 2015 (**8<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2015 to Messrs. Olivier Wantz and Pierre Aubouin as members of the Executive Board and Senior Executive Vice Presidents until January 8, 2015 (**9<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Varin as Chairman of the Board of Directors as from January 8, 2015 (**10<sup>th</sup> resolution**);
- Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Knoche as Chief Executive Officer as from January 8, 2015 (**11<sup>th</sup> resolution**);
- Authorization to be given to the Board of Directors to conclude transactions involving the company's shares (**12<sup>th</sup> resolution**);
- Powers for legal formalities (**13<sup>th</sup> resolution**).

# PROPOSED RESOLUTIONS FOR THE ORDINARY ANNUAL MEETING OF SHAREHOLDERS OF MAY 19, 2016

## FIRST RESOLUTION

### ***Approval of the financial statements of the financial year ended December 31, 2015***

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, 2015, as presented to them, showing a net loss in the amount of 2,915,937,581.28 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 81,068 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, 2015***

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 of the statutory auditors, approve the consolidated financial statements of the financial year ended December 31, 2015, as presented to them, showing a net loss in the amount of 2,038,000,000 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, 2015***

The Shareholders, deliberating under the conditions for quorum and majority required for ordinary general meetings, decide to appropriate the full amount of the net loss for the financial year ended December 31, 2015, amounting to 2,915,937,581.28 euros, to "Retained earnings", which will be brought from the amount of (1,413,174,747.60 euros) to the amount of (4,329,112,328.88) euros.

The Shareholders note, in accordance with the law, that 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 concerning an equity and industrial partnership between EDF SA and AREVA SA dated July 30, 2015***

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 framework agreement between EDF SA and AREVA SA concerning an equity and industrial partnership authorized by the Board of Directors on July 29, 2015 and signed the following day.

## FIFTH RESOLUTION

### ***Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code concerning the amendment of the letter of support from AREVA SA in favor of its subsidiary AREVA TA dated July 2, 2015***

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 amendment letter to the support letter of AREVA SA in favor of its subsidiary AREVA TA, authorized by the Board of Directors on July 2, 2015 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 concerning the debt forgiveness of AREVA SA in favor of its subsidiary AREVA TA dated July 2, 2015***

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, following the authorization of the Board of Directors of July 2, 2015, the debt write-off carried out on July 28, 2015 by AREVA SA in favor of its subsidiary AREVA TA in the amount of 49 million euros.

**SEVENTH RESOLUTION*****Approval of an agreement subject to the provisions of articles L. 225-38 et seq. of the French Commercial Code concerning the debt forgiveness of AREVA SA in favor of its subsidiary AREVA TA dated December 17, 2015***

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, following the authorization of the Board of Directors of December 17, 2015, the debt write-off carried out on December 18, 2015 by AREVA SA in favor of its subsidiary AREVA TA in the amount of 17.175 million euros.

**EIGHTH RESOLUTION*****Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Knoche as a member of the Executive Board and Chief Operating Officer until January 8, 2015***

The Shareholders, consulted pursuant to the recommendation of paragraph 24.3 of the Afep-Medef Code of Corporate Governance for publicly traded companies of November 2015, to which the company defers 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 2015 to Mr. Philippe Knoche, member of the Executive Board and Chief Operating Officer until January 8, 2015, as they appear in Section 15 of the 2015 Reference Document, paragraph 15.1, and in the report of the Board of Directors.

**NINTH RESOLUTION*****Advisory opinion on the items of compensation due or allocated for financial year 2015 to Messrs. Olivier Wantz and Pierre Aubouin as members of the Executive Board and Senior Executive Vice Presidents until January 8, 2015***

The Shareholders, consulted in accordance with the recommendation of paragraph 24.3 of the Afep-Medef Code of Corporate Governance for publicly traded companies of November 2015, to which the company defers pursuant to article L. 225-37 of the French Commercial Code, deliberating under the conditions for quorum and majority required for ordinary general meetings, issues a favorable opinion on the items of compensation due or allocated for financial year 2015 to Messrs. Olivier Wantz and Pierre Aubouin as members of the Executive Board and Senior Executive Vice Presidents until January 8, 2015, as they appear in Section 15 of the 2015 Reference Document, paragraph 15.1, and in the report of the Board of Directors.

**TENTH RESOLUTION*****Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Varin as Chairman of the Board of Directors as from January 8, 2015***

The Shareholders, consulted in accordance with the recommendation of paragraph 24.3 of the Afep-Medef Code of Corporate Governance of November 2015, to which the company defers 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 2015 to Mr. Philippe Varin as Chairman of the Board of Directors as from January 8, 2015, as they appear in Section 15 of the 2015 Reference Document, paragraph 15.1, and in the report of the Board of Directors.

## ELEVENTH RESOLUTION

### **Advisory opinion on the items of compensation due or allocated for financial year 2015 to Mr. Philippe Knoche as Chief Executive Officer as from January 8, 2015**

The Shareholders, consulted in accordance with the recommendation of paragraph 24.3 of the Afep-Medef Code of Corporate Governance of November 2015, to which the company defers 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 2015 to Mr. Philippe Knoche, Chief Executive Officer as from January 8, 2015, as they appear in Section 15 of the 2015 Reference Document, paragraph 15.1, and in the report of the Board of Directors.

## TWELFTH 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 the general regulations of the Autorité des marchés financiers, of articles L. 225-209 *et seq.* of the French Commercial Code and of the European Commission Regulation no. 2273/2003 of December 22, 2003:

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 a merger, spinoff or contribution. The number of shares that the company will hold at any time may not exceed 10% of the equity securities forming the company's capital on the date considered;
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, as provided by the market authority and in compliance with applicable regulations, in particular to:
  - 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
  - provide liquidity and liquidity services for the company's share by an investment services provider acting independently under a liquidity contract that complies with the Code of Ethics recognized by the Autorité des marchés financiers in compliance with the market practice accepted by that authority; or

- hold them and deliver them at a later date (for exchange, payment or other) in connection with transactions for external growth, merger, spinoff or contribution, within the limit of 5% of the company's equity and in compliance with market practice accepted by the Autorité des marchés financiers, or in the event of a takeover bid on the company's securities, or during the pre-bid period, in compliance with article 231-40 of the general regulations of the Autorité des marchés financiers, and in the pre-bid or public exchange offer or mixed public takeover and exchange offer period initiated by the company in compliance with legal and regulatory provisions, and in particular the provisions of article 231-41 of the general regulations of the Autorité des marchés financiers; or
- hedge securities giving the right to the grant of shares of the company by delivering shares when exercising rights attached to securities giving the right to the grant of the company's shares by redemption, conversion, exchange, presentation of a warrant or in any other manner; or
- 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 price per share is set at 40 euros excluding acquisition expenses, and the maximum number of shares acquired may not exceed 10% of the number of shares composing the authorized capital (e.g., for information only, a maximum of 38,320,485 shares at December 31, 2015, not including shares already held by the company, for a cumulative acquisition price net of expenses of 1,532,819,400 euros);
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.

## THIRTEENTH RESOLUTION

### **Powers to carry out formalities**

The Shareholders, deliberating under the conditions of quorum and majority required for ordinary and extraordinary general meetings, grant 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 do all things necessary.

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## 1. PREAMBLE

### A Shared and Responsible Vision

As a commercial company in a competitive market, we offer low-carbon solutions for power generation in the nuclear and renewable energies fields. Our goal is to achieve the highest possible returns and performance by designing, marketing and supplying products and services that are competitive, safe and harmless to the environment, and that help improve standards of living for our planet's inhabitants. We expect every one of our employees to work towards this goal. The AREVA employee complies with the laws of the country in which he or she works, and in compliance with the principles of Human Rights as defined in the Universal Declaration of Human rights.

Energy is a basic requirement for worldwide economic development, particularly in less developed countries, but the greenhouse effect depends to a great extent on how that energy is produced. AREVA feels a strong sense of responsibility towards our neighbors on this planet and towards the generations that will succeed us. We

endorse the U.N. Global Compact, and sustainable development and continuous improvement form the core of AREVA's industrial strategy. We also comply with the OECD Guidelines for Multinational Enterprises, with the Extractive Industries Transparency Initiative (EITI) and with the Nuclear Power Plant Exporters' Principles of Conduct published by the Carnegie Endowment.

In a complex, changing and multicultural world, Our Values at AREVA, the group's Values Charter, offers guidance to our employees. Not only will they find in them a clear explanation of their rights and responsibilities with regard to AREVA and all of our stakeholders, they will also find values with which they can identify, values worth defending.

**AREVA's values express the group's responsibility to our customers, our employees, our shareowners and all of the communities in which we play a role, directly or indirectly.**

## 2. OUR VALUES AT AREVA

**Our values at AREVA are all about the best possible economic performance as a company while respecting human rights, the environment in the broadest sense of the term, and the laws that protect them. In a word, these values seek to satisfy stakeholder requirements, in the present and over the long term.**

### Safety and Physical Security

The very nature of our businesses demands an acute sense of professionalism. For AREVA this translates into implementation of the highest standards for safety and physical security. It also implies superior know-how as well as constant vigilance in the fields of quality and environmental protection. AREVA fosters team spirit and creates working conditions that are conducive to professional fulfillment.

### Transparency

Transparency, sincere communications and openness to dialog are hallmarks of our communication programs. Our goal is to provide reliable and pertinent information enabling an objective assessment of our environmental, financial, social and societal performance.

### Profitability

We have a duty to achieve and maintain high returns for our shareowners, our employees and all of our stakeholders.

### Responsibility

As a major player in the energy market, we have a special responsibility not only to our direct stakeholders, but to the public at large, which will ultimately benefit from our products and services.

### Integrity

Honesty, integrity and fairness govern all our actions and practices. We comply scrupulously with the laws and regulations of every country in which we operate.

### Customer Satisfaction

Our growth and sustainability as a group, and thus our ability to meet our commitments to our stakeholders, are conditioned on customer satisfaction.

### Partnership

AREVA seeks to build frank and constructive relationships with all stakeholders. To meet their needs, we cultivate a spirit of partnership based on mutual responsibility, receptiveness and dialog. Our approach is to become involved in every one of the communities in which we do business. It is based on respect for local customs and on understanding the communities' wishes.

### 3. ACTION PRINCIPLES

#### With Regard to AREVA's Stakeholders

##### Customers

AREVA's goal is to offer products, services and expertise enabling our electric utility and manufacturing customers to grow while meeting their responsibilities with regard to their own stakeholders.

AREVA's ears are always open to our customers. We try to anticipate as well as meet their needs. We deliver what we promise and we don't promise more than we can deliver.

At AREVA, we respect our customers' culture and work to protect their image and their interests.

**Our technologies and services are designed, supplied and marketed in accordance with the highest safety, physical security, environmental protection and quality standards.**

We protect the confidentiality of the data and know-how that our customers and partners entrust to us with the same degree of care as if they were our own, to the fullest extent of the law and regulatory requirements.

##### Shareholders

**AREVA is guided by principles of corporate governance, particularly in its pursuit of shareholder returns and the growth of their invested capital.**

Our shareholders deserve accurate and pertinent financial information, and we at AREVA make every effort to ensure that they receive it.

We believe that all shareholders should be treated equally, and we go beyond the minimum requirements set by stock market regulators to ensure that we do so.

##### Employees

##### AREVA's Commitments to its Employees

**AREVA's workforce is constituted without discrimination as to, in particular, race, color, religion, age, gender, sexual orientation, political opinions, national extraction or social origin. We believe that management should increasingly mirror this diversity.**

We are committed to creating good working conditions and providing our employees with the resources they need to achieve professional fulfillment.

We trust our employees and are committed to honest, frank, two-way dialog with them and the organizations that represent them.

We wish to help employees maintain and increase their know-how in every aspect of their job, and we offer training programs for that purpose.

At AREVA, we respect the privacy of our employees. AREVA remains neutral regarding political opinions, philosophical beliefs and religious faiths. We expect our employees to respect the beliefs of others and to refrain from any proselytizing.

##### Employee Commitments to AREVA

**Employees are expected to comply with the AREVA Values Charter. They are the owners and the defenders of these values, individually and as a group. The same is expected of temporary personnel.**

AREVA employees are customer-oriented.

They demonstrate an acute sense of professionalism, skill, precision and rigor, and obey laws and regulations. They shall keep a formal trace of all operations they perform, as well as of those subcontracted to others. They have integrity and abide by laws and regulations.

Alerting management to a malfunction or a legal or regulatory non-compliance is both a reflex and a duty. When it comes to AREVA's proper operation, there shall be no internal hierarchical barrier to the transmittal of the alert.

AREVA employees take pride in achieving and maintaining excellence in product and service quality. They impart knowledge to each other to ensure that everyone does the same. Lessons learned are systematically put into practice.

##### Suppliers and Subcontractors

**AREVA seeks, through a competitive process, lasting partnerships with its suppliers and subcontractors as a means of offering its customers the best possible level of service.**

AREVA shall do its utmost to ensure that regular suppliers to its core businesses, subcontractors, financial partners, consultants and commercial intermediaries (distributors, agents, etc.) subscribe to this Charter. Their own regular suppliers and subcontractors and AREVA's manufacturing partners are also urged to subscribe to it, at least for those activities directly relating to AREVA.

**We are committed to frank, fair, unbiased and mutually respectful relations with all of our suppliers, subcontractors and partners from the very beginning of the procurement process.**

We protect their image and confidential data with the same degree of care as if they were our own.

We reserve the right to verify that supplier and subcontractor practices are consistent with the AREVA Values Charter at any time and at any point in the supply chain for goods and services.

When our subsidiaries serve as suppliers, they are treated with the same fairness and respect as other suppliers.

##### The Public, the Planet

At AREVA, we are committed to openness and involvement in public forums, and we use our information and communication resources ethically. We make every effort to provide straightforward information on our business strategy, our technologies and our performance to decision-makers and citizens alike.

**For AREVA, protecting the common good that is our environment encompasses every aspect of human welfare in its interaction with nature. AREVA's environmental policy and its risk management programs are based on this principle and aim at reducing the environmental footprint of its activities and at preserving biodiversity in the regions where the Group is an industrial or mining operator. Preserving natural resources through recycling also demonstrates AREVA's care for the Planet.**

## 4. RULES OF CONDUCT

### International Treaties

In the nuclear business, we supply products, services and technologies only to nations and companies from those nations that comply with international provisions in force relative to non-proliferation, IAEA safeguards and export controls. This is an absolute condition. We also comply with the governmental export policies, laws and regulations of the nations in which AREVA is located.

### Conflicts of Interest

All employees shall show loyalty to AREVA. Any situation in which their personal interests or those of their relations might conflict with the business interests of the group should be immediately called to the attention of their immediate supervisor. Such conflicts include relationships with suppliers, customers, known competitors or any organization or person associated with AREVA or that seeks such association.

**Employees shall not intentionally place themselves in a conflict of interest situation and may not participate in any evaluation, meeting or decision relative to subjects in which they or their relations have a personal interest.**

To avoid any ambiguity or appearance of favoritism, a spouse, child or other relation of the employee may be hired or given an assignment of any kind only with the permission of the employee's supervisor, following the same conflict of interest rules, and only based on objective criteria. The employee in question may not participate in the selection of his or her relation.

Conflicts of interest called to the attention of a supervisor are reviewed case by case by both the supervisor and the supervisor's supervisor. They shall settle the conflict in accordance with the law and regulations in effect.

It is not possible to list every conceivable conflict of interest situation. The following potential conflicts of interest shall in particular be declared by employees:

- a manager or a relation holding personal interests in a company that is a customer, supplier (including consultants, financial partners and others) or competitor of the group;
- an employee sitting on the board of directors or who is an executive of an outside company associated with the group;
- an employee or a relation who is a consultant or occupies a management position or is a member of the marketing and sales or purchasing department of another company associated with the group or that seeks such association;
- an employee or a relation who provides premises, equipment or personal property to the group for a fee.

### Insider Trading

Business confidential information is identified to management and employees and it is their duty to maintain the confidentiality of such information with regard to others, including their relations. They are aware of the insider trading risks that this information entails and shall comply with the procedure for good conduct in force in the Group with respect to inside information.

Managers agree not to acquire or to sell, directly or indirectly, shares or securities in subsidiary companies, whether publicly listed or not, as provided by law, except as provided in an AREVA group procedure relative to the protection of inside information. They further agree to inform the appropriate management control body of their company immediately if any such acquisition or sale is made.

### Corruption, Gifts and Unfair Advantage

#### General practice

There is zero tolerance for corruption. Relations between group employees and the group's customers, suppliers, partners and public services are handled with objectivity and integrity. Management shall be notified forthwith of any known cases of corruption, be it active or passive, and of any attempts to corrupt third parties, and shall immediately take measures it deems appropriate to determine the veracity of the situation, notably by performing the appropriate audits, and put an end to such unlawful behavior should it be proven.

**AREVA prohibits corruption in any form whatsoever, whether public or private, active or passive. AREVA shall refrain from giving, proposing, promising or soliciting, either directly or indirectly, all payment or supply of services, gifts or leisure activities from or to a government official or private agent, in order to illegally obtain or conserve a market or a competitive advantage.**

Employees shall avoid all situations in which they might find themselves beholden to a third party, however temporarily, as well as all ambiguous situations and all situations in which misunderstanding is possible.

#### Gifts

AREVA is perfectly aware that exchanging small gifts or invitations of nominal value can, on occasion, make a legitimate contribution to good business relations. However, in both the public and private sectors, gifts or invitations shall be offered and received by employees in strict compliance with all applicable laws and regulations, and in a totally transparent manner. Gifts or invitations should never influence decisions, or be seen as having an influence on those giving and receiving them.

**In this respect, employees must demonstrate sound judgment and a heightened sense of responsibility. If an employee is obliged to accept or give a gift or invitation of considerable value to comply with local custom, protocol and other circumstances, he/she shall refer the matter to the appropriate managerial level where a decision will be taken as quickly as possible in accordance with all applicable laws and regulations.**

Gifts between AREVA business units or subsidiaries and any other internal marketing expenses are not allowed.

#### Payments

All AREVA entities and all managers must be able to justify the actual source and use of any sum at all times. This also applies to interim project accounting.

**All sums, whether paid or received, must be completely and exactly described in a contract and recorded as such in the corporate accounts.**

Payment methods that intentionally or unintentionally hide the identity of a payer or a beneficiary are forbidden.

All contracts with commercial intermediaries must have been duly approved beforehand in accordance with the group's procedure.

### Political Financing

No AREVA group company shall provide funds or services to a political party, a holder of a public office, or a candidate for such office.

However, in member nations of the OECD, where corporate contributions of this kind are legal, electoral campaign funding that complies with the legislation in effect in those nations is allowed. These contributions are subject to the prior written approval of the senior executive of the subsidiary in question, who shall endeavor to keep them to a minimum.

The amount of the funding and the recipients shall be listed in the summary report attached to the annual compliance letter prepared by the senior executive of the subsidiary.

### Philanthropy, Donations, Humanitarian Activities

The AREVA Foundation defines policy and establishes programs for such activities. Employee involvement in the programs is of particular interest to the AREVA Foundation.

### Spirit

AREVA's philanthropic and sponsorship activities follow the principles set forth in the Preamble to this Charter. These activities are strictly benevolent and are not contingent upon a commercial or administrative benefit to the group.

### Conditions

AREVA's role in these activities is limited to sponsorship. AREVA takes no responsibility for the management or execution of the activities it sponsors and agrees to sponsor projects or activities on the express condition that the organizers take sole responsibility for them and have met all of the pertinent legal and administrative requirements and secured the necessary approvals and guarantees.

**Donations to governmental agencies, local administrations or individuals are not allowed, nor are cash payments for any reason.**

### Competition

AREVA and its employees shall comply with all applicable French, European and international competition laws and with the laws in force in all countries in which the Group does business.

AREVA and its employees shall refrain from distorting, either directly or indirectly, a free spirit of competition in all of its commercial transactions. They shall also refrain from all unfair behavior towards competitors and shall not enter into illegal competition agreements.

All information on third parties, particularly AREVA's competitors, shall be collected or used in strict compliance with all applicable laws.

### Threats against Persons and Property

Employees shall immediately call any situation that may threaten persons or property to the attention of management.

### Persons

AREVA shall ensure that operations performed at its sites comply with applicable rules and regulations and with the group's policies on health, safety and environmental protection.

**We conduct our operations with the utmost respect for human dignity and will not tolerate harassment of any kind nor any violation of human and children's rights.**

Any failure to meet these obligations shall be called to the attention of the appropriate level of management, which shall immediately ascertain whether such practices have occurred, call for the necessary audits to be conducted, and put a stop to such practices immediately.

### Reputation and brand image

AREVA's reputation is one of its most vital assets.

Employees shall neither do or say anything that could have a deleterious effect on AREVA's reputation, image or credibility.

Criticism, smugness, rudeness and disregard for others in an international setting are a sign of disrespect for one's host and are unacceptable behavior in our employees.

### Intangible corporate assets

Employees shall ensure that confidential information, whether marked as such or not, is protected from infringement, theft, loss, deterioration, diversion, disclosure, reproduction, falsification or use for non-work-related, illicit or secret purposes, particularly on the Internet and intranet.

This relates in particular to technical and administrative data; files on customers, prospects and suppliers; software; passwords; documentation and drawings; methods and know-how; proprietary manufacturing methods, skills and parameters; intellectual and industrial property; estimates; contracts and agreements; unpublished cost and sales prices; strategic and commercial objectives; R&D information; financial and labor-related information; and the names of specialists and experts and their contact information.

### Primacy of Our Values at AREVA

**Any employee who receives an order that is manifestly contrary to the AREVA Values Charter may legitimately refuse to comply, shall immediately report the matter to the AREVA group, and will not suffer any kind of retaliation if the facts cannot be questioned.**

## 5. 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

#### Principe 1

Businesses are asked to support and respect the protection of international human rights; and

#### Principe 2

make sure their own corporations are not complicit in human rights abuses.

### Labor

#### Principe 3

Businesses are asked to uphold the freedom of association and the effective recognition of the right to collective bargaining;

#### Principe 4

the elimination of all forms of forced and compulsory labor;

#### Principe 5

the effective abolition of child labor; and

#### Principe 6

the elimination of discrimination in respect of employment and occupation.

### Environment

#### Principe 7

Businesses are asked to support a precautionary approach to environmental challenges;

#### Principe 8

undertake initiatives to promote greater environmental responsibility; and

#### Principe 9

encourage the development and diffusion of environmentally friendly technologies.

### Anti-corruption

#### Principe 10

Businesses should work against all forms of corruption, including extortion and bribery.

## OUR VALUES

**SAFETY, SECURITY – TRANSPARENCY – PROFITABILITY – RESPONSIBILITY – INTEGRITY –  
CUSTOMER SATISFACTION - PARTNERSHIP**

Headings of the Board of Directors' Management Report		Sections of the 2015 Reference Document
<b>1</b>	<b>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.
<b>2</b>	<b>Presentation of the annual financial statements</b>	<b>Sections 20.1 to 20.4.</b>
<b>3</b>	<b>Information on the share capital</b>	
3.1	Share capital and treasury shares	Section 21.1.
3.2	Status of employee shareholding as of the last day of the period. Percentage of share capital held by employees of the company and of its associates	Section 18.1.
<b>4</b>	<b>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</b>	<b>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</b>	<b>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</b>	<b>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 21.1.9.

## 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* (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 (CEA); 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.

**> 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 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.

**> 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 ( $\text{UF}_6$ , which sublimates at about 56°C) for the purpose of enriching it in fissile uranium ( $^{235}\text{U}$ ), 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. 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 (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 facilities “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 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 1,600 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 27 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 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.

**> 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 quadripole 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 more costly 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 the Economy, Finance and Industry and the Minister of Ecology, Sustainable Development, Transportation and Housing. 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 Ecology, Sustainable Development, Transportation and Housing.

### > 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 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 prefectorial decision, and certain special facilities such as storage depots of more than 50,000 m<sup>3</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 concertation 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 and follow-up committee

Established 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.

### > Local information commission

Established near a site with one or more regulated nuclear facilities. 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. Their naturally occurring radioactivity 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 the 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.

### > NRC (Nuclear Regulatory Commission)

Counterpart of ASN in the United States.

Field of jurisdiction: nuclear safety and radiation protection.

### > 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 safety**

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

**> Nuclear security**

According to the French law on transparency and nuclear safety (the "TSN law"), nuclear security 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 geological 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 (222 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 issued by the Autorité de sûreté (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**

Another name for a cask 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 ITER reactor 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.

### > 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.

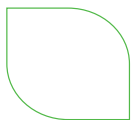
### > Vitrification

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.



## GLOSSARIES

### 1. Technical glossary

#### > 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

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.

#### > 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; unhedged orders are valued at the rate in effect on the last day of the period. The backlog reported for long-term contracts recognized 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 flow 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;
- full and final payments received for facility dismantling;
- minus acquisitions of earmarked assets;
- minus cash spent during the year on end-of-lifecycle operations;
- minus full and final payments made for facility dismantling.

### > Earnings before interest, taxes, depreciation and amortization (EBITDA)

EBITDA is equal to operating income plus net amortization, depreciation and operating provisions. EBITDA excludes 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.

Note: AREVA modified its definition of EBITDA as of June 30, 2014 in order to exclude all non-cash items of operating income for purposes of greater consistency. The definition used previously was "EBITDA is equal to operating income plus net amortization, depreciation and operating provisions (except for provisions for impairment of working capital items)."

### > Free operating cash flow

Free operating cash flow represents the cash flow generated by operating activities, before corporate 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 (PPE) and intangible assets, net of changes in accounts payable related to fixed assets;
- plus sales of PPE 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.

### > Gearing

The ratio of net debt to net debt + equity.

### > Net cash flow

Net cash flow is equal to the sum of the following items:

- operating cash flow;
- cash flow from end-of-lifecycle operations cash flow;
- change in non-operating receivables and liabilities;
- financial income;
- tax on financial income;
- cash from non-operating investment or divestment activities;
- dividends paid to minority interests.

Net cash flow is equal to the change of net debt except for transactions with AREVA shareholders.

### > Net debt (cash)

Net debt (cash) is defined as the sum of current and non-current borrowings minus cash and cash equivalents. NOTA: the AREVA's definition of the net debt was modified on December 31, 2013 to conform to the definition published by the Autorité des Normes Comptables. The definition used previously was the following one: "the net debt is defined as the sum of current and non-current borrowings minus cash, cash equivalents and other current financial assets". The 2012 comparative data were restated according to the new definition.

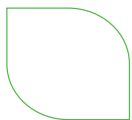
### > Operating margin

The ratio of operating income to sales revenue.

### > Operating working capital requirement (OWCR)

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;
- currency hedges on operating WCR;
- 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.



#### > Return on average capital employed (ROACE)

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 property, plant and equipment 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.

Business corporation with a Board of Directors  
Capital of 1,456,178,437.60 euros  
Head office: 1, place Jean Millier - 92400 Courbevoie – France  
Tel.: +33 1 34 96 00 00 - Fax: +33 1 34 96 00 01  
[www.areva.com](http://www.areva.com)

Designed & published by  **LABRADOR** +33 (0)1 53 06 30 80



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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 40,000 employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people.

**[www.aveva.com](http://www.aveva.com)**

**FINANCIAL COMMUNICATIONS DEPARTMENT**

Tour AREVA - 1, place Jean Millier - 92400 Courbevoie – France - Tel.: +33 1 34 96 06 47 - Fax: +33 1 34 96 99 00

**Energy is our future, don't waste it!**