

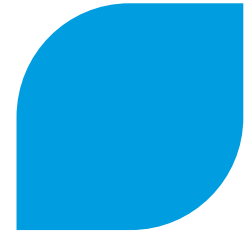
# **AREVA: Global leader in CO<sub>2</sub>-free power generation**

**Alain-Pierre Raynaud**  
**Chief Financial Officer**

*The Premium Review Conference – Société Générale*  
*Paris, 3 December 2010*



# Contents



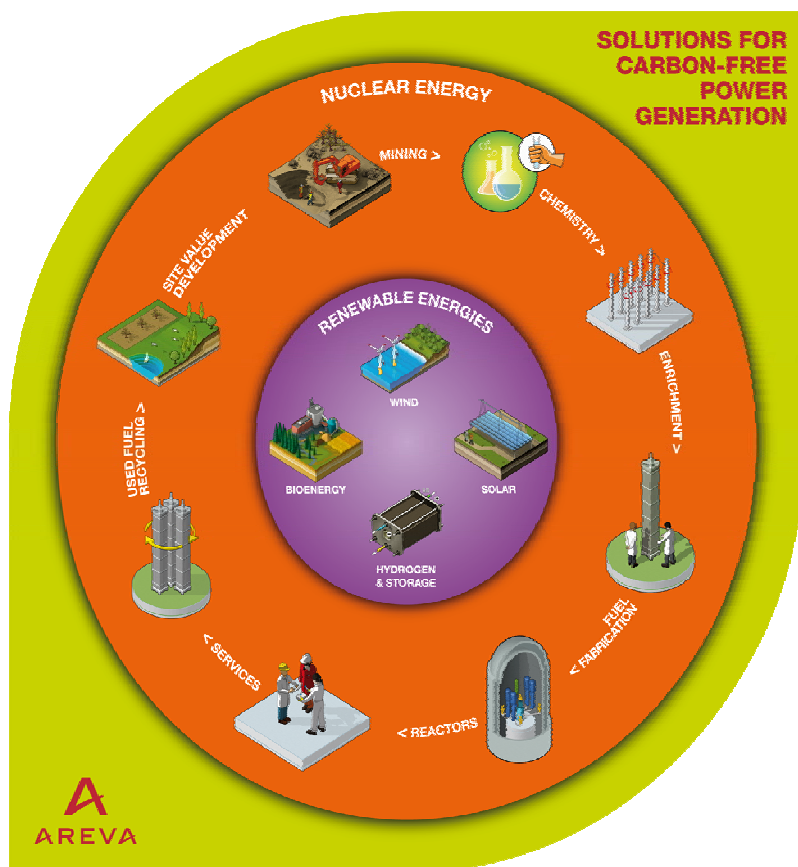
## ▶ Group strategic objectives

- ▶ AREVA Business Groups' strategy and positioning
- ▶ Deleveraging / underlying performance improvement levers

# AREVA is a global leader in solutions for CO<sub>2</sub>-free power generation



## AREVA's portfolio of CO<sub>2</sub>-free solutions...



## ...creating value thanks to strong synergies

### Commercial

- ▶ Leveraging established relations with utilities across the world
- ▶ Securing access to front-end resources and recycling for nuclear plant customers
- ▶ Proposing a **global answer** to the CO<sub>2</sub> challenges of customers

### Technology

- ▶ Sharing engineering competences and know-how
- ▶ **Visibility over R&D challenges** for the whole nuclear value chain, a key enabler for **staying ahead in the technological race**
- ▶ **R&D and engineering synergies** between nuclear and renewable

### Competency

- ▶ **Attracting and retaining talents** thanks to enhanced visibility and reputation

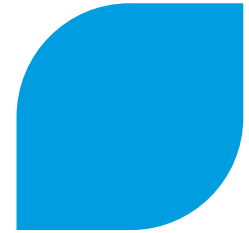
### Cost

- ▶ **Developing nuclear supplier base** and increasing negotiation power
- ▶ **Mutualising go-to-market costs**

### Financial

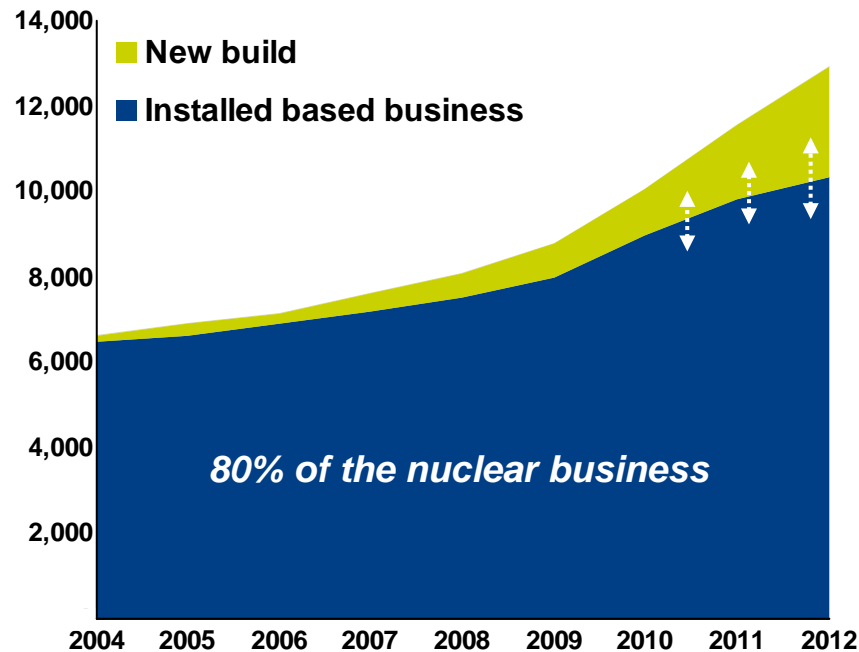
- ▶ **Smoothing activity** with a portfolio of business with different cycles

# AREVA benefits from a resilient business model



## Installed base business model ensuring strong cash-flow generation

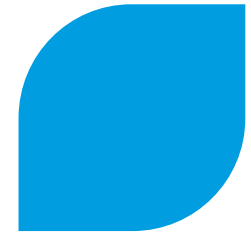
Installed base revenue vs. new builds (millions of €)



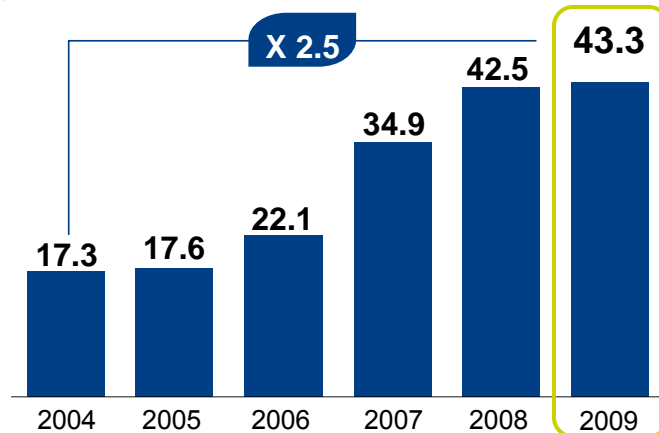
- ▶ 80% of the nuclear business is recurring
- ▶ Visibility (backlog) and recurring cashflow
- ▶ Capex supported by the sale of the new facilities' future production
  - ◆ Example: 90% of GB II production through 2020 is already in backlog

Source: AREVA strategic plan

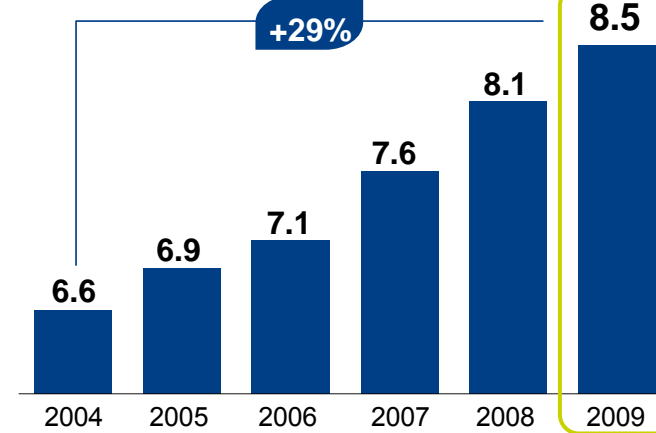
# Sustained growth and investment effort to enhance leadership



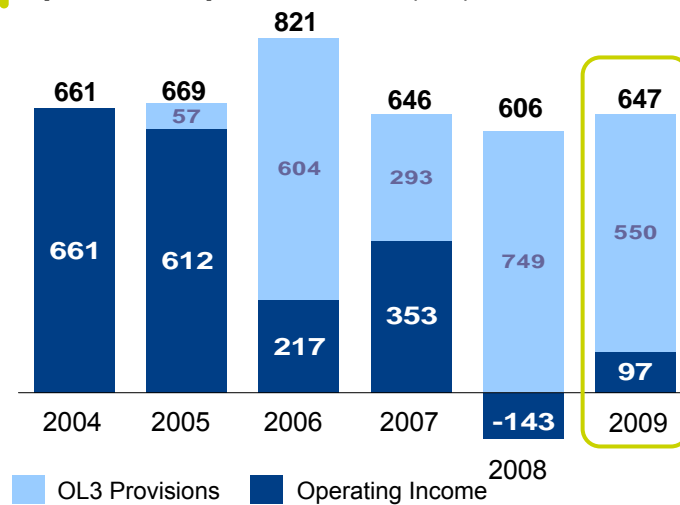
Backlog (€Bn)



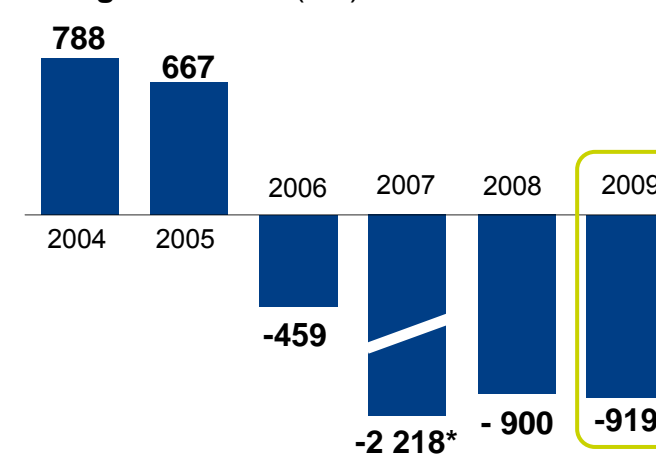
Revenue (€Bn)



Operational performance (€M)

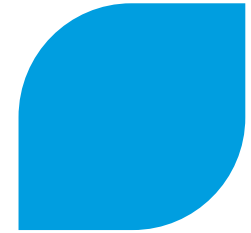


Operating Cash Flow (€M)



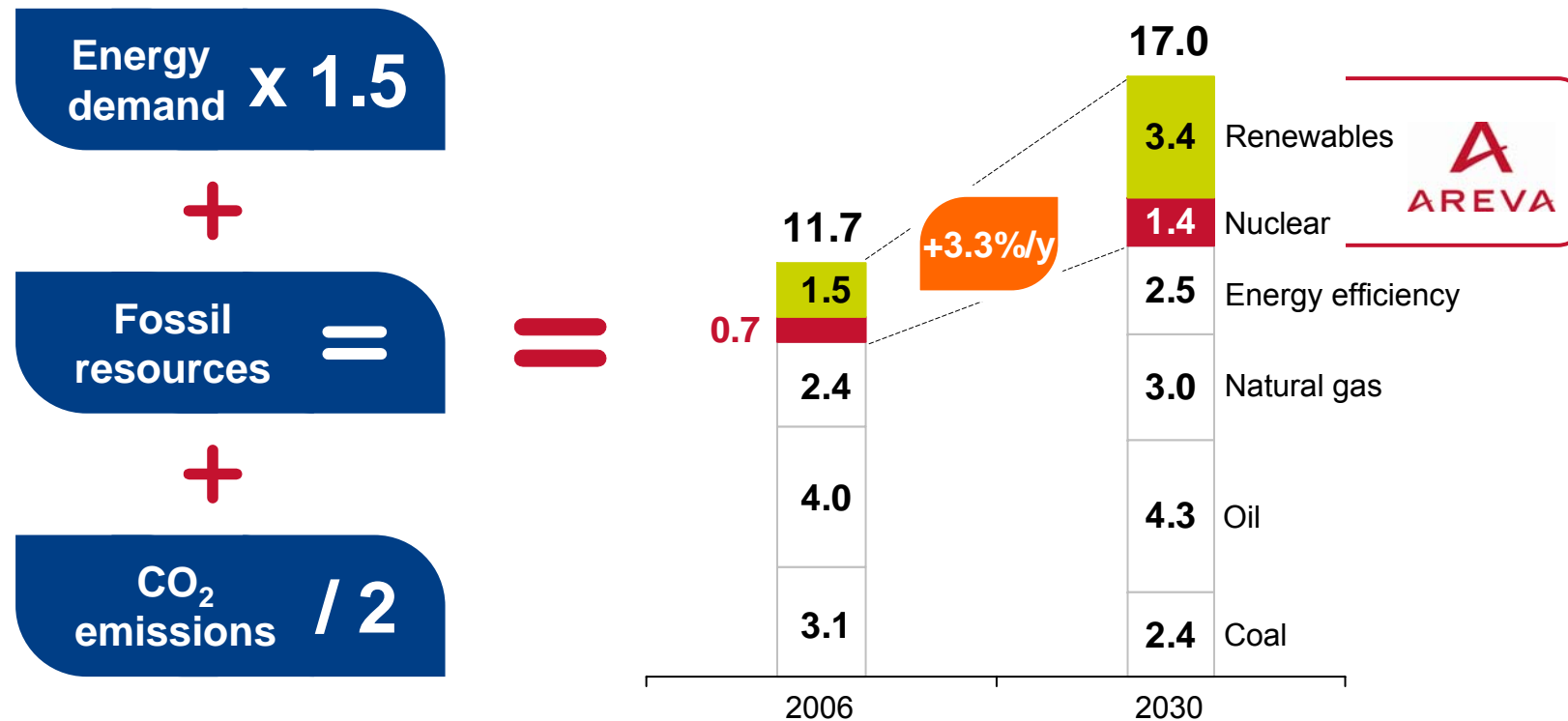
\* Including Uramin acquisition 1.6bn€

# AREVA captures growth through its low carbon strategy aligned with world energy challenges



## Global energy mix

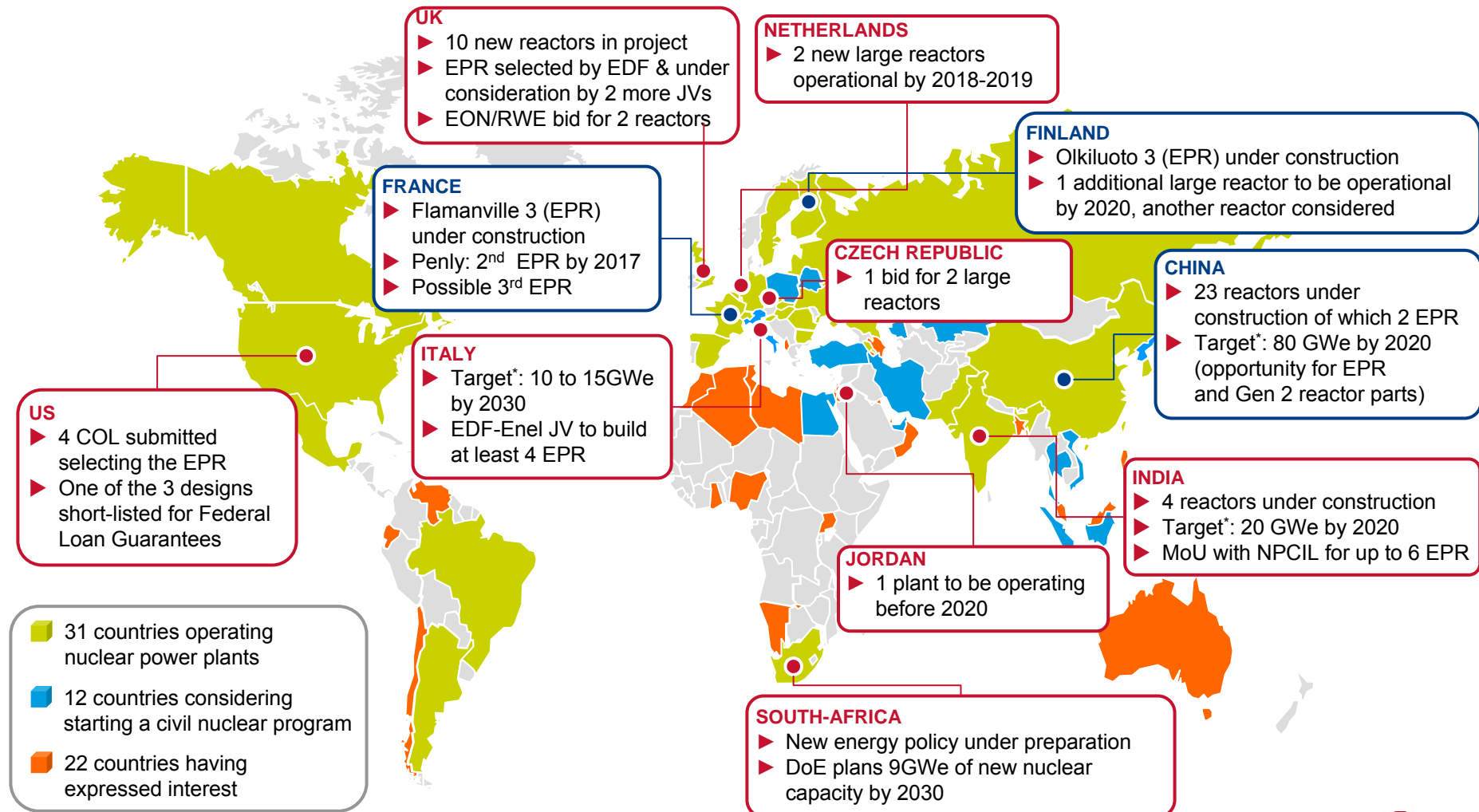
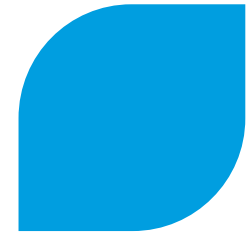
Billions of metric tons of oil equivalent / year



**>> Our mission:** enabling everyone to have access to even cleaner, safer and more economical energy

Source: World Energy Outlook 2008 stabilization 450 ppm" scenario, AREVA

# Numerous countries have nuclear power plant projects



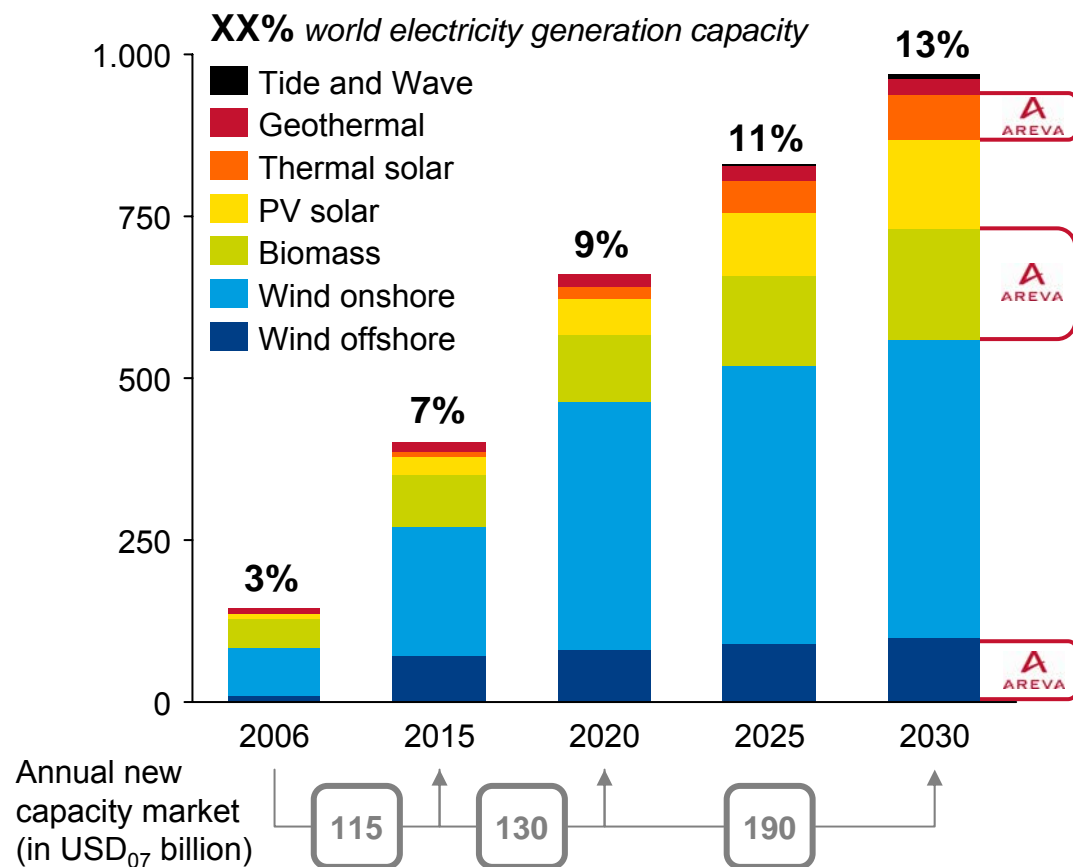
Source: WNA and AREVA analysis

(\*) : Nuclear generation capacity announced by countries

# Strong growth is expected on most renewable energy segments



## Capacity installed for renewable energies (GW)



- ▶ Increasing share of "new" renewables (except hydro) from 3% to 13% of total electricity mix
- ▶ A market of ~160 Bn\$/year of new capacity
- ▶ Significant growth expected in Off-shore wind (~10% p.a.), Biomass (~6% p.a.)

Source: WEO 2008, ETP, EIA (2008)



# Contents



▶ Group strategic objectives

▶ **AREVA Business Groups' strategy and positioning**

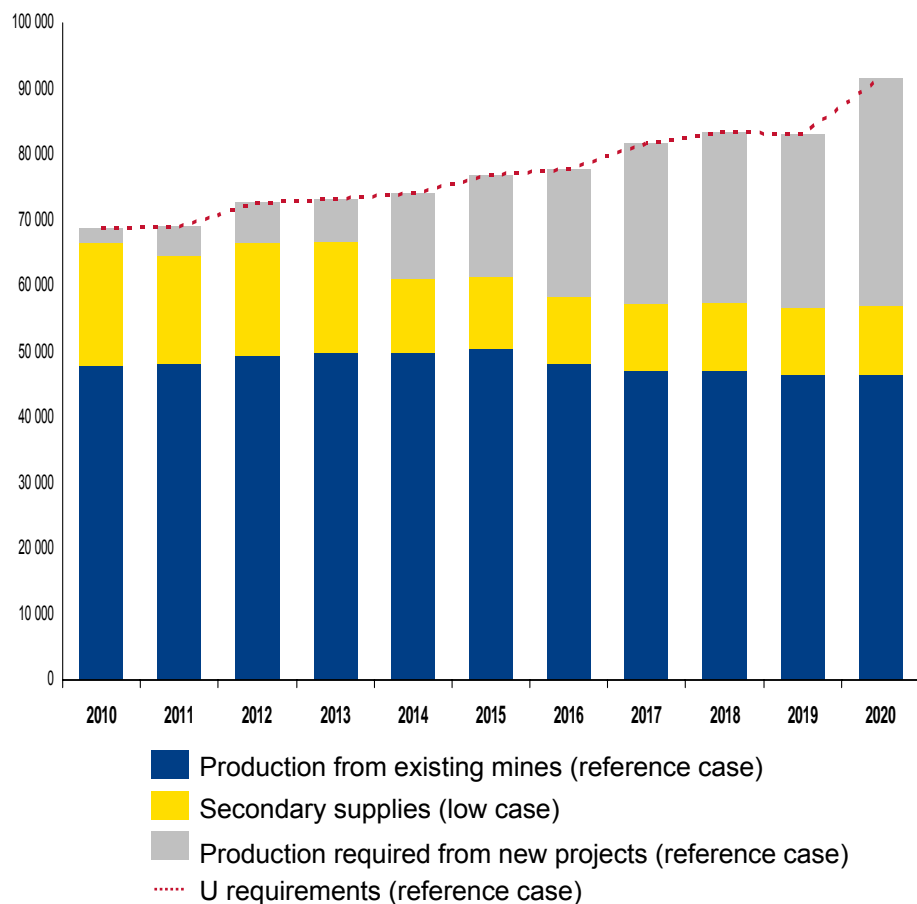
▶ Deleveraging / underlying performance improvement levers



# Mining: a strong positioning to benefit from the positive market outlook

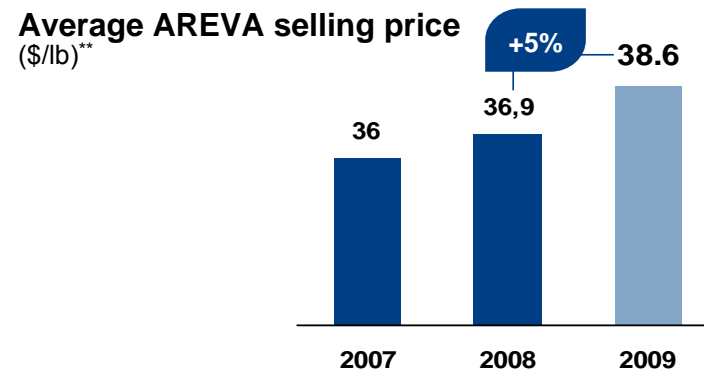


## New projects are required

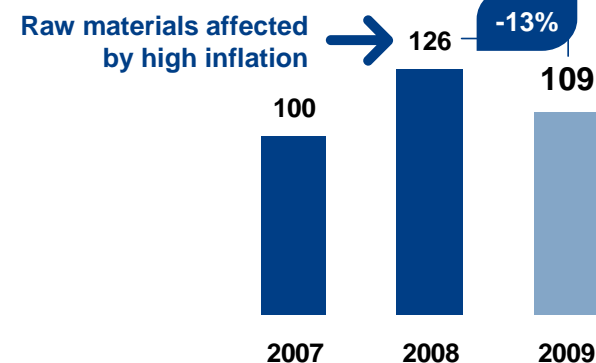


Source: WNA 2009 Report

## Historical performances



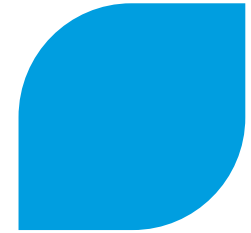
## Mining Production Costs (base 100 in 2007)



Spot price at 31/12/2008: \$52/lb  
Spot price at 31/12/2009: \$44.5/lb

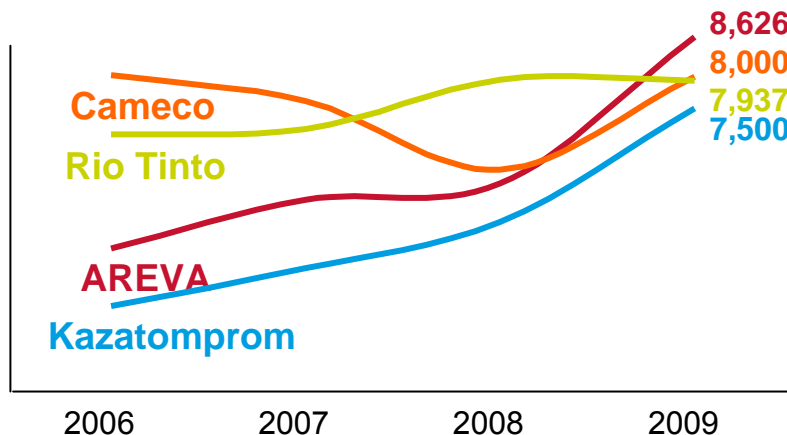


# Mining: a diversified portfolio securing production on the long term



## Main competitive advantages

- ▶ AREVA: #1 producer WW since 2009



- ▶ Diversified mining portfolio mitigating

- ◆ Country risk
- ◆ Technological risk

- ▶ Supply/demand arbitrage: production plan flexibility to adapt to market conditions

- ▶ Resources level and sustained exploration effort

- ▶ Long term contracts and significant backlog

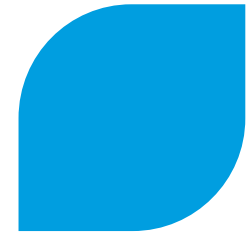
- ◆ Eg: signature of a \$3.5bn contract with CGNPC: supply of 20,000 tons of uranium over 10 years

- ▶ Fruitful partnership through entry of utilities in the capital of mining assets:

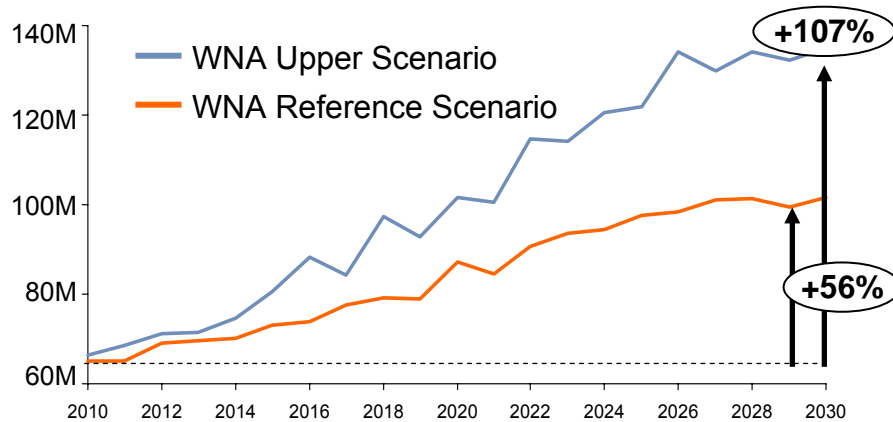
- ◆ Korea Electric Power Corporation (KEPCO) took a 10% stake in the Imouraren project



# Conversion: the construction of CXII is a major competitive advantage

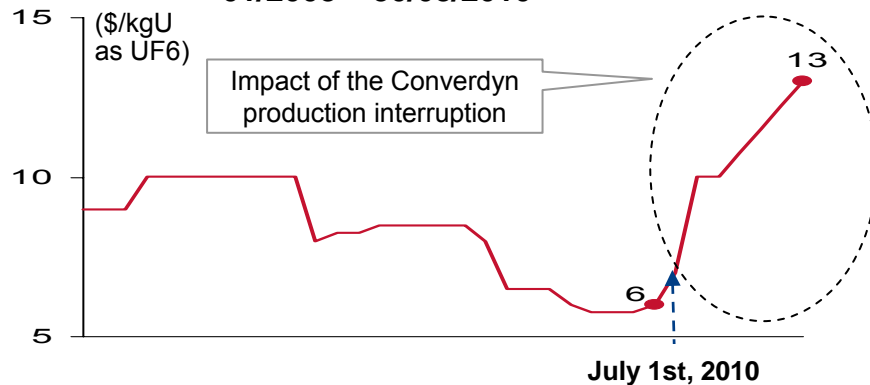


## Conversion demand

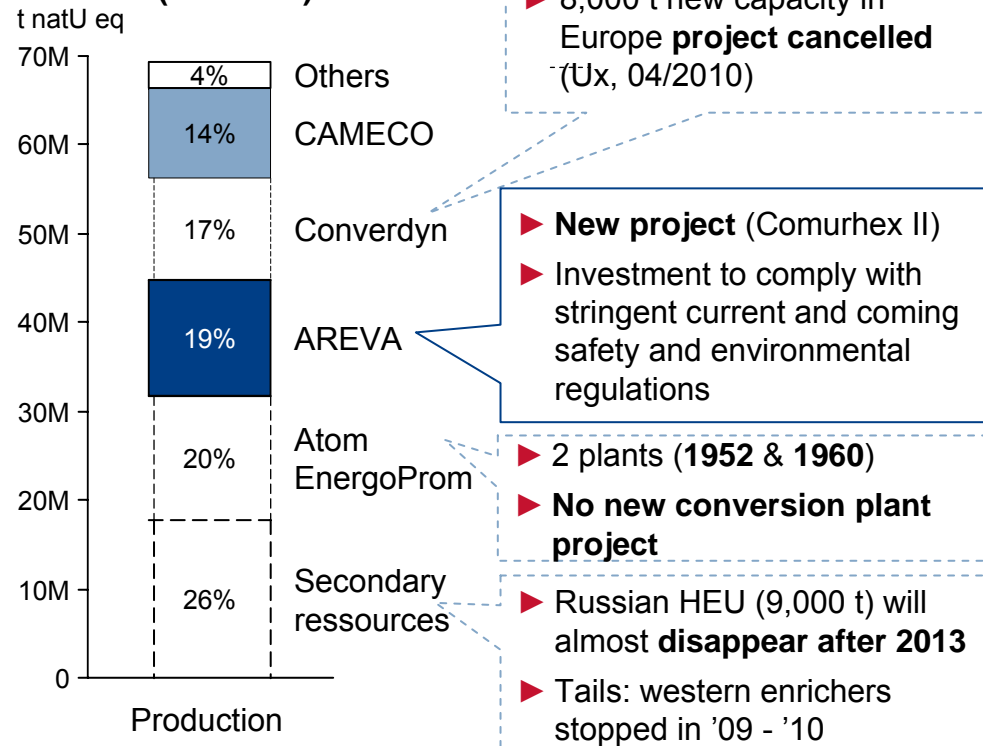


## Conversion prices (UXC spot in US)

01/2008 – 30/08/2010



## Conversion supply (est. 2009)



- ▶ **Favorable price trend expected due to aging plants, absence of new project and significant increase in demand**

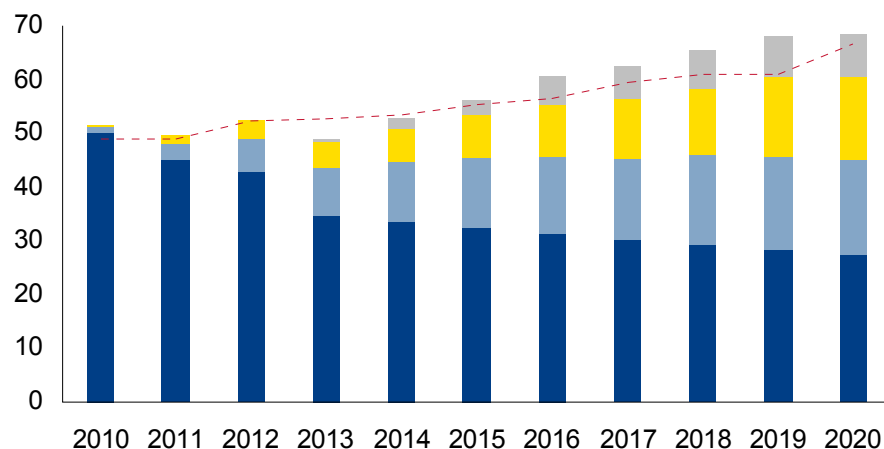


# Enrichment: investing in new capacity to meet global demand



## New projects are needed to meet enrichment demand and to bridge the gap

WW enrichment capacity MSWU



**GBII**  
production:  
7.5M SWUs /

**EREF**  
production:  
3.2M SWUs

**Both capacities**  
**expandable**

- Existing production capacity
- Additional capacity using ETC technology
- Estimated Additional Russian centrifuges (TENEX and China)
- Unproven Technology (GLE, ACP, JNFL)
- ..... Demand WNA ref

## AREVA is conducting 2 major projects

### ► Georges Besse II – France

- ◆ Construction started in 2006
- ◆ Investment: ~€3bn
- ◆ First production scheduled for late 2010
- ◆ Production at full capacity in 2016

### ► Eagle Rock Enrichment Facility – USA

- ◆ Construction to begin in 2011 subject to licensing and the necessary diplomatic agreements
- ◆ Investment: ~\$2bn
- ◆ \$2bn loan guarantee received from DOE



# Enrichment: a secured and stable business model



## Main competitive advantages

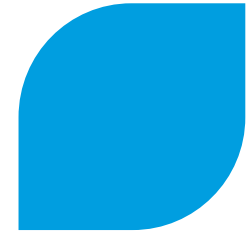
- ▶ **Worldwide leader with over 20% market share**
- ▶ **Secured and stable business model**
  - ◆ GBII production until 2020 is sold at ~90%
  - ◆ EREF production until 2025 is sold at ~50%
  - ◆ most of enrichment costs are fixed
- ▶ **Safe, reliable & cutting edge technology for new enrichment facilities**
  - ◆ Proven ETC technology
  - ◆ Already licensed by the NRC
- ▶ **New projects on schedule and on budget**

## Fruitful partnerships with utilities

- ▶ **Entry of several utilities since 2008 in GBII capital**
  - ◆ GDF-Suez: 5% in 2008
  - ◆ Kansai/Sojitz: 2.5% in 2009
  - ◆ Korea Hydro and Nuclear Power: 2.5% in 2009
  - ◆ Kyushu ElectricPower and Tohoku Electric Power: 2% in 2010
- ▶ **Illustrates AREVA's customers' interest in this major project and their desire to secure their enriched uranium supplies**

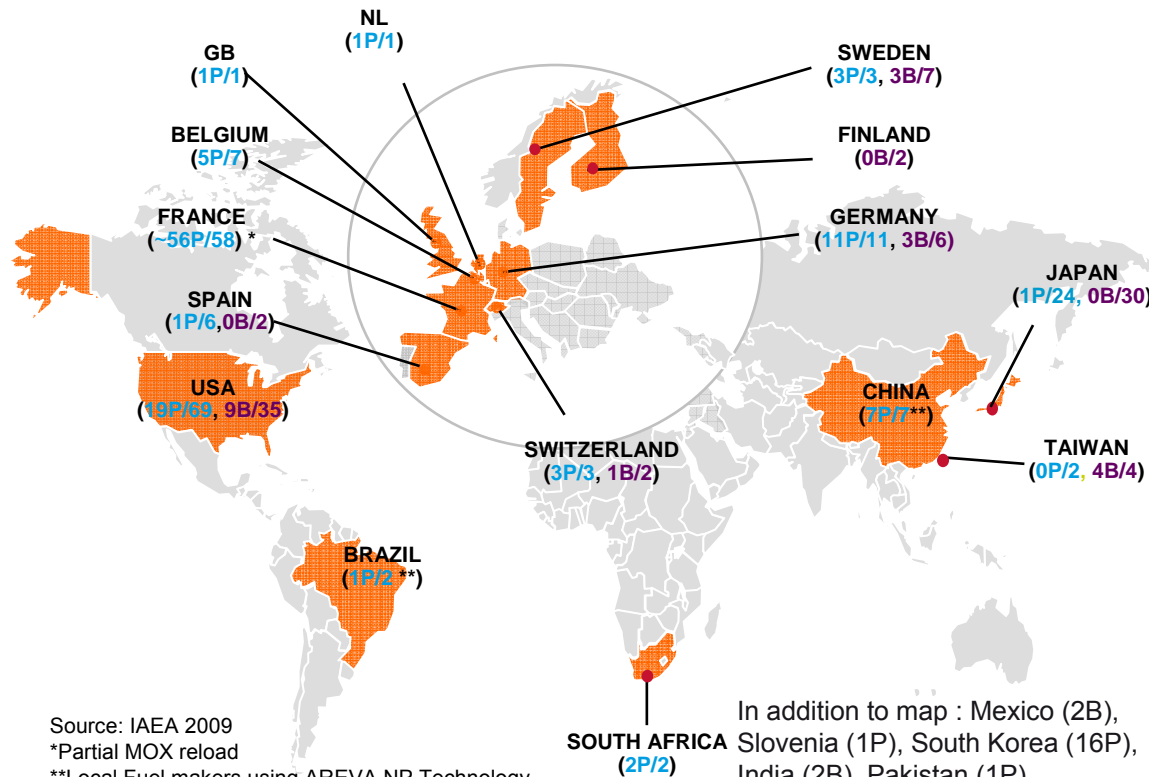


# Fuel: AREVA covers more than 40% of global needs\*



AREVA reached N°1 position in production in 2009

Main competitive advantages



Source: IAEA 2009

\*Partial MOX reload

\*\*Local Fuel makers using AREVA NP Technology

P = pressurized water reactor (PWR); B = boiling water reactor (BWR).

(-/-) = Number of reactors supplied with fuel by AREVA/total number of reactors in service.

- ▶ AREVA is the reference provider in fuel assemblies design & fabrication
- ▶ Long term contract and fleet approach providing business predictability
- ▶ Ability to leverage AREVA's integrated model to propose front-end integrated offers and performance partnership
- ▶ Partnership to re-enforce AREVA's commercial presence in Japan: JV with MHI set up in 2009
- ▶ On-going optimization of industrial footprint through reunion of two sites in the US

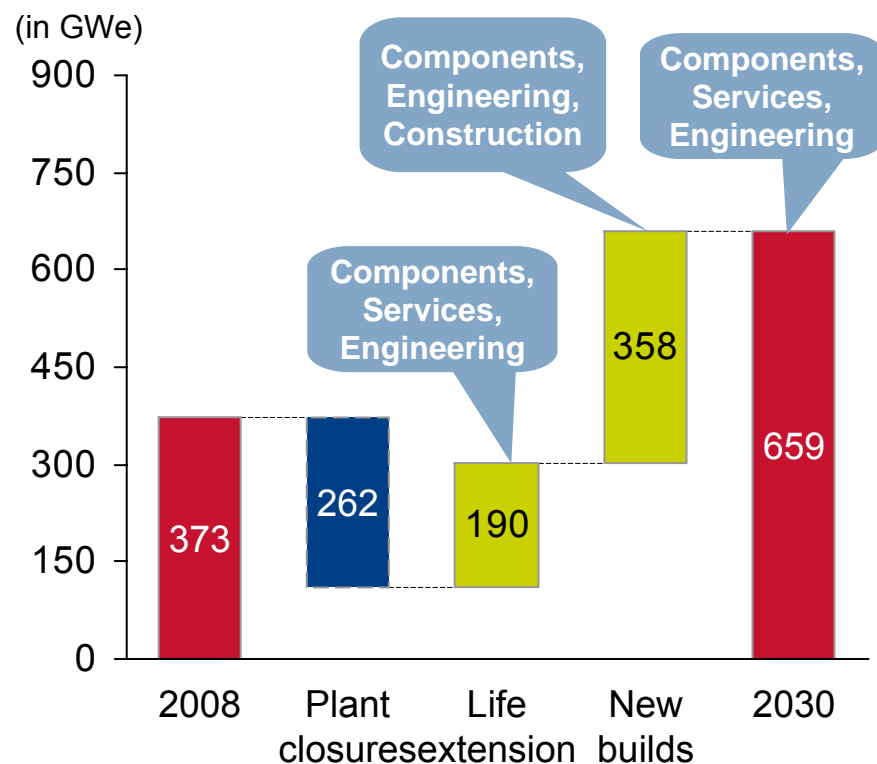
» AREVA provides fuel for 91% of its reactor installed base and for 23% of its competitors' installed base



# R&S activities include new build and installed base business



## AREVA's market scenario for installed capacity - Focus on Reactors & Services



\* World market excluding Russia & CEI (52 GW), Japan (25 GW), South Korea (17 GW), North Korea, Iran and Pakistan  
Source: Strategic Action Plan AREVA 2009

## Installed base business

- ▶ Power upgrade, life extension & major modernization projects
- ▶ Provide instruments & control equipment, electrical systems

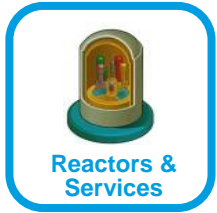
**>> Stable recurring business revenue**

## New build business

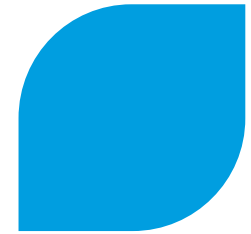
- ▶ Design and licensing of nuclear reactors
- ▶ Prepare and execute new NPP large projects
- ▶ R&D for new reactor technologies

**>> Accessible market\* of 260 GW: Strong growth potential**

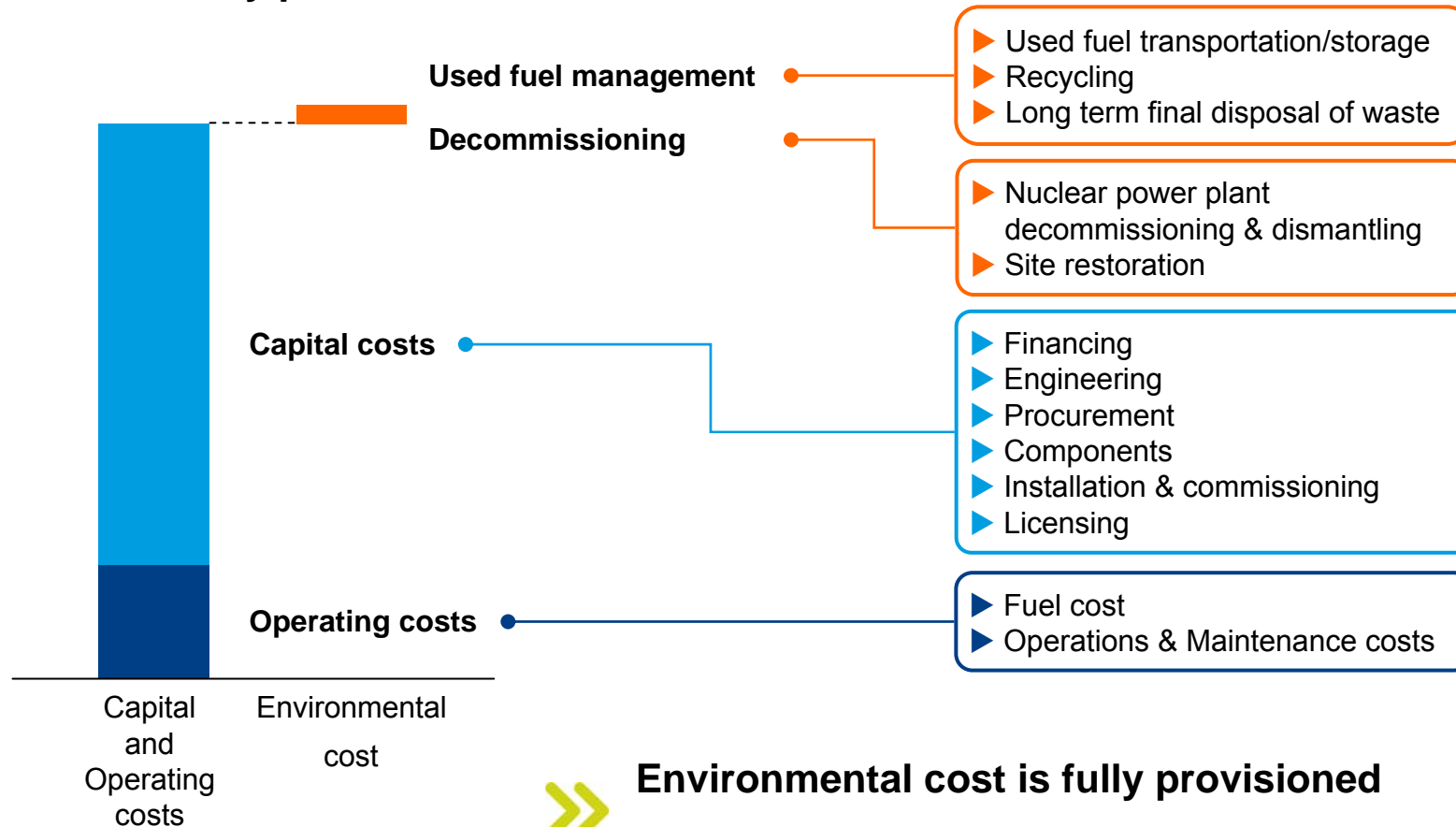




# Nuclear production cost is transparent and comprehensive

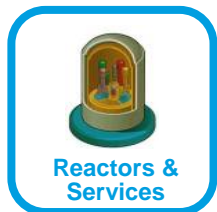


## Total electricity production cost



» **Environmental cost is fully provisioned**  
**No cost passed to future generations**

Source: AREVA analysis

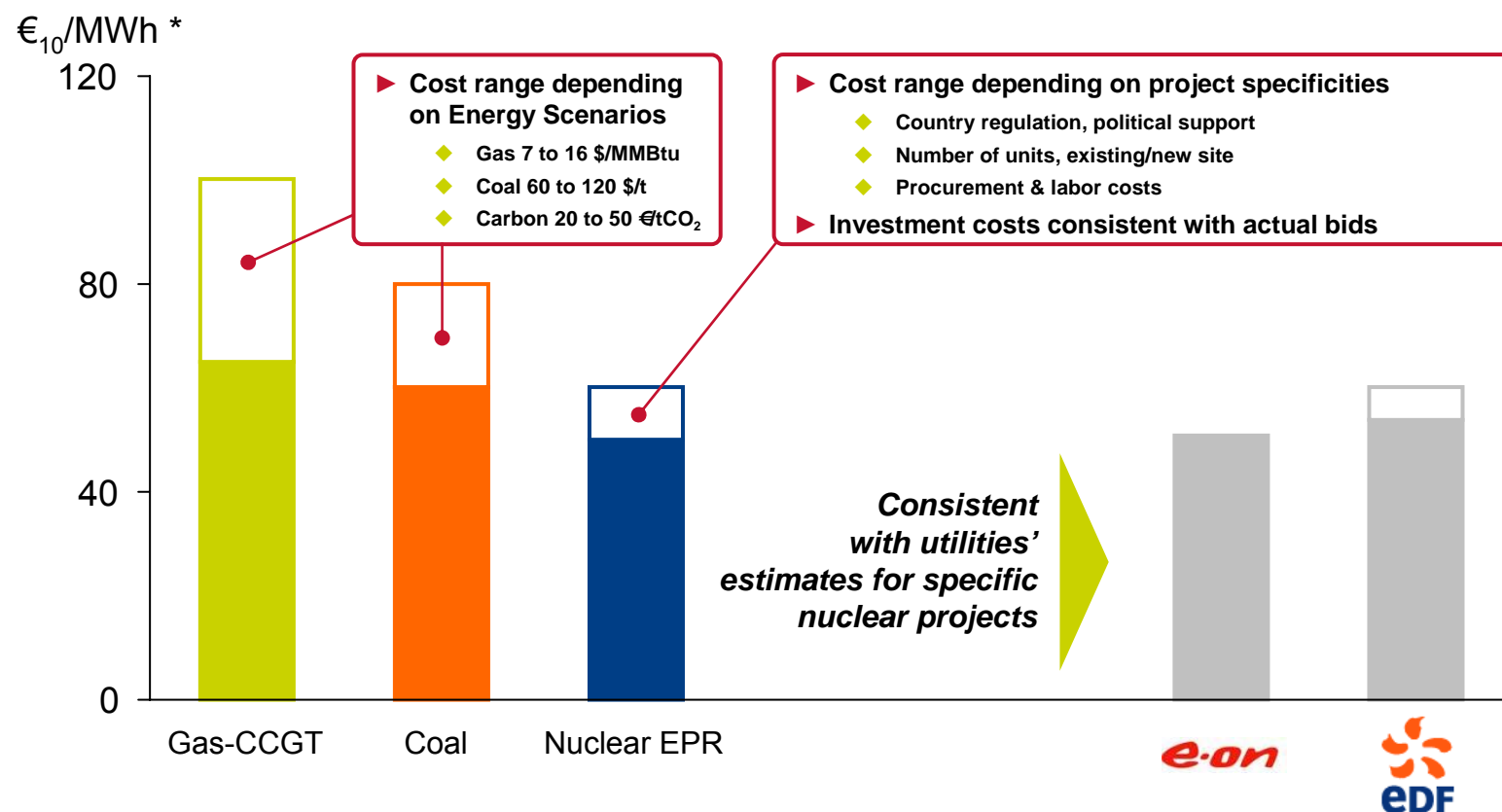


# Nuclear Energy competitiveness

## Comparison of production costs in Western Europe



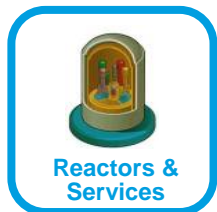
### Baseload operations – commissioning in 2020



Source: AREVA analysis, E.ON and EDF communication (2008)

Investment costs and commodity prices based on AREVA assumptions










\* levelized cost of electricity



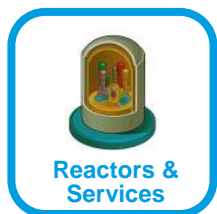
# AREVA benefits from strong competitive edge



AREVA' reactor range meets market needs... ... with a competitive value proposition

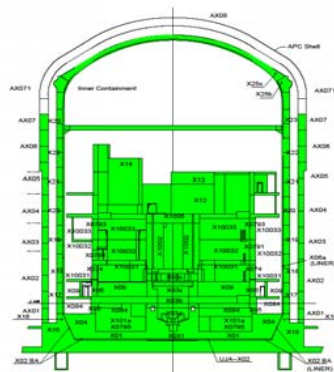
			
	1,650 MW	1,100 MW	1,250 MW
Size	Large	Mid-size	
Technology	Pressurized		Boiling
Status	<ul style="list-style-type: none"> <li>• Under construction: 4</li> <li>• Exclusive negotiations: 18</li> <li>• Request for proposal: 10+</li> </ul>	<ul style="list-style-type: none"> <li>• Basic design completed</li> <li>• Safety design basis review ongoing w/ ASN (completion fall 2011)</li> <li>• Commercial offers in progress</li> </ul>	<ul style="list-style-type: none"> <li>• Basic design completion set for late 2010</li> </ul>
Partners	 	  	

- ▶ **Highest safety standards**
  - ◆ Air plane crash protection
  - ◆ Core meltdown protection systems
  - ◆ Avoidance of nuclear materials discharge
- ▶ **Amongst lowest levelized cost of electricity**
  - ◆ Investment cost per MW close to other technologies in recent bids
  - ◆ Up to 25% lower operations cost
- ▶ **Excellent operational performance**
  - ◆ Optimized outage strategy with fuel cycle flexibility
  - ◆ Increased closed cycle profitability with 100% MOX compatibility



# 4 EPR in construction

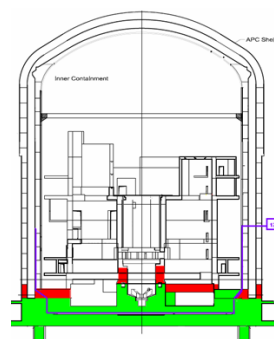
OL3 (Finland)  
Turnkey power plant



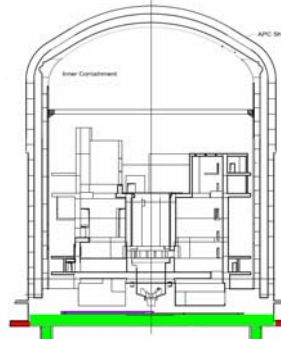
- ▶ Concrete seal of the dome complete
- ▶ Main civil works complete
- ▶ Engineering work nearing completion
- ▶ Reactor vessel installed
- ▶ Architecture of the I&C system accepted
- ▶ Startup of nuclear operations for late 2012

Taishan 1&2 (China)  
2 nuclear islands

Unit 1



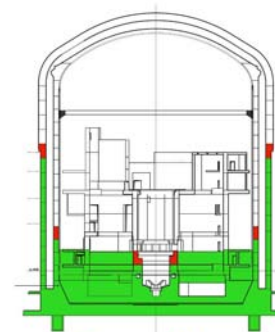
Unit 2



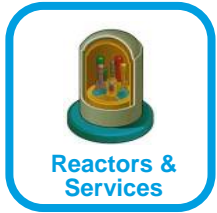
- ▶ Unit 1: installation of 3<sup>rd</sup> reactor liner ring
- ▶ Unit 2: 1<sup>st</sup> concrete poured
- ▶ Engineering work nearly 52% complete
- ▶ 75% of procurement orders placed (in €)
- ▶ The main primary components are being manufactured

- Concrete work completed
- Rebar is being installed - concrete comes next
- The reactor's containment liner has been installed

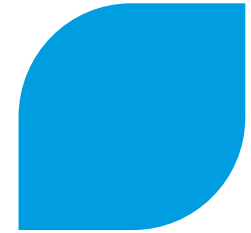
FA3  
Nuclear steam supply system



- ▶ 90% of procurement orders placed (in €)
- ▶ Engineering work nearly 80% complete
- ▶ Heavy component manufacturing continues: the reactor vessel will be available late 2010
- ▶ Installation of first equipment (AREVA's scope)

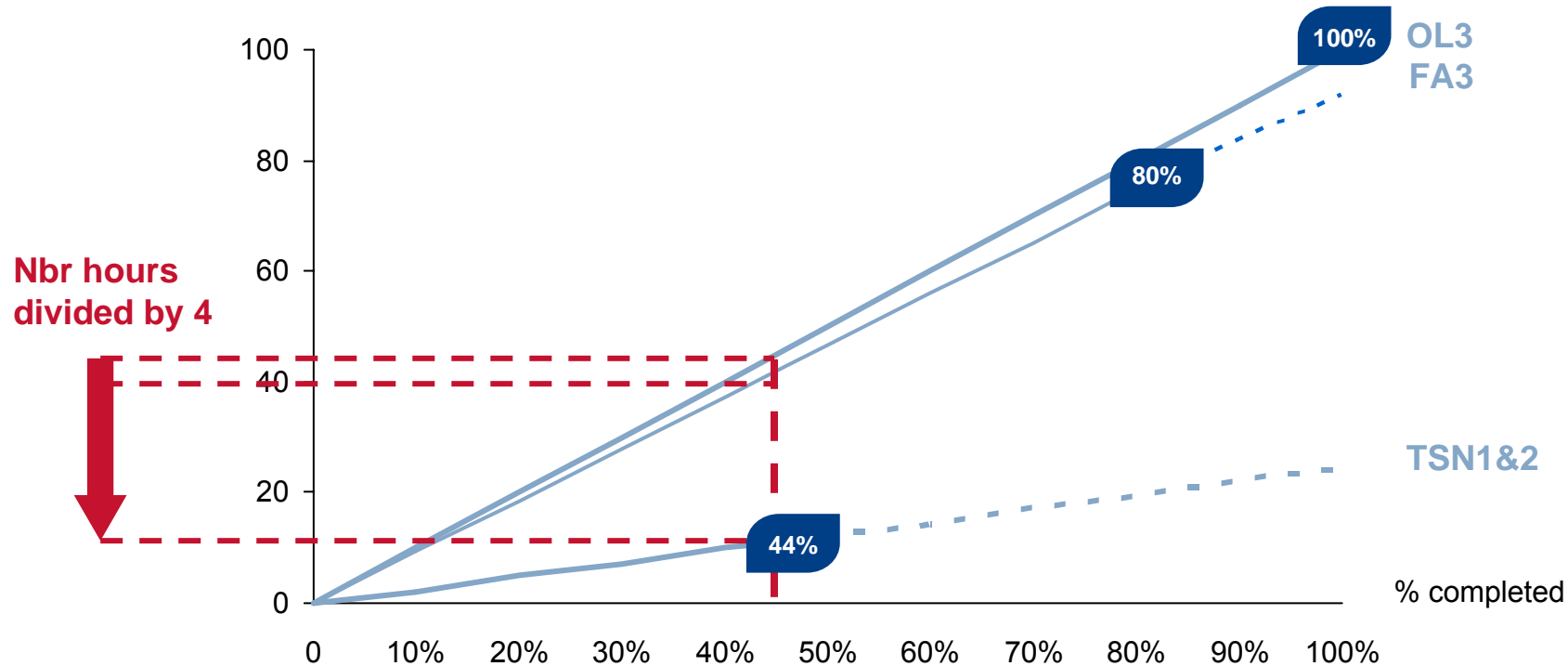


# Engineering for EPR reactors: the value of lessons learned

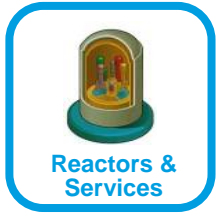


## ► Progress indicator for EPR reactor engineering work (nuclear steam supply systems - NSSS)

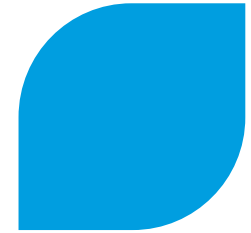
Engineering hours (June 2010 - rebased 100 - compared with OL3)



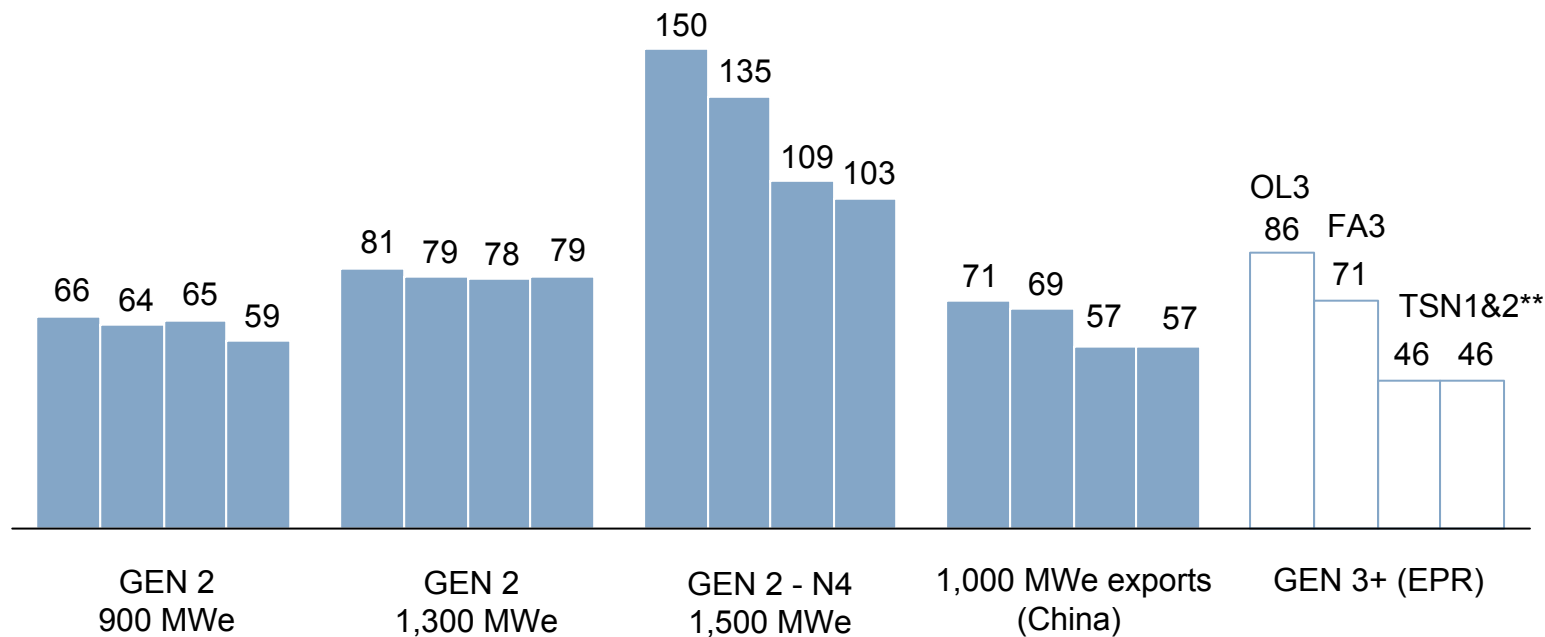
Source : AREVA



## EPR reactors: average estimated construction time in line with previous reactor series



Construction time between the first concrete pour and startup of nuclear operations (# of months)\*



Average  
(# of months)

63.5

79.3

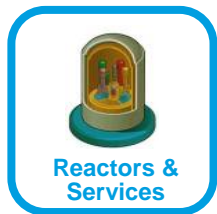
124.3

63.5

62.3

\* based on the first four units of the reactor series

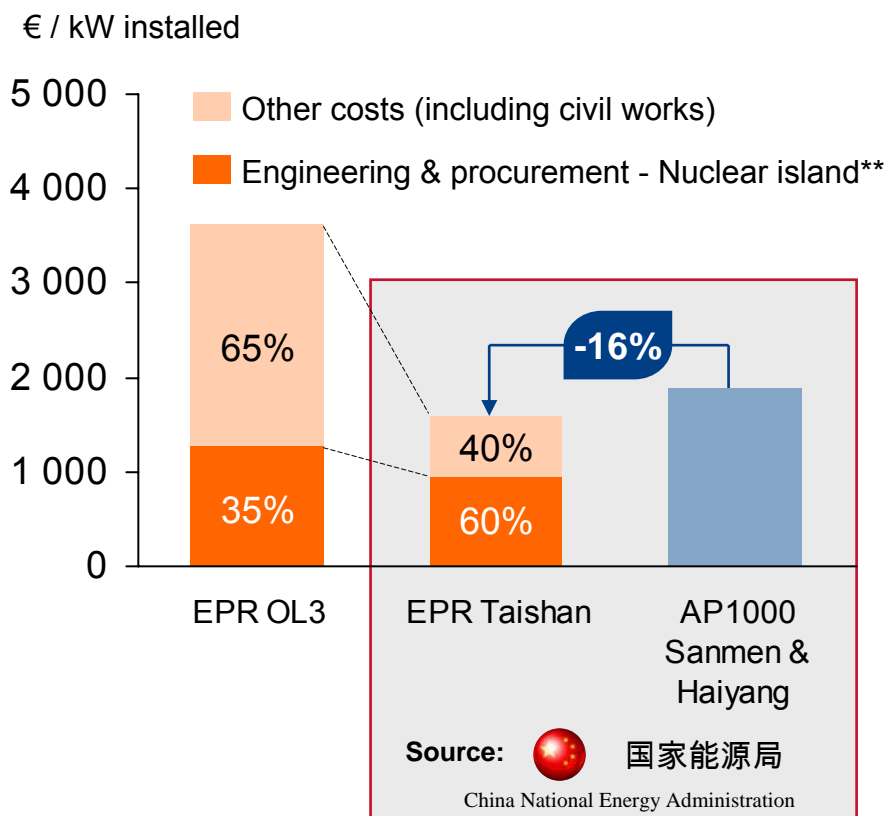
\*\* Source: CGNPC



# EPR reactor competitiveness with competing generation 3+ reactors



## Capital cost\* - The Chinese example



\* Exchange rate used: CNY / EUR average for 2009: 9.47

\*\* Scope of work: nuclear island excluding installation / construction / testing / civil works

Source: China National Energy Administration (Dec. 2009); AREVA analysis

- ▶ Impact of lessons learned with the Finnish and French EPR reactors
- ▶ "Redesign to cost" initiative for Nuclear Steam Supply System work
- ▶ Cost basis optimization through partnerships with local suppliers
- ▶ Cost cutting opportunities, particularly in areas other than engineering and procurement for the nuclear island
- ▶ Performance achieved at the Taishan EPR reactor project in China illustrates the potential for optimization
- ▶ Ongoing initiatives to implement the same approach in other regions of the world



## Developments in the back end of the cycle



- ▶ **An agreement has been signed with EDF**
  - ◆ **Visibility in this area of activity up until 2040**
  - ◆ **From 2010, the annual amount re-processed in The Hague will increase from 850 to 1,050 tonnes and the amount of MOX produced in Melox will increase from 100 to 120 tonnes**
- ▶ **New MOX fuel fabrication contracts for Japanese customers**
- ▶ **United States: construction of a MOX plant in Savannah River**
  - ◆ **1<sup>st</sup> new build, authorised by the NRC, under construction in the US**
  - ◆ **Construction 44% complete, on schedule and within budget**
  - ◆ **Startup scheduled for 2016**
- ▶ **China: plans to construct a treatment and recycling plant**
  - ◆ **Joint declaration by the Governments of China and France in December 2009**
  - ◆ **In November 2010 AREVA and CNNC signed an industrial agreement on cooperation in this field: final step towards a commercial contract.**





# Renewable energies portfolio complements the CO<sub>2</sub>-free offer of the group



## Main competitive advantages

### ► Expanding portfolio of best-in-class renewable energies solutions

- ◆ Most powerful off-shore wind turbine in operation (5 MW)
- ◆ Significant EPC expertise for biomass
- ◆ Most efficient Solar CSP technology
- ◆ Leading edge expertise in hydrogen technologies

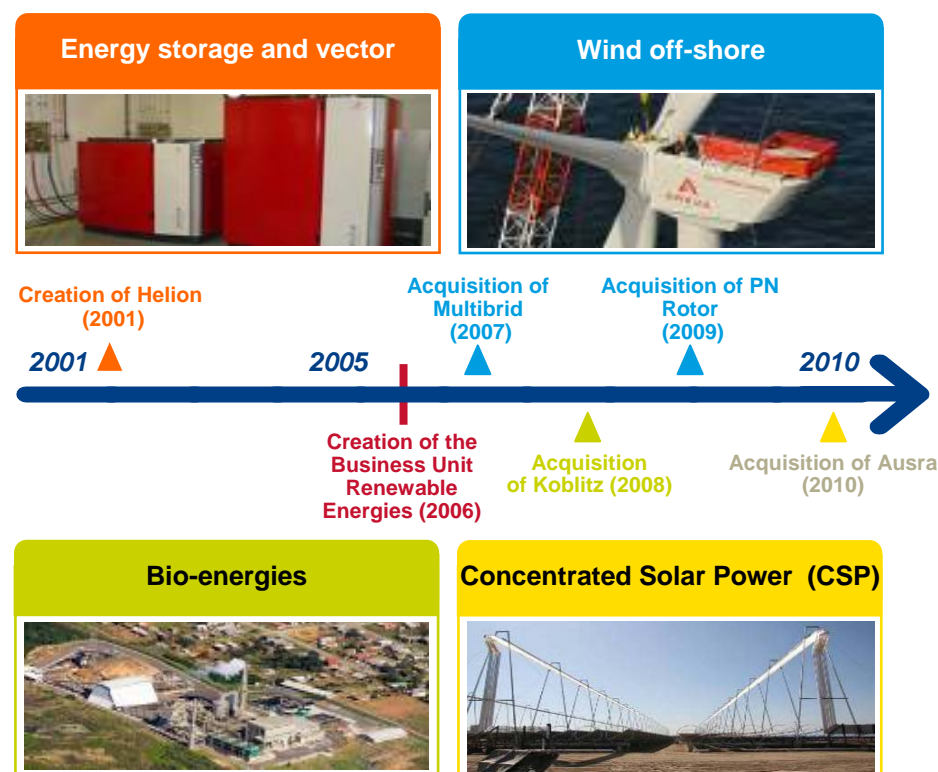
### ► Major achievements

- ◆ Installation of the first German offshore wind farm in 2009
- ◆ Number 1 in bio-energies with a 2.4GW installed base

► €1.1Bn backlog in 2009 (x7 vs. 2008)

► Target 2012: €5bn backlog by 2012

## The development of a portfolio for leadership position



**Our Vision: Leadership driven by Innovation**

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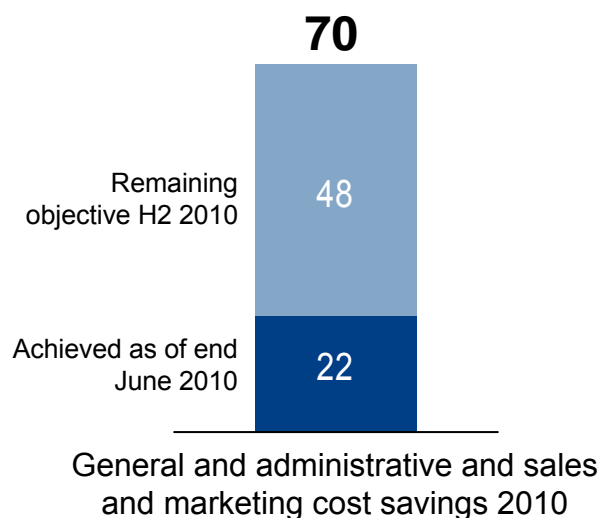
- ▶ Group strategic objectives
- ▶ AREVA Business Groups' strategy and positioning
- ▶ **Deleveraging / underlying performance improvement levers**

# Implementing AREVA's cost reduction plan 2010 objective: €400m...



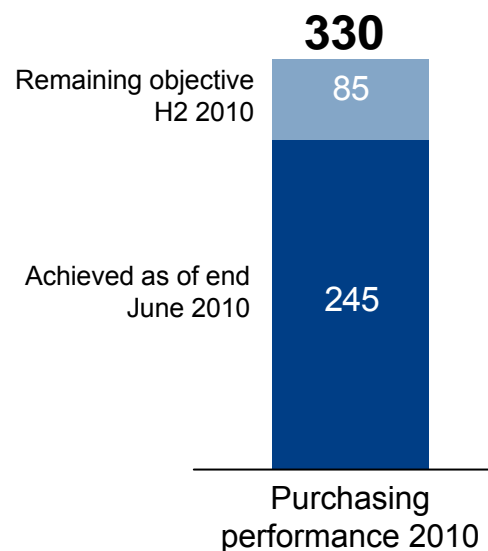
... including €70m in G&A  
and S&M cost reduction

This objective is part of AREVA's  
cost reduction plan:  
- 20% in 2012 vs. actual for 2009



... including €330m in  
purchasing performance

This objective is part of AREVA's  
purchasing performance  
plan for 2010-2012 > 5% per year



**2010 Objective : 66% reached on June 30**

# Reducing operating working capital requirements in the Business Groups



## Operating WCR (in millions of euros)

	H1 2009	H1 2010	Δ 10/09
Mining/Front End BG	1,629	1,578	€(51)m
Reactors & Services BG	(137)	(309)	€(172)m
Back End BG	(1,083)	(1,120)	€(36)m
Renewables BG	(18)	80	+€98m
<b>TOTAL Operating WCR of the BGs</b>	<b>391</b>	<b>229</b>	<b>€(162)m</b>

( ) = source; + = use of cash



**Optimization initiatives  
in all Business Groups**

# Focus on operational & financial performance by BG



	Contribution to the group's performance in 2010	Short term factors	Trend for 2012	Return on Investment
Front End	+	<ul style="list-style-type: none"> <li>•Uranium price</li> <li>•Managing the technology transitions from GBI to GBII and CXI to CXII*</li> </ul>	➔	<ul style="list-style-type: none"> <li>•Double-digit IRR of Mining &amp; Enrichment projects</li> <li>•Pay-back: 6-15 years</li> </ul>
Reactors & Services	Services +	•OL3	➔	•IRR: N.M.
	New Build except OL3 0+	•The value of lessons learned from EPR projects		•Double-digit ROACE of recurring business (Installed Base Business Unit)
	OL3 - -			
Back End	++	<ul style="list-style-type: none"> <li>•Business in France secured through 2040</li> <li>•Export projects</li> </ul>	➔	•Approaching double-digit IRR
Renewable Energies	-	•“Startup” effect	➔	•IRR: N.M.

\*Georges Besse I and Georges Besse II / Comurhex I and Comurhex II

# Strengthening AREVA's financial resources



Development plan approved June 30, 2009: operations achieved / cash generated > €5bn

## Already Achieved

Sale of financial assets

- ▶ Finalized in 2009 & 2010 → €1.6bn (GDF-Suez / Total / Safran)

Sale of minority interests in strategic assets

- ▶ 2009 program finalized → €500m
- ▶ Other sales anticipated by 2012

T&D disposal

- ▶ Transaction closed on June 7, 2010
- ▶ Gain: €1.3bn
- ▶ Cash generated: €3.1bn

## Pending Actions

Capital increase

- ▶ On-going discussions with the main shareholder

Additional sale of assets

- ▶ On-going discussions with the main shareholder

**Q&A**



# **Appendices:**

## **H1 2010 group results**

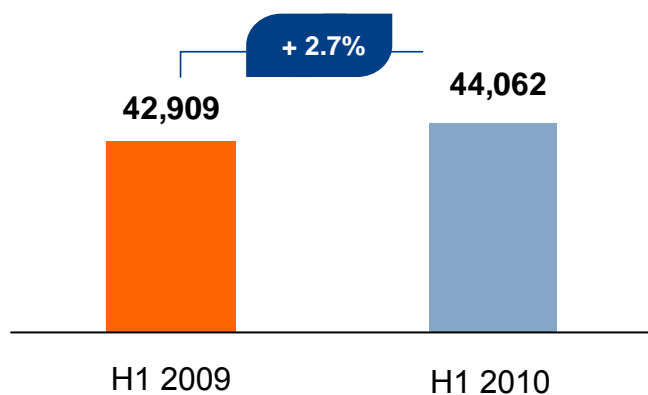




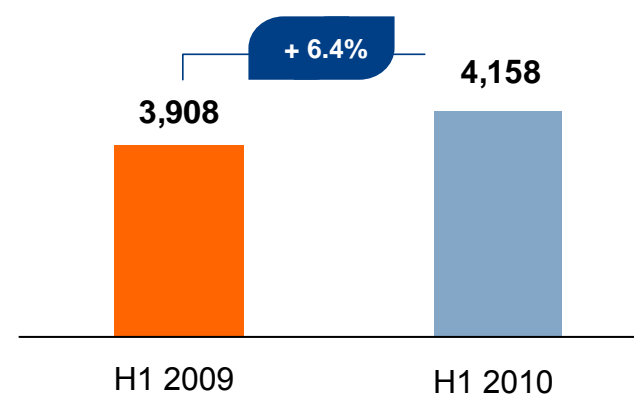
# Key indicators



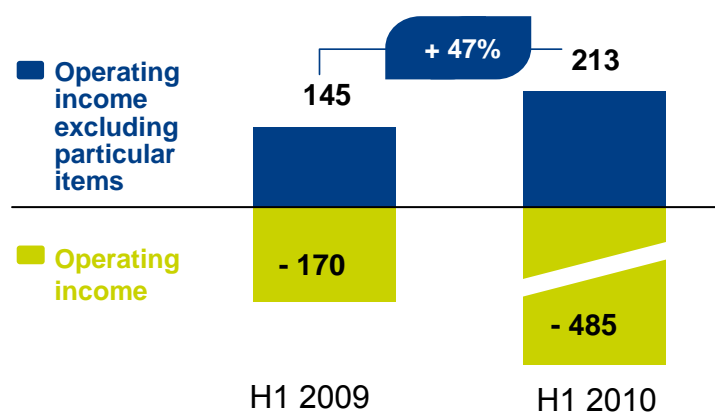
## Backlog (in millions of euros)



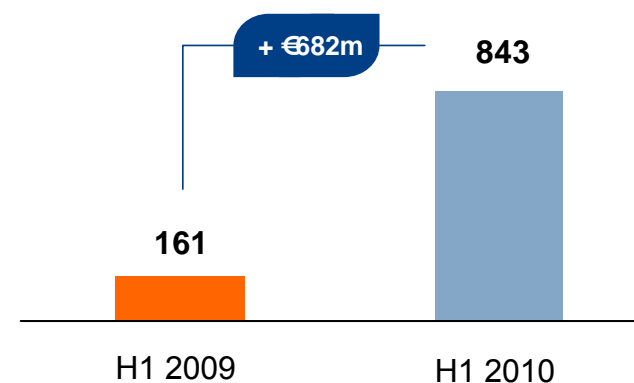
## Sales (in millions of euros)



## Operating income (in millions of euros)



## Net income group share (in millions of euros)



# Financial highlights of the first half of 2010

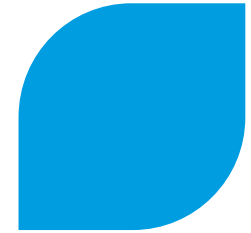


<i>In millions of euros</i>	<b>H1 2009</b>	<b>H1 2010</b>	<b>Δ 10/09</b>
<b>Backlog</b>	<b>42,909</b>	<b>44,062</b>	+ 2.7%
<b>Revenue</b>	<b>3,908</b>	<b>4,158</b>	+ 6.4%
<b>Operating income excluding particular items</b> <i>% of revenue</i>	<b>145</b> 3.7%	<b>213</b> 5.1%	+ €68m + 1.4 pts
<b>Disposals / new partners - Mining/Front End assets*</b>	<b>247</b>	<b>19</b>	
<b>Project provisions**</b>	<b>(562)</b>	<b>(417)</b>	
<i>Reversible accounting adjustment on Mining assets value</i>	-	<b>(300)</b>	
<b>Operating income</b>	<b>(170)</b>	<b>(485)</b>	€(315)m
<b>Net income Group share</b> <i>Net earnings per share</i>	<b>161</b> €4.55	<b>843</b> €23.82	+ €682m + 19.27 €
<b>Operating cash flow before Capex</b>	<b>(336)</b>	<b>(99)</b>	+ €237m
<b>Free operating cash flow</b>	<b>(805)</b>	<b>(1,084)</b>	€(279)m
	<b>Dec 31, 2009</b>	<b>June 30, 2009</b>	
<b>Net debt</b>	<b>6,193</b>	<b>5,152</b>	€(1.041)bn

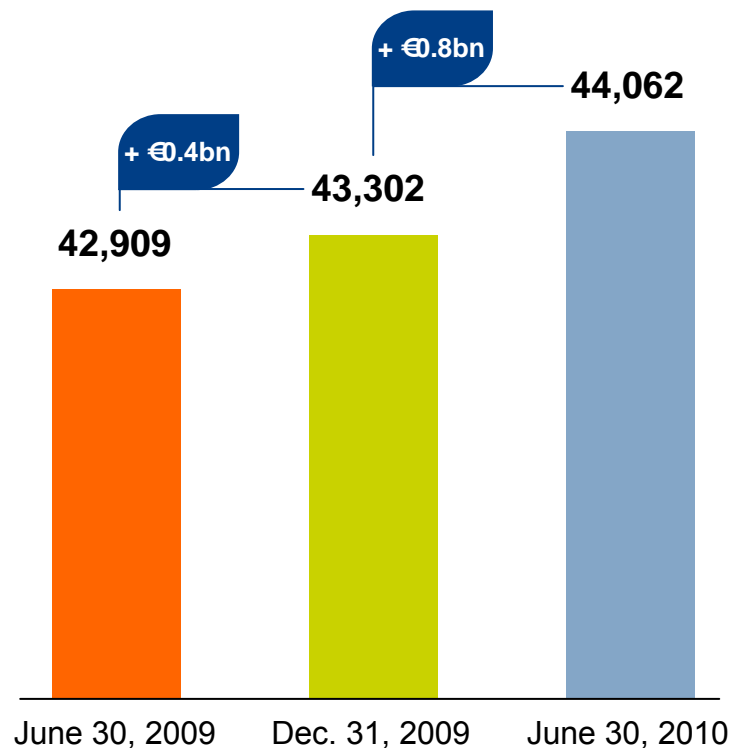
**Organic  
growth\*\*\*  
+ 5.6%**

- \* Including 191 million euros for sales of minority interests in the GBII enrichment plant in 2009;  
 \*\* Including 367 million euros in 2010 and 550 million euros in 2009 for the OL3 project in Finland;  
 \*\*\* at constant consolidation scope and exchange rates

# Backlog: + 1.2 billion euros year-on-year

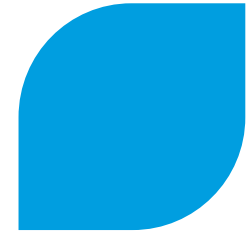


**Backlog** (in millions of euros)

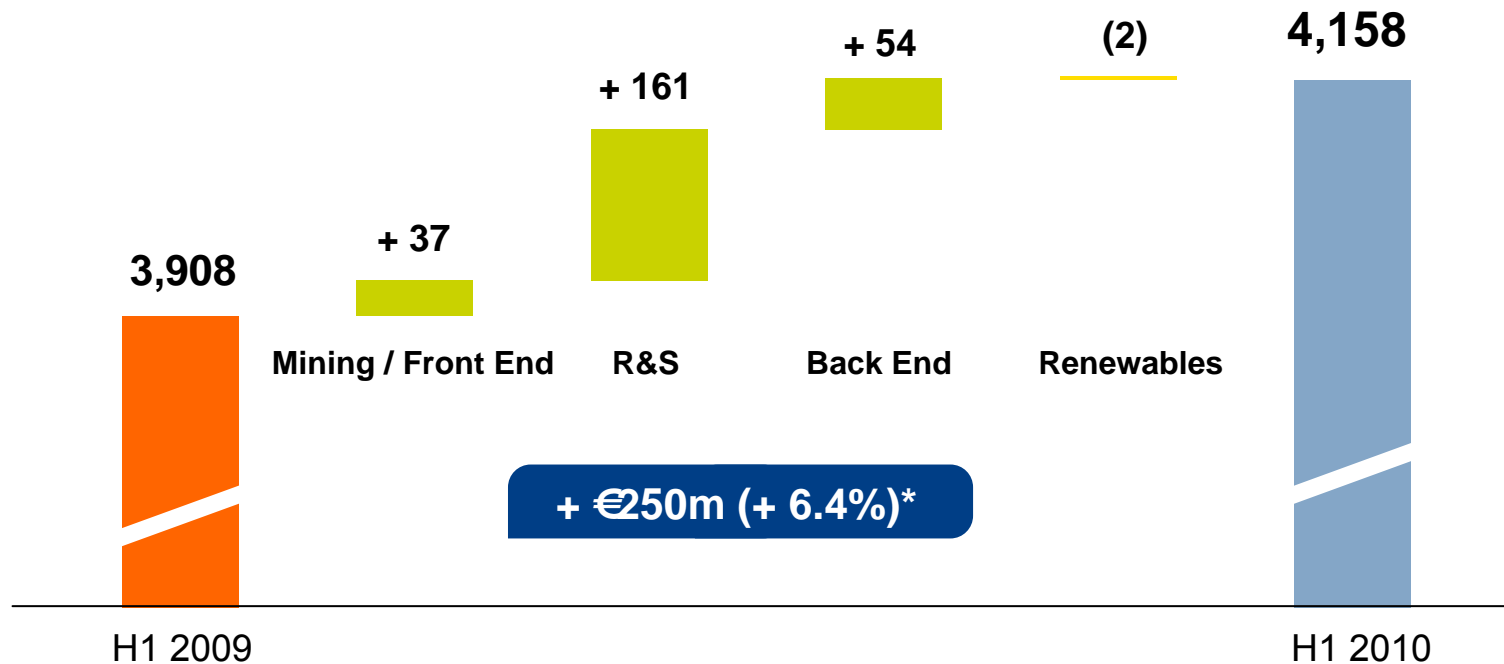


- ▶ Buoyant commercial activity for recurring business
- ▶ Expansion in renewables

# Growth in all nuclear businesses



**Revenue** (in millions of euros)

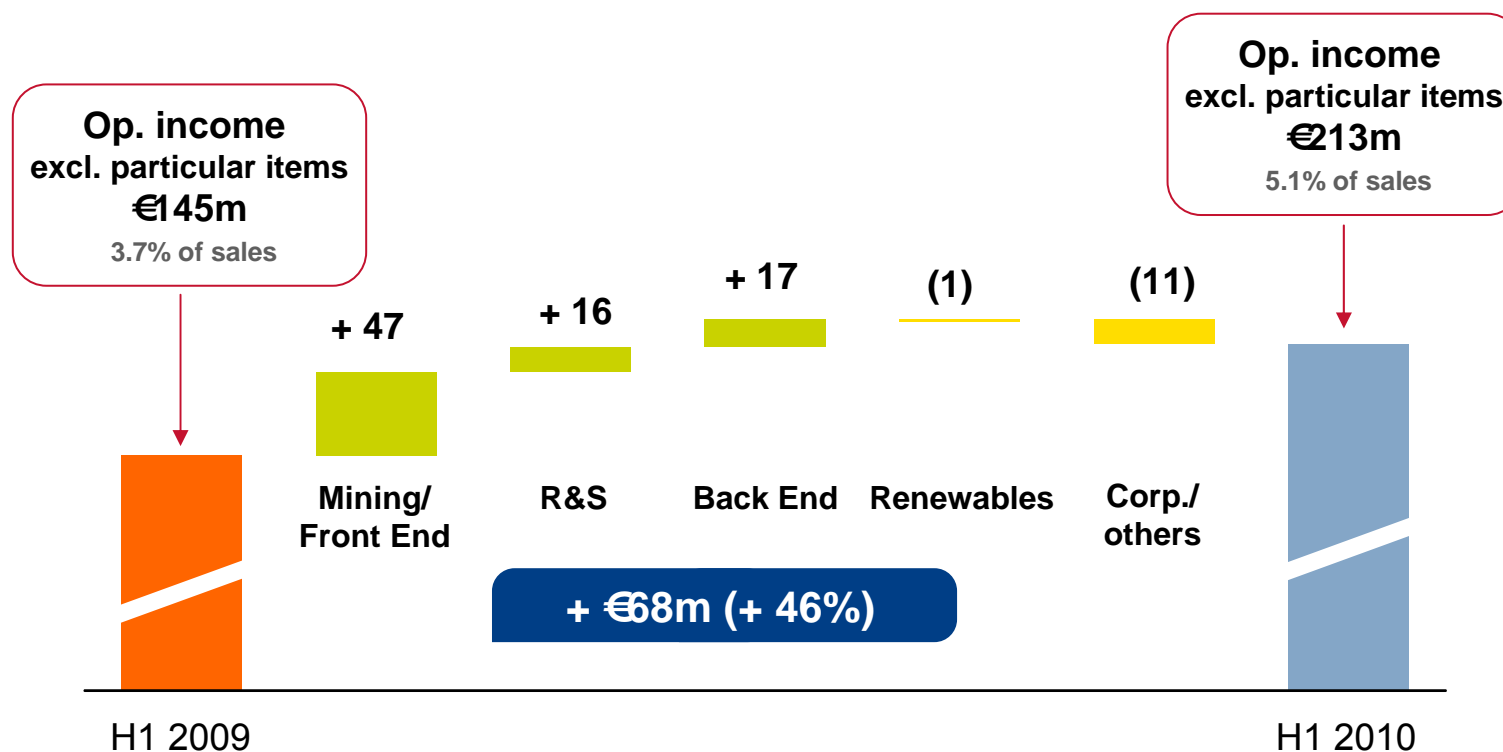


\* + 5.6% at constant consolidation scope, accounting methods and exchange rates  
Average exchange rate euro / dollar for AREVA: H1 2010: 1.325 vs. H1 2009: 1.384

# Increase in operating income excluding particular items



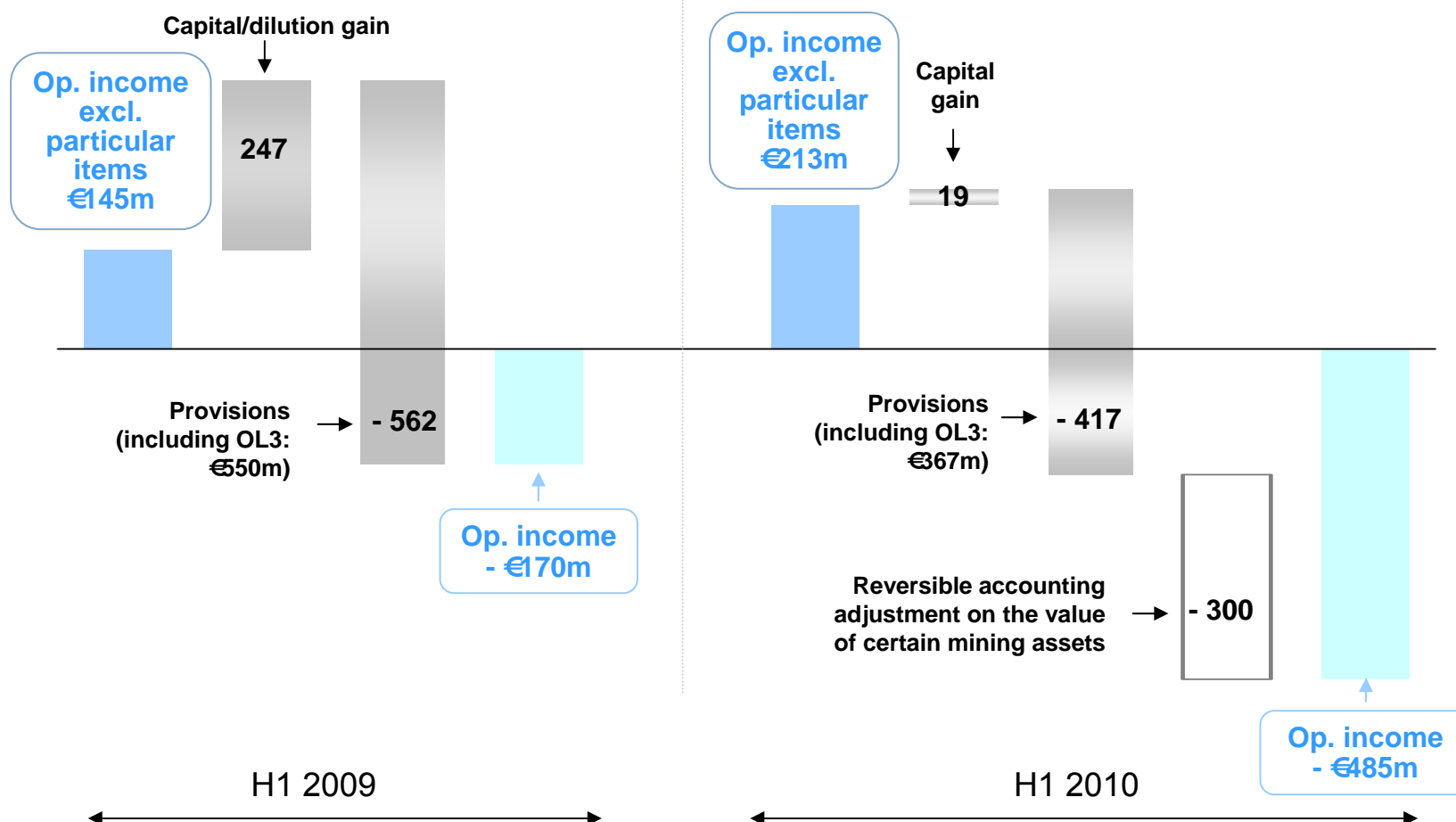
Operating income excluding particular items (in millions of euros)



# Reconciliation between operating income excluding particular items and operating income



In millions of euros



## Additional OL3 provision



- ▶ **Major civil works finalized - Reactor vessel installed - Piping ramp up well under way - Preparing for commissioning**
- ▶ **New schedule contemplating startup of nuclear operations at the end of 2012**
- ▶ **Additional provision recognized for €367 million to reflect the new schedule and conditions for the last phases of the project as notified to TVO (piping, testing and commissioning, instrumentation and control systems)**
- ▶ **Cumulated provisions recognized to date on the contract: 2.6 billion euros**

# Reversible accounting adjustment on mining assets



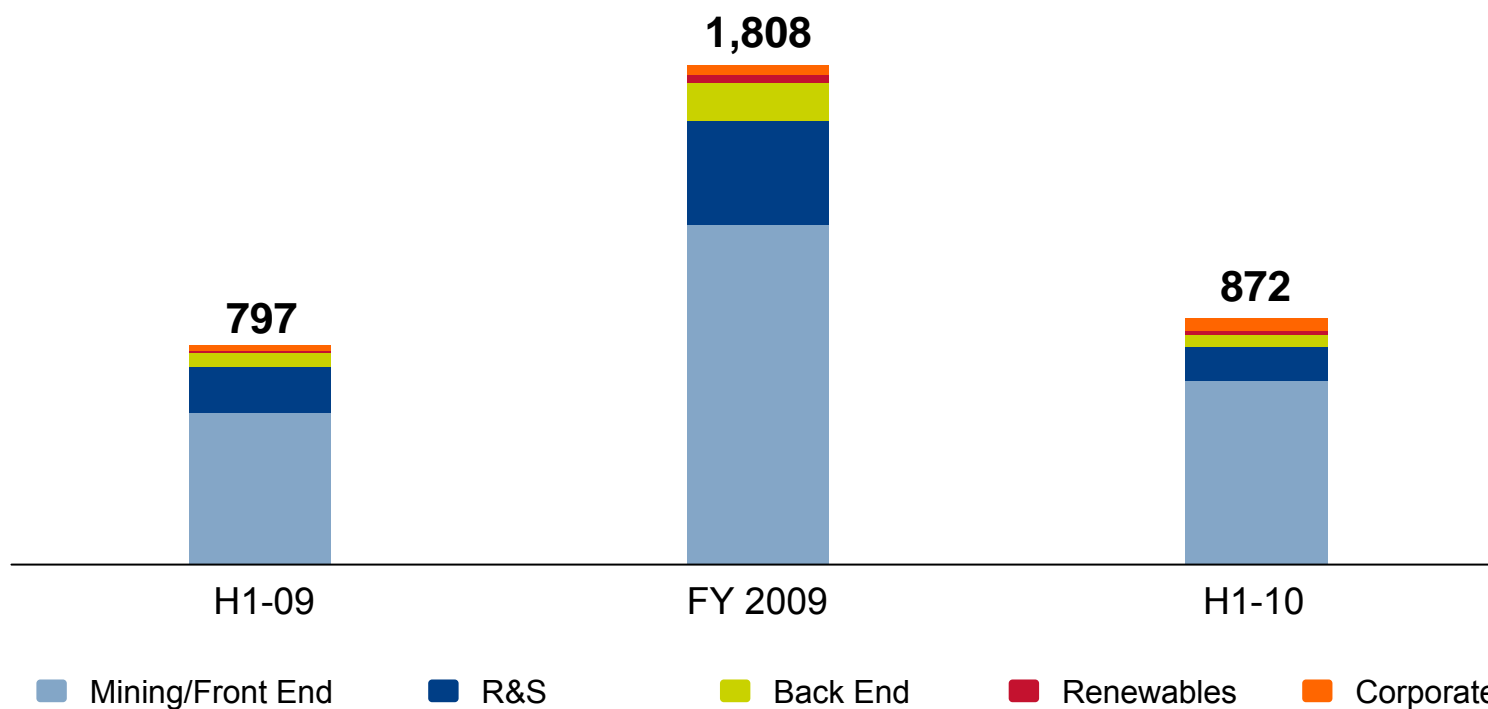
- ▶ AREVA performs impairment tests on all mining assets as provided in IAS 36.
- ▶ The value of AREVA's mining assets taken as a whole was and is still largely greater than carrying costs at December 31, 2009, based on prospective uranium market data available as of that date
- ▶ Analysis of the new prospective uranium market data published in the second quarter of 2010, led to the recognition, in accordance with IFRS accounting principles, of a €300m impairment on the value of certain mining assets
- ▶ This accounting adjustment, representing around 6% of the book value of AREVA's mining assets, is non cash and subject to reversal



# Capital expenditures



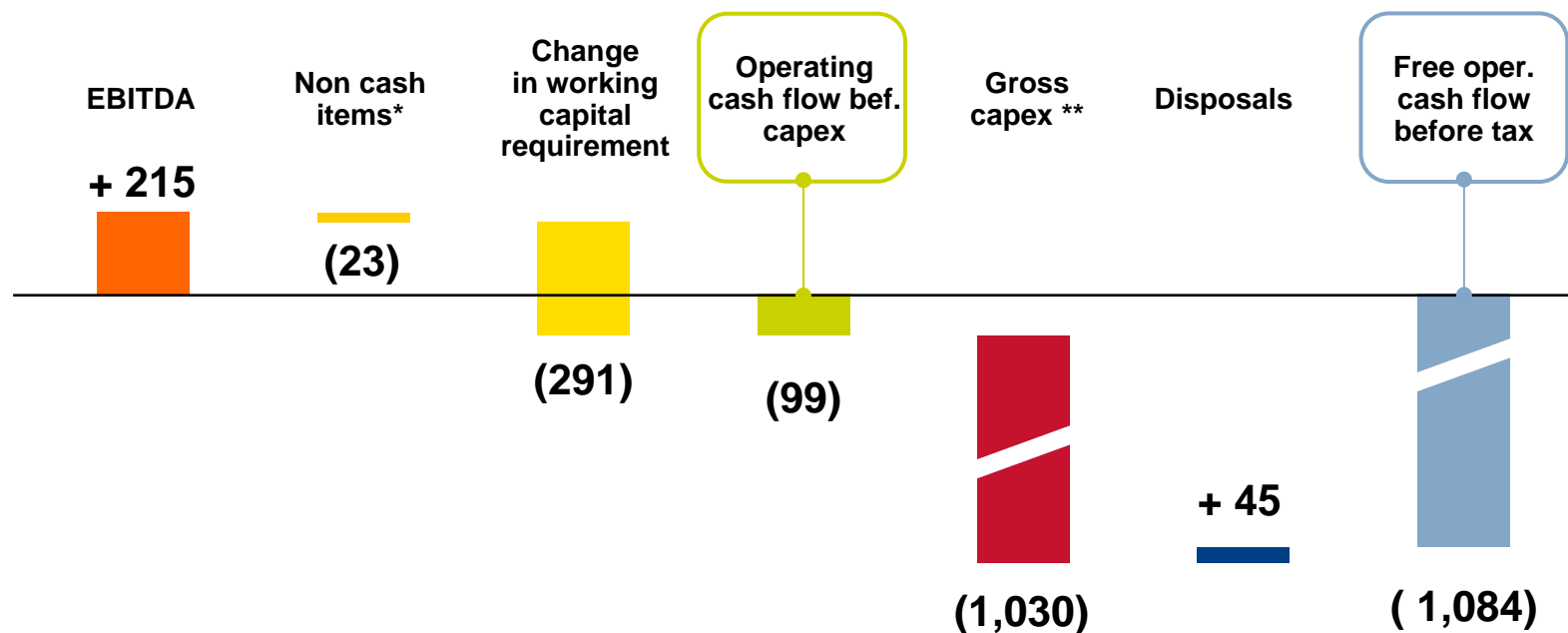
**Gross capex excluding external growth operations** (in millions of euros)



# Free operating cash flow before tax



In millions of euros



- ▶ Increase in EBITDA excluding particular: + €195m vs. H1 2009
- ▶ Lesser use of WCR in H1 2010 (- €291M vs. - €413m in H1 2009)
- ▶ Implementation of capex programs in Mining and Enrichment + acquisitions in Renewables

\* with an impact on operating income \*\* Including acquisitions (mainly €158m in Renewables)

# Reduction in net debt



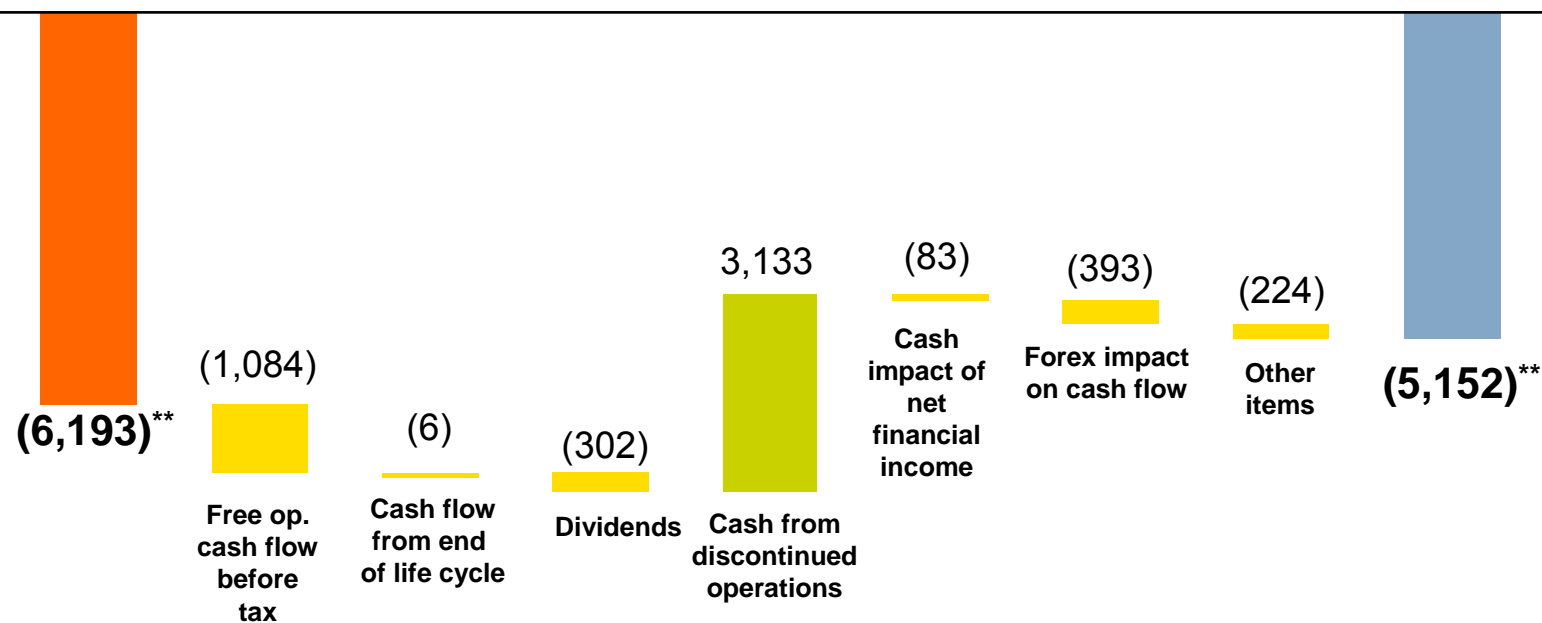
In millions of euros

Equity as of June 30, 2010: €8,672m

Debt ratio\*: 59%

Dec. 31, 2009

June 30, 2010



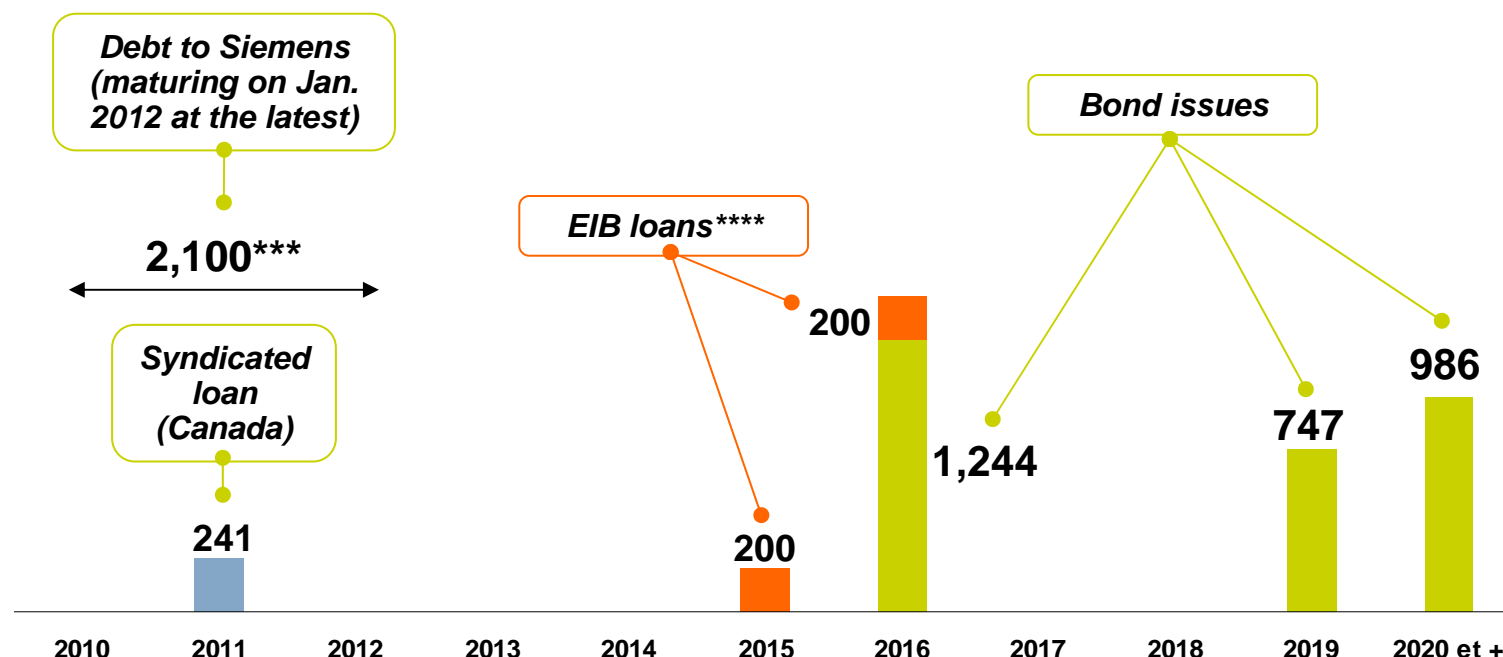
\* Net debt / Equity

\*\* Debt to Siemens at 2007 value, i.e. €2.049bn plus accrued interest

# Average debt maturity is more than 8 years as of June 30, 2009\*



## Maturity of main financial obligations (in millions of euros)\*\*



- ▶ Syndicated facility for Uramin acquisition was repaid in June 2010 (\$1.9 bn)
- ▶ Repayment of debt to Siemens in January 2012 at the latest (maturity date as per contract)
- ▶ No major debt maturing before 2016 (excluding debt to Siemens)
- ▶ S&P rating: BBB+/A2 with stable outlook

\*Excluding debt to Siemens \*\* Main medium/long term financial obligations\*\*\* Debt to Siemens at 2007 value, i.e. €2.049 bn plus accrued interest

\*\*\*\* European Investment Bank



## ► Forward-looking statements

- ◆ This document contains estimated information and forecasts. These statements include financial forecasts and estimates as well as the assumptions on which they are based, statements relating to projects, objectives and expectations concerning future operations, products and services or future performance. Although AREVA's management believes that these forecasts are reasonable, AREVA investors and holders of securities are alerted to the fact that these forecasts are subject to numerous risks and uncertainties that are difficult to foresee and generally beyond AREVA's control. This may mean that expected results and developments differ significantly from those expressed, induced or projected in the estimated information and statements. These risks include those developed or identified in the public documents filed by AREVA with the FMA, including those listed in the "Risk Factors" section of the Reference Document registered with the FMA on 29 March 2010 (which may be read online on AREVA's website: [www.areva.com](http://www.areva.com)). AREVA makes no commitment to update the estimated information and forecasts, except as required by the applicable laws and regulations.

