

The new role of nuclear in a balanced energy policy to face the growing power demand

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Luc JACQUET
Managing Director
EDF South Asia



EDF experience in France

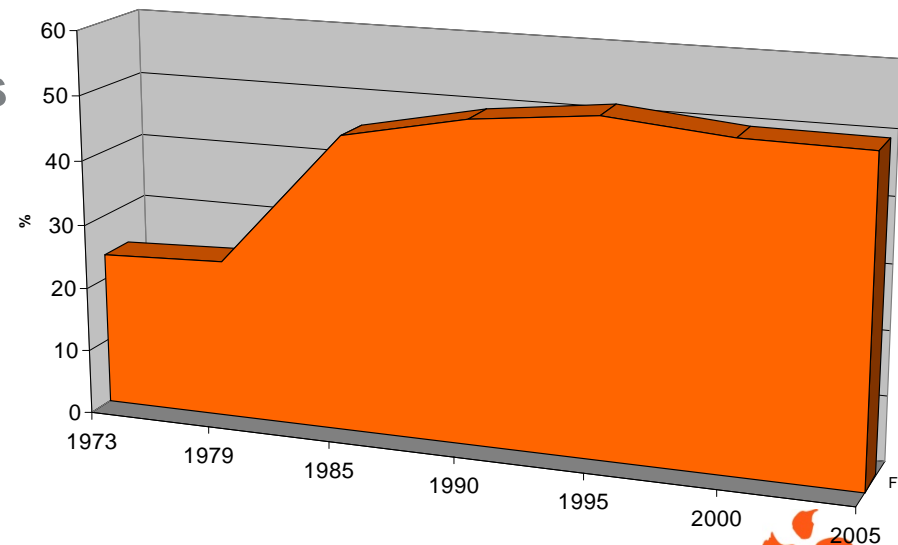
Oil crisis in 1973 : France aims self-sufficiency in Energy

In 20 years, EDF built 58 nuclear reactors representing 63.1 GW

In 2003, French government launched a public debate resulting in a new energy policy based on four priorities :

- keeping nuclear option open
- manage demand
- developing renewable energies
- developing research

Energy self-sufficiency of France



The new energy context: the key drivers

- **The changing global energy landscape : rising fuel prices, the problem of global warming (carbon emissions), and the need for vastly increased generation capacity, have combined to create a new configuration**
- **A significant potential for energy efficiency, savings and renewable sources but insufficient for facing the power sector challenges**
- **Fossil fuels will remain predominant for some time to come, but questions remain (reserves, CO2 ...)**
- **Nuclear energy can contribute significantly to curb demand for fossil energies**

Europe's energy key challenges in 2030

- **EU Green paper: by 2030, power demand will rise by 50% and share of gas in power generation more than double**

EU energy import dependency increases to almost 70%

EU CO2 emission will exceed the 1990 level by 14% in 2030

- **Considerable investment required in new equipment**

Opportunity to build efficient & available low/no CO2 emitting technologies, ensuring electricity security of supply & European competitiveness

- **Completion of the EU electricity and CO2 markets**

Need to improve the market rules & provide investors right incentives

Renewal of interest for nuclear energy in Europe

Finland and France	2 EPR reactors underway
UK	Energy Review revisiting all energy options
Netherlands	reviewing its earlier nuclear phase-out policy
Baltic States	announcement of a new plant
Bulgaria	bid launched for the completion of Belene plant
Russia & Ukraine	commitments to nuclear power

EU's Energy Green Paper: Nuclear can not be missed

Renewal of interest for nuclear energy worldwide

South & South East Asia

- India: willing to significantly expand its nuclear capacity and to open the sector for private Indian & international players
- Some countries of ASEAN are also considering the nuclear option for first commissioning by 2017-2020

**Outlook: new global nuclear energy capacity
of 120 GW between now and 2020 over the world**

(source : WNA)

Renewal of interest for nuclear energy worldwide

Opportunities for EDF's international nuclear development

France – A new 1700 MW EPR in Flamanville 3	EDF Lead investor, EPC contractor & operator (COD 2012)
China - 40 GW by 2020	EDF to jointly invest and operate 2 EPR units with CGNPC in Guangdong province
Great Britain -considering nuclear new phase	EDF, through its local subsidiary EDF Energy, is seeking to develop up to EPR units
United States - government programme “ <i>Nuclear Power 2010</i> ”	EDF to build and operate 4 EPR reactors along with Constellation Energy
South Africa – 3 GW in 2015 with an option of up to 20 GW	Possible opportunity for EDF to invest in the program if EPR is chosen

Conditions for nuclear power success

A sound, long-term, stable energy policy

to which stakeholders can refer with confidence

Safety as the top priority

through control by an independent safety authority, and responsible operators

Public acceptance

“openness and transparency” – A safe and clean kWh

Best use of energy resources

proper waste reprocessing, handling nuclear waste, dismantling

Competitiveness: industrial organisation & regulatory frameworks

clear & consistent procedures for licensing design & authorization procedures

standardization & building in series to enable industrial operators to benefit

from economies of scale and to control costs and construction deadlines

Conclusion

- With thorough governance and appropriate organisational framework, nuclear power can make a significant and key contribution to a sustainable global energy agenda
- Nuclear along with energy efficiency, renewables and clean coal and carbon sequestration should play a key role in a balanced energy policy while addressing energy security, climate change and economic competitiveness challenges

EPR Flamanville 3 : first Concrete of reactor building started beginning of December 2007



Thank You

