Key conditions for successful Nuclear new build financing

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Key questions debated by Nuclear Utilities and AREVA

► How to finance nuclear new builds in an optimal way, in a post-Lehman and post-Fukushima world?

► Regulatory regime: a case for re-regulation?

► What funding package for nuclear new builds (investor profiles, debt instruments, role of ECAs)?

► How to optimize investment process for nuclear new builds, in order to minimize risk taking for investors?
NPP projects bear associated risks, like any large power generation project

NPP project cash flow evolution and associated risk
(illustrative)

Years

1. Regulatory
   - Political
   - Public acceptance
   - Licensing, harmonisation of safety standard
   - Regulation
   - Legal

2. Construction
   - Construction delays
   - Cost overrun
   - Skilled workforce and supply chain availability

3. Operation
   - Technology, design
   - Availability
   - O&M costs
   - Nuclear safety
   - Environment
   - Waste management
   - Dismantling

4. Market
   - Fuel supply (price, volume)
   - Electricity & CO₂ (price, volume)
   - Financing (foreign exchange and liquidity risk)

Note: Key specific risks are indicated in red

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Existing NPP financing mechanisms
Need for public support

- **Sovereign Risk or state support**
  - Russia, India, China: 60’- up to now
  - France 70’-90’

- **Corporate finance**
  - USA 60’-70’
  - France 2007
  - Canada USA 00’-10’
  - Finland 2003
  - France 2007

- **Attempt of project finance**
  - ?
  - ?

- **Back to Sovereign Risk**
  - Vietnam, Turkey
  - UK Hinkley Point

**Merchant plan**

**Internal Regulation**

**De-Regulated with strong State Support**

**Strong Corporate**

**BOT PPP**

State Companies Regulated

Market

De-Regulated with strong State Support

Internal Regulation

Strong Corporate

BOT PPP

State Companies Regulated Market

Mechanism of price guarantee

**Sovereign Guarantee**

**State Companies Regulated**

**Corporate Regulated**

**RUSSIA INDIA CHINA**

60’- up to now

**FRANCE 70’-90’**

**USA 60’-70’**

**FRANCE 2007**

**CANADA USA 00’-10’**

**FINLAND 2003**

**FRANCE 2007**

**VIETNAM TURKEY**

**UK Hinkley Point**

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New ideas / prerequisites emerge on nuclear projects’ financing

1/ Project de-risking as THE priority:
   ◆ ‘NOAK’ as a must (avoiding prototypes by all means)
   ◆ Introduce cross-licensing between EU countries (aerospace industry benchmark)
   ◆ Robust engineering phase prior to first concrete as a key de-risking factor

2/ New funding sources to be tapped:
   ◆ Towards more sharing of NNB projects between utilities?
   ◆ Attract ‘long’ investor base (sovereign or pension funds)?
   ◆ Issue ‘Nuclear bonds’ with appropriate State / EU backing?

3/ Electricity Market Reform necessary not only in the U.K.: all low carbon energies, not only renewables, are capital intensive and need long term visibility on power prices (through PPAs of CfD)

4/ Competition should not be biased by financing issue