

IEA / NEA Nuclear Technology Roadmap Update
Stakeholder Engagement Workshop

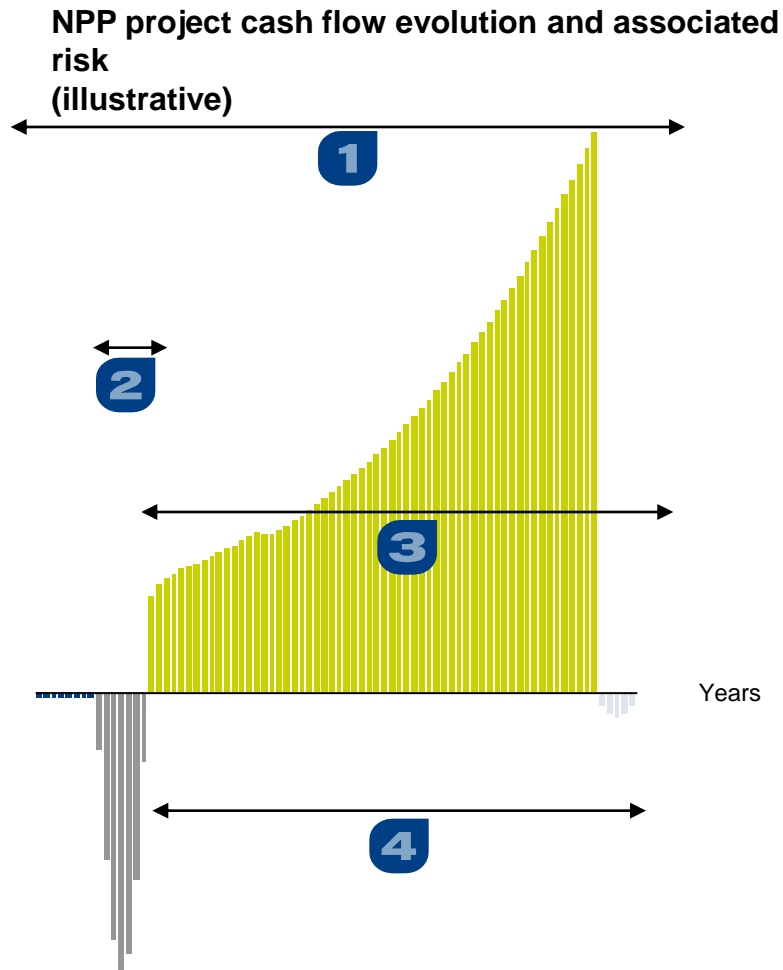
Key conditions for successful Nuclear new build financing

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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



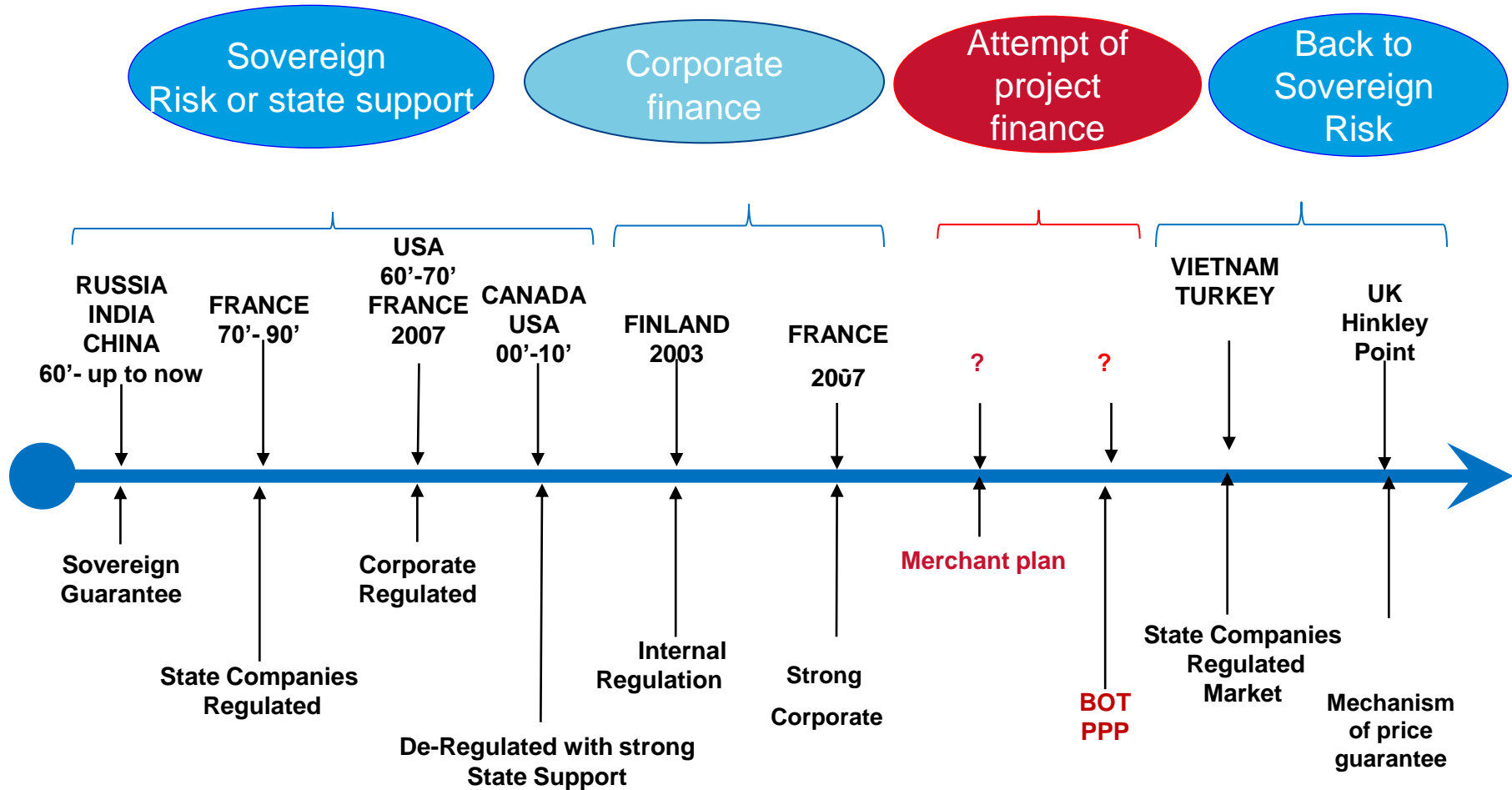
Risks are spread across the project life cycle

1 Regulatory	<ul style="list-style-type: none"> ▶ Political ▶ Public acceptance ▶ Licensing, harmonisation of safety standard ▶ Regulation ▶ Legal
2 Construction	<ul style="list-style-type: none"> ▶ Construction delays ▶ Cost overrun ▶ Skilled workforce and supply chain availability
3 Operation	<ul style="list-style-type: none"> ▶ Technology, design ▶ Availability ▶ O&M costs ▶ Nuclear safety ▶ Environment ▶ Waste management ▶ Dismantling
4 Market	<ul style="list-style-type: none"> ▶ Fuel supply (price, volume) ▶ Electricity & CO₂ (price, volume) ▶ Financing (foreign exchange and liquidity risk)

Note: Key specific risks are indicated in red

Existing NPP financing mechanisms

Need for public support



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 or CfD)

4/ Competition should not be biased by financing issue