



# Nuclear Financing:

## *Effective Frameworks and Strategies for Financing Nuclear New Build*

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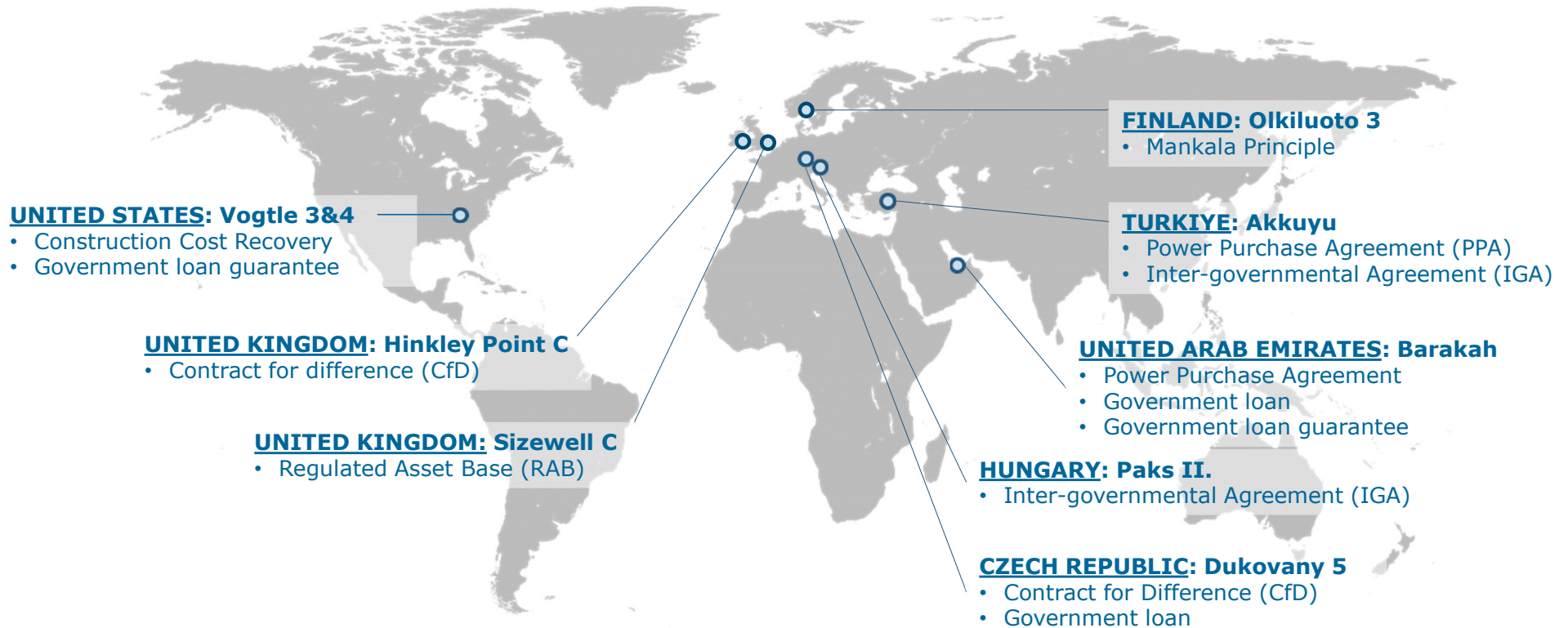
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# Overview

# NEA Nuclear Financing Case Studies

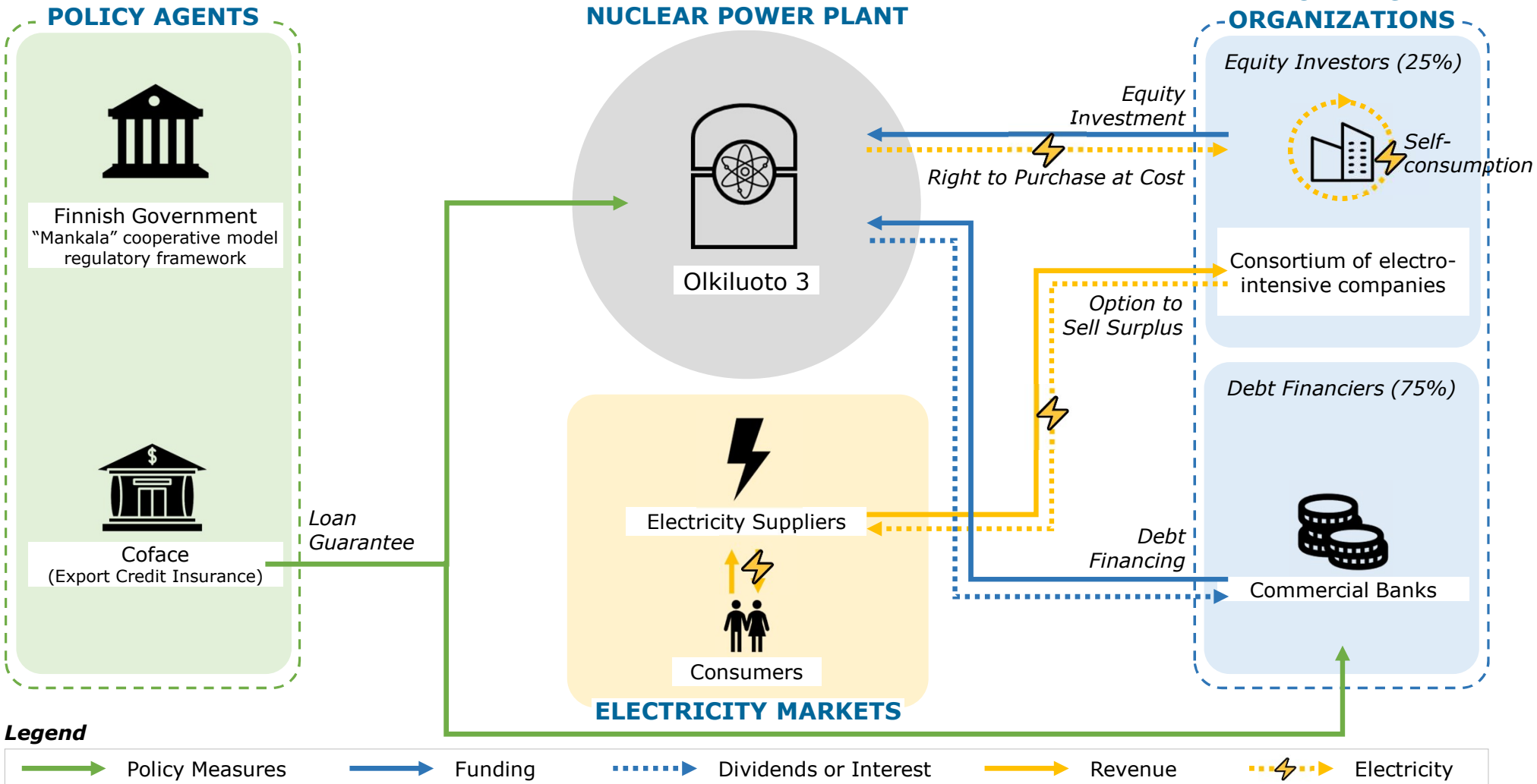


## **EXAMPLE**

# **Olkiluoto 3 financing framework and risk allocation**

# OLKILUOTO 3 – FINANCING FRAMEWORK

(Operational, financing framework at time of investment decision)



# Olkiluoto 3 – Risk Allocation

		Political & Regulatory	Construction	Operational	Electricity Market	Decommissioning & Waste Management
Operator	TVO	No Exposure	No Exposure	High	No Exposure	No Exposure
EPC / vendor	Areva-Siemens	No Exposure	High	No Exposure	No Exposure	No Exposure
Equity providers	Consortium of electro-intensive companies	Moderate	Moderate	Moderate	High	High
Debt providers	Coface, Commercial banks	No Exposure	Low	Low	No Exposure	No Exposure
Government	Finnish Government	High	No Exposure	No Exposure	No Exposure	Low
Consumers	-	No Exposure	No Exposure	No Exposure	No Exposure	No Exposure

Legend: Level of Risk Exposure

 High

 Moderate

 Low

 No Exposure

 Not Applicable

# Comparative Analysis Across Case Studies

## Understanding Risks: *De-risking construction is key to attracting additional sources of funding and to reducing the cost of capital*

- **Construction risks arising from costs overruns and delays are the most significant**
- The case studies demonstrate the need of balancing:
  - The ability to **mitigate risks** before construction
  - The ability to **absorb risks** during construction





## Range of risk exposure across the case studies

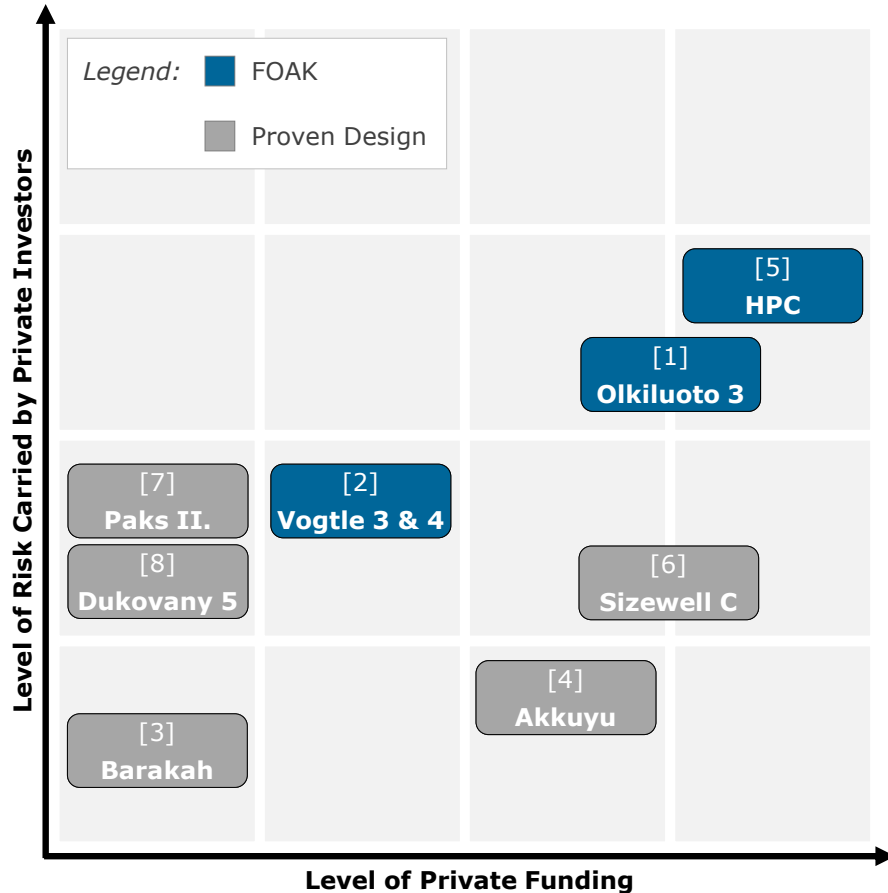
	Range of risk exposure across the case studies	Political and regulatory risks	Construction risks	Operational risks	Electricity market risks	Decommissioning and waste management risks
Operators	<i>Low to moderate</i>					
EPC and/or vendor	<i>Moderate to high</i>					
Equity providers	<i>Low to high</i>					
Debt providers	<i>Low</i>					
Governments	<i>Low to high</i>					
Consumers	<i>Low to high</i>					

# Role of Governments: *Beyond direct and indirect financial measures*

## Summary of Policy Measures across the Case Studies

Financial		Non-Financial
Direct	Indirect	
<ul style="list-style-type: none"> <li>• Equity investment</li> <li>• Debt financing</li> </ul>	<ul style="list-style-type: none"> <li>• Construction cost recovery mechanism</li> <li>• Long-term power purchase contract</li> <li>• Loan guarantee</li> <li>• Export credit</li> <li>• Fiscal policy</li> </ul>	<ul style="list-style-type: none"> <li>• Policy support &amp; regulatory stability</li> <li>• Provision of infrastructure &amp; site</li> <li>• Inter-governmental agreement</li> <li>• Final risk taker (residual risks)</li> <li>• Change of law protection</li> <li>• Workforce development</li> <li>• Electricity market design</li> <li>• Legislative framework</li> <li>• Technology transfer</li> <li>• Licensing framework</li> <li>• Waste management</li> </ul>

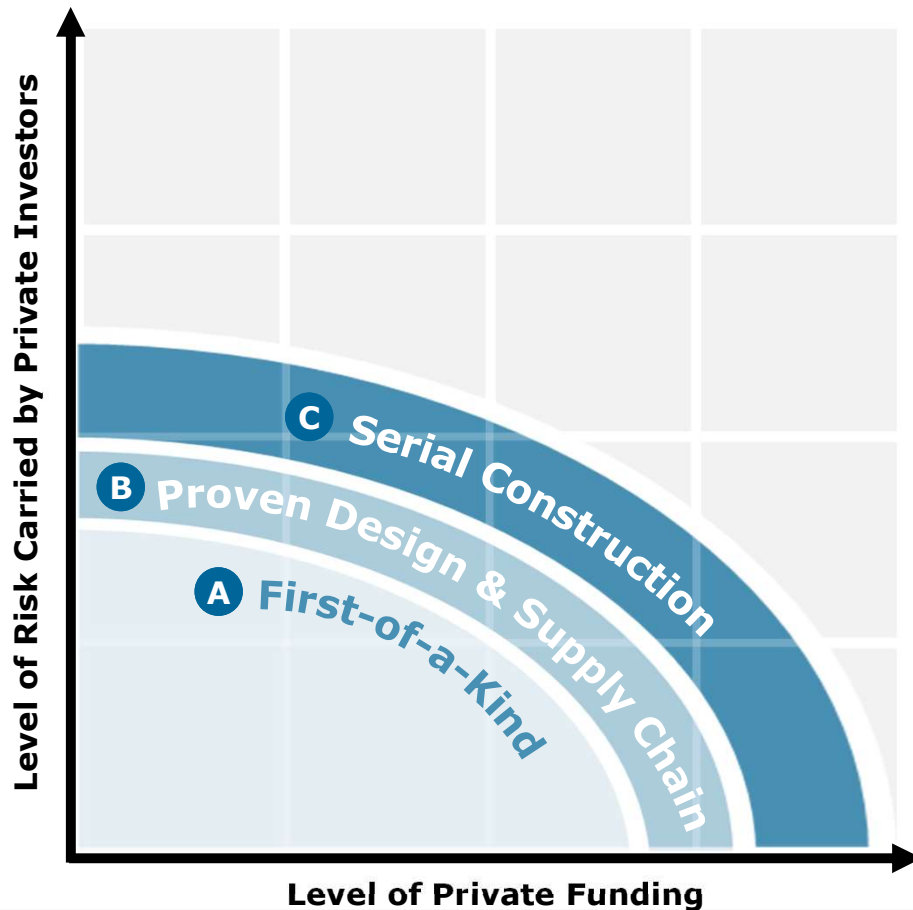
# Role of the Private Sector: Summary of the NEA financing case studies



Note: Numbers in parentheses indicate the order of the project announcements

- Based on the case studies reviewed, they are **limits to how much risk can be allocated to private investors**, particularly for projects with unproven designs
- Some recent projects have seen a **higher degree of government involvement**
- **National and industrial contexts also play a role** in the level of the private sector in nuclear financing

## Role of the Private Sector: *Can be larger with proven design and supply chain*



- A** **FOAK projects with unproven designs** expected to require public-private partnerships with a larger role for the public sector in terms of level of risk carried and level of funding
- B** As the industry gets to **higher level of design and supply chain maturity**, a larger role can be expected for the private sector
- C** **Serial construction**, including small modular reactors, may unlock additional investment and risk sharing from private financiers

# Additional sources of funding can be unlocked once nuclear power plants are in operation

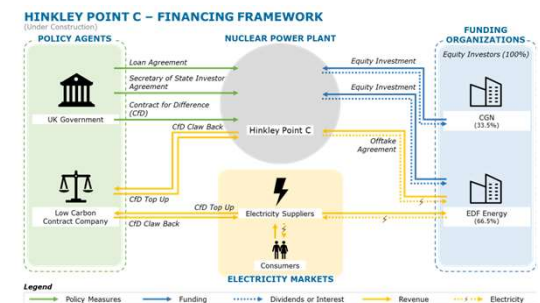
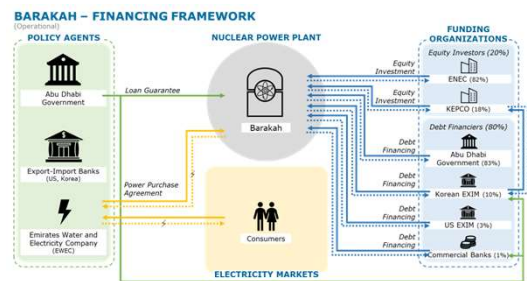
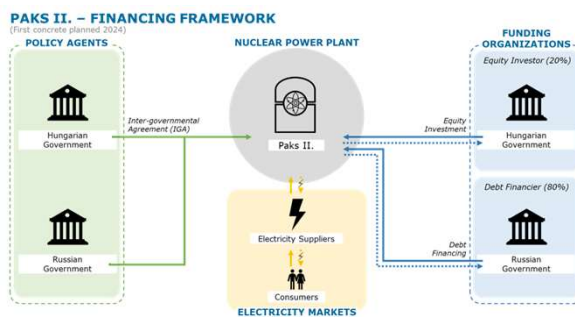
		Development	Construction	Operation	Funding Potential
<b>Equity Investors</b>	Strategic industrial partners e.g. electro-intensive industry	Low	High	High	+
	EPC / vendor	Not Applicable	Moderate	Low	+
	Equity markets	No Interest	Low	Moderate	++
	Hedge funds	No Interest	Low	Moderate	+
	Infrastructure funds	No Interest	Moderate	Moderate	+++
<b>Debt Financiers</b>	Shareholder loan	High	High	High	+++
	Bond market	No Interest	No Interest	High	+++
	Commercial banks with government or ECA guarantees	No Interest	High	High	+++
	Commercial banks without government or ECA guarantees	No Interest	Low	Moderate	+++

**Legend: Level of Interest** High Moderate Low No Interest Not Applicable  
**Funding Potential** +++ High ++ Moderate + Low

# High Level Takeaways

# Financing frameworks remain closely linked to national and industrial contexts

- Financing frameworks do not exist in a vacuum but interact with national and industrial contexts
- Lessons learned must be contextualized before they can be transferred to other settings
  - This requires a solid understanding of how a financing framework connects to the policy and industrial environments



# Financing frameworks cannot solve structural problems caused during upfront project planning

- Effective project management and delivery structure are key to efficient construction risk mitigation and a prerequisite to developing financing





# Aligning stakeholder interests should remain an overarching principle

- The importance of allocating risks between parties should not distract from the **overarching objective of aligning stakeholder interests.**





**Thank you for  
your attention**