New-Build Nuclear Power Station Finance

Can Risks be Controlled?

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Because of their long execution times, favourable financing is very important to nuclear station economics.

Favourable financing schemes in turn are very dependent on a project’s risk profile.

Unfortunately, it is difficult to find a class of projects with a poorer risk history than nuclear power plants.

Then the key questions become:
- Why are nuclear power plant projects so problematic?
- Can the risks be controlled?
Defining Success and Failure

We deem a project to be a **Success** if all occurred:

- Costs Grew (real) Less than 25%
- Cost Competitiveness Less than 25%
- Execution Schedule Slipped Less than 25%
- Severe and Continuing Operability Problems (First two years) No

Success Rate

- Projects <$500 MM
- Megaprojects
- Oil Megaprojects
- Nuclear Power Projects (n=74)
## Risk Reduction Requirements

<table>
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<tr>
<th>Effective Shaping</th>
<th>Stable Basic Data</th>
<th>Strong integrated owner team</th>
<th>Complete Front-end Loading (FEL)</th>
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</thead>
<tbody>
<tr>
<td>- Allocation of project benefits and costs into a configuration that is stable and will not collapse and create turbulence in execution</td>
<td>- Early days were plagued by constant design changes</td>
<td>- Very few NPP owners have had the strong project organisations essential to controlling the projects</td>
<td>- Detailed understanding and accounting for the site context for the project</td>
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<td>- Reasonable stability in design now achieved</td>
<td>- Cannot field cross-functional teams</td>
<td>- Bringing the design to a point from which full detailed design can commence at sanction</td>
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<td>- Have deferred and lost control to contractors</td>
<td>- Very high levels of project execution planning, supply chain management, scheduling, controls planning, constructability analysis, contracting planning, change management, data management</td>
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*When these four conditions are met, the megaproject success rate exceeds 80 percent*

*There is no reason to believe that NPPs will not follow the same pattern*
Thank you