Make Nuclear Relevant Again

We need to develop products that:

- Deliver great value for their cost
- Are easy to buy
- Are attractive to investors
- Can be installed rapidly with low project risk
- Are low cost to operate
- Deliver unique value to society
- Can be scaled to meet a significant portion of energy consumption
Key Products/Markets

Flexible Generator – Electricity Market

Coal Plant Heat Source – Electricity Market

Hydrogen Cogeneration – Electricity & Fuels

Hydrogen/Synfuel Gigafactory – Fuels Market
## Cost Targets for Key Product/Markets

<table>
<thead>
<tr>
<th>Market Application</th>
<th>Competitor</th>
<th>CapEx Target</th>
<th>OpEx Target</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible Generator</td>
<td>NGCC</td>
<td>$2,500–3,500/kWe (inc. thermal energy storage)</td>
<td>$7–10/MWh</td>
<td><a href="#">Cost and Performance Requirements</a></td>
</tr>
<tr>
<td>Coal Plant Heat Source</td>
<td>Coal Boiler</td>
<td>$1,500–2,000/kWe (heat source &amp; heat transfer only)</td>
<td>$7–12/MWh</td>
<td>Forthcoming report</td>
</tr>
<tr>
<td>Hydrogen Cogeneration</td>
<td>Peaker Turbine Natural Gas</td>
<td>$2,500/kWe</td>
<td>$0.52/kg-H₂</td>
<td><a href="#">Nuclear for UK Net Zero</a></td>
</tr>
<tr>
<td>Hydrogen/Synfuel Gigafactory</td>
<td>Oil and Gas Production</td>
<td>$1,400/kWe</td>
<td>$0.37/kg-H₂</td>
<td><a href="#">Rethinking Deployment Scenarios</a></td>
</tr>
</tbody>
</table>
Pathway to Low Cost

- **Project**
  - FOAK Project
- **Program**
  - Non-FOAK
  - Program Build
- **Product**
  - Example EPRs/Vogtle
  - Example Sizewell C?
  - Example Barakah/China

**CapEx $/KWe**

- Restart Nuclear Industry
- Supply Chain Qualification
- Licensing
- Capacity Building

- Reduced Design Costs
- Reduced Prices (more volume)
- Schedule Optimization
- Skilled Workforce
- Optimized Sequencing
- Competitive Supply Chain

- Designed for Manufacture and Assembly
- Optimized/Reduced Direct Costs
- High Productivity Manufacturing/Delivery
- Short Construction Schedule

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Enabling Product Thinking

Optimized Value/Cost → Learning by Doing → Reusable Design → Standardized Delivery → Continuous Improvement

Value Engineering → Seismic Isolation → Design in Quality → DfMA Design in Quality
Cost Reduction from Coal Plant Repowering

- Cost Reduction from Coal Plant Repowering
  - Scope reduction from reuse of parts of coal plant
  - Standardization and optimized delivery
  - Operating cost of coal plant

$ CapEx

- Standalone Advanced Nuclear Plant

LucidCatalyst > From Project to Product: Transforming Plant Delivery Models
What Could Success Look Like?

### Flexible Generator – Electricity Market

<table>
<thead>
<tr>
<th>Market</th>
<th>GW</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>250</td>
<td>$625 B</td>
</tr>
<tr>
<td>World</td>
<td>2,000</td>
<td>$5,000 B</td>
</tr>
</tbody>
</table>

### Coal Plant Heat Source – Electricity Market

<table>
<thead>
<tr>
<th>Market</th>
<th>GW</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>250</td>
<td>$375 B</td>
</tr>
<tr>
<td>World</td>
<td>2,200</td>
<td>$3,300 B</td>
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</tbody>
</table>

### Hydrogen Cogeneration – Electricity & Fuels

<table>
<thead>
<tr>
<th>Market</th>
<th>GW</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>300</td>
<td>$750 B</td>
</tr>
<tr>
<td>World</td>
<td>2,000</td>
<td>$5,000 B</td>
</tr>
</tbody>
</table>

### Hydrogen/Synfuel Gigafactory – Fuels Market

<table>
<thead>
<tr>
<th>Market</th>
<th>GW</th>
<th>US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>486</td>
<td>$680 B</td>
</tr>
<tr>
<td>World</td>
<td>5,832</td>
<td>$8,165 B</td>
</tr>
</tbody>
</table>
LucidCatalyst delivers strategic thought leadership to enable rapid decarbonization and prosperity for all.

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