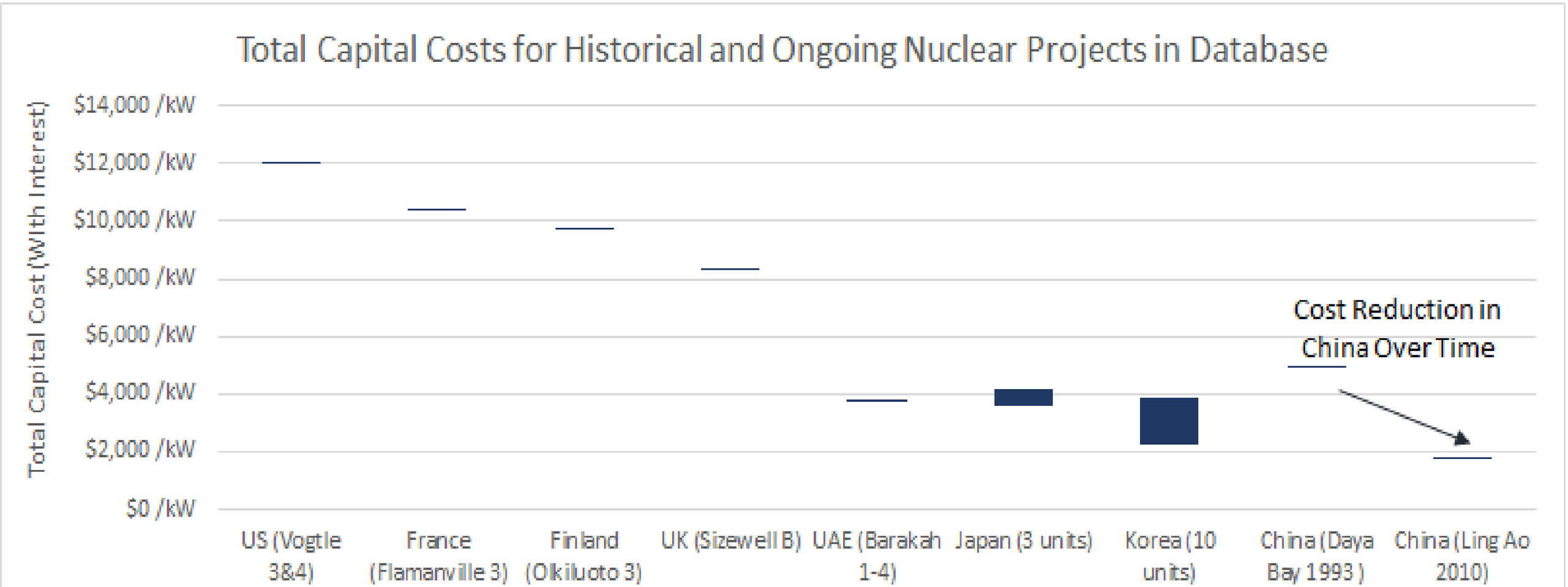
ENERGY FOR HUMANITY

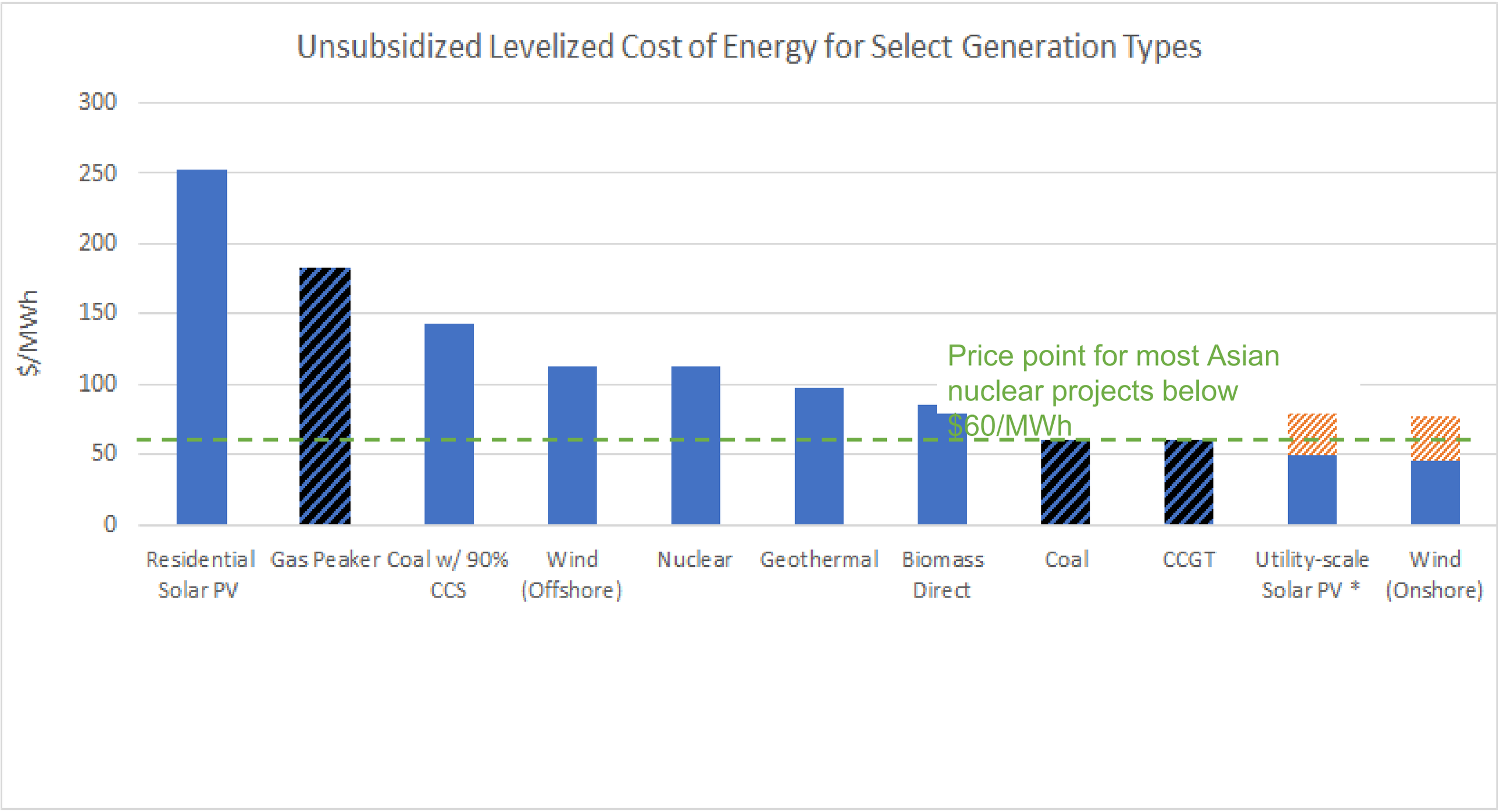
The ETI Nuclear Cost Drivers Project: Summary Report

LucidCatalyst

Wide range of nuclear new build costs



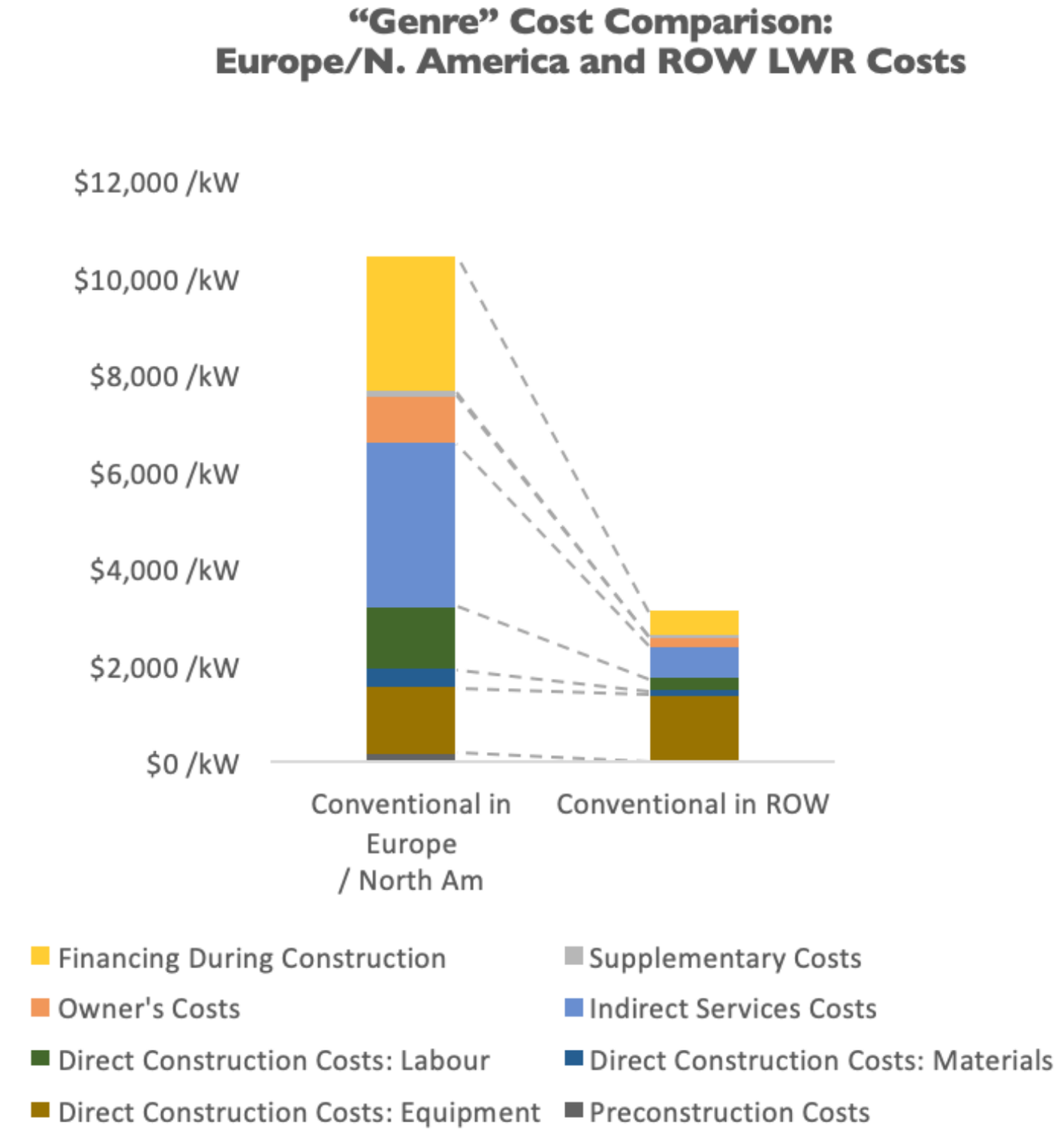
Asian nuclear is highly competitive with both fossil-fueled sources of electricity as well as many renewable sources



LWR “genre” costs: EU/N. America vs. ROW

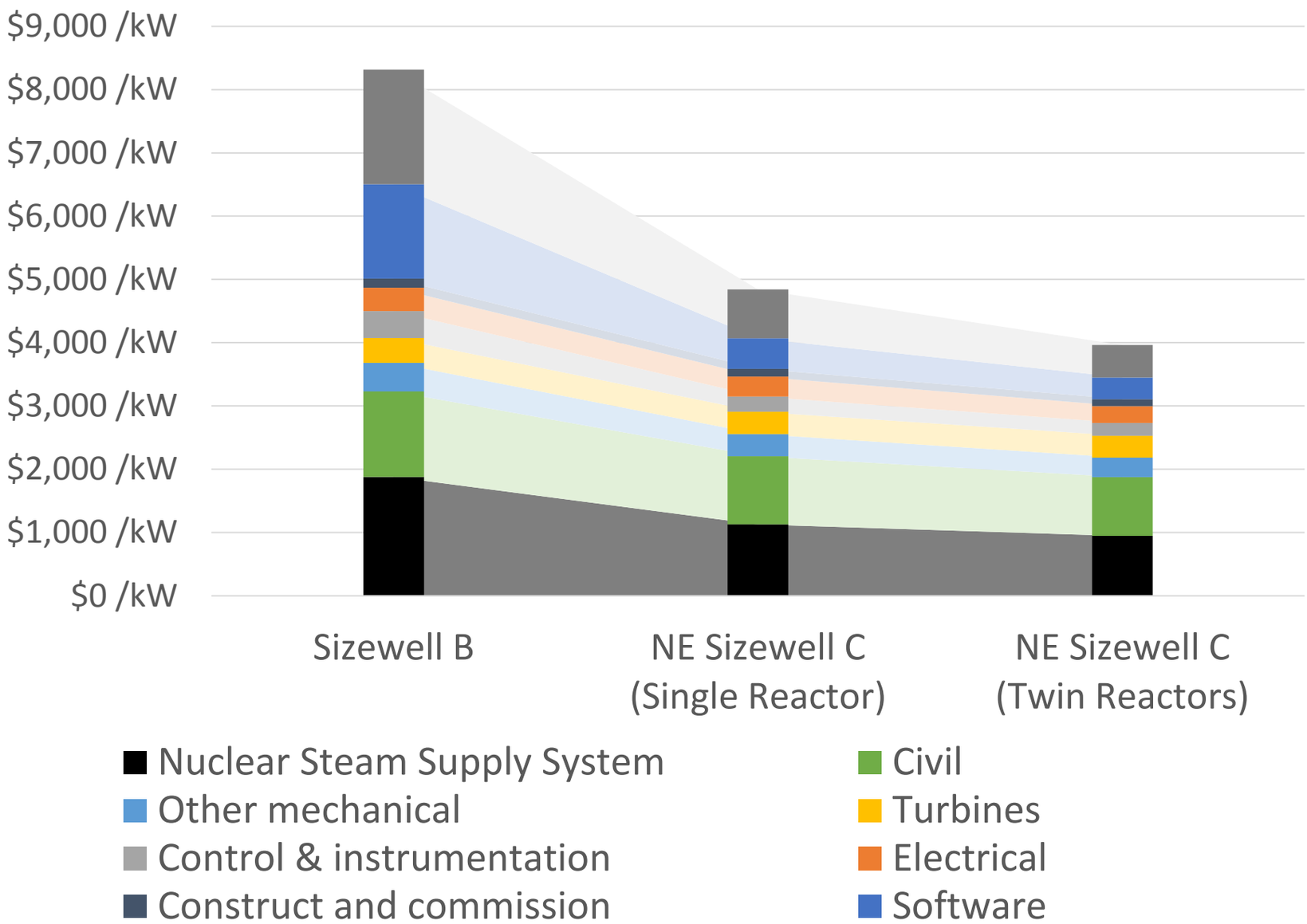
Nuclear CAN be expensive…

But it doesn't have to be!



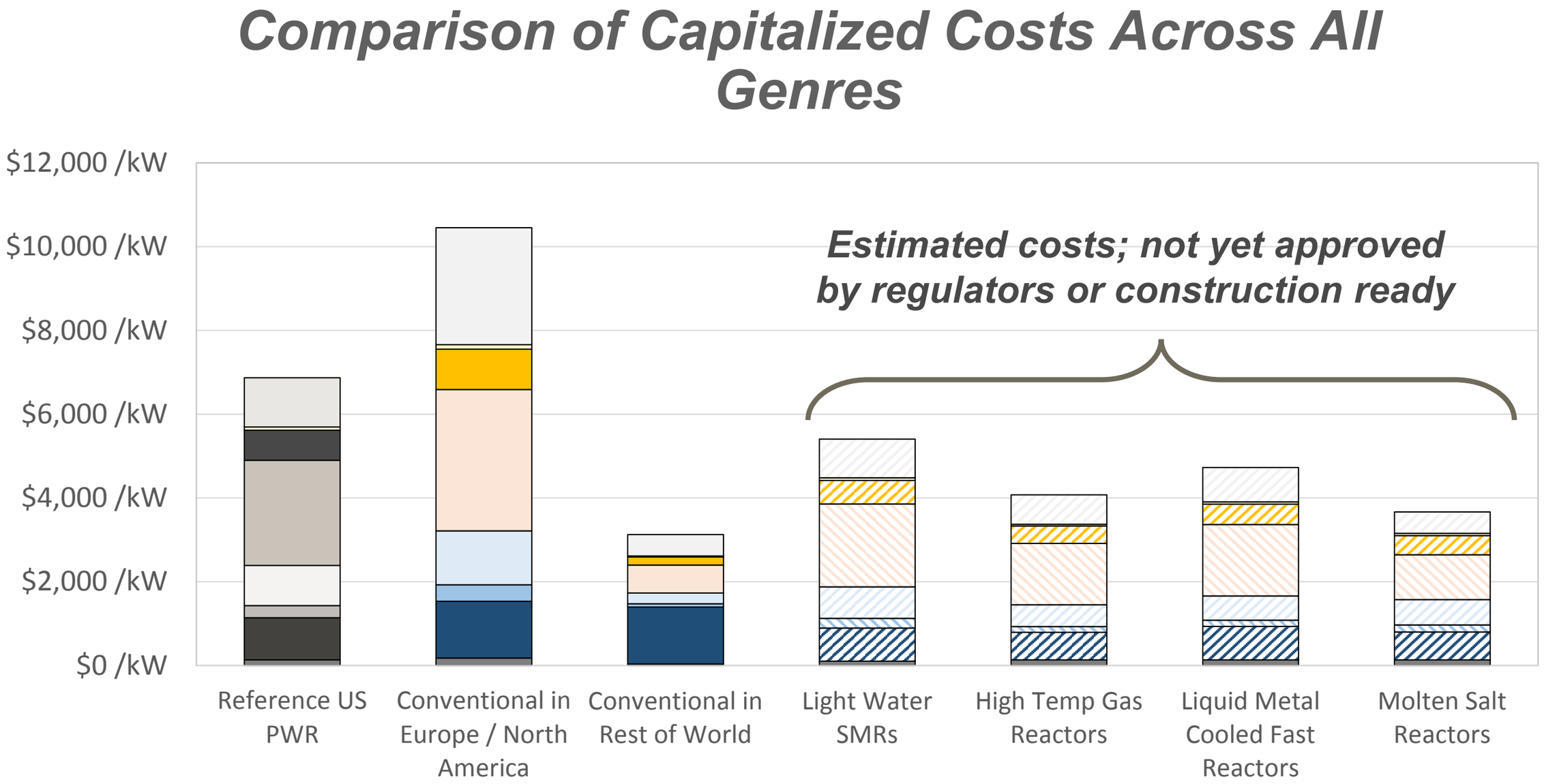
Learnings from Sizewell B to Sizewell C

Cost Reduction Trajectory at Sizewell B and Nuclear Electric's proposal for Sizewell C



- 30% reduction in overnight costs from Sizewell B to Nuclear Electric's proposal for Sizewell C (single reactor)
- Savings based on contractually-bound estimates
- ~20 month improvement in construction schedule

Genre summary results (CAPEX)



Well designed advanced reactors could reduce costs even further

- **Advanced reactor cost reduction strategies include:**
- Reduced construction scope, duration, and labor, particularly at site due to fewer buildings and fewer safety systems needed due to passive safety design.
- factory production of key components and assemblies.
- Simpler plant design
- Less labor-intensive Quality Assurance and verification.
- Highly-standardized, modular designs.
- Design for design reuse and constructability.
- Designed-in seismic isolation reduces site specific design costs.

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Conclusion: Affordable. Reliable. Investible.

- Cost reduction should be a major objective. Typical focus on reactor technology and safety instead of component fabrication, delivery, and plant construction.
- Hard wire best practice cost reduction into new designs and new build projects.
- Harmonization of international licensing to maximize transferability of designs.
- Early engagement to inform upstream design decisions, for example around the technical and economic performance of a reactor design in anticipation of particular market conditions, as well as the performance (in terms of cost, carbon intensity, reliability) of the overall energy system.
- Increase stakeholder awareness of potential for advanced nuclear to accelerate cost-effective decarbonisation through high performance hybrid energy systems.