Innovating for Cost Competitive Nuclear

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Importance of Cost

Source: Figure 3.2 from EPRI Report 3002011803: Exploring the Role of Advanced Nuclear in Future Energy Markets

Nuclear could become a major source of U.S. power generation at $2000/kW
Can Nuclear Be Economically Competitive?

Chapter Two: Nuclear Power Plant Costs

Select findings to reduce cost:

• Optimize new reactor buildings and structures ... both the amount of material and the amount of labor

• Cost reduction efforts need to be focused on construction improvements and processes
  - Standardization
  - Embedment
  - Modularization

• Successful nuclear builds have proven supply chains for NSSS

MIT Report Conclusion: Nuclear must be <$2500/kW to be competitive.
Nuclear Economics

Key Drivers to Reach the Target:

- Simplest way to make steam
- Dramatic improvements in construction techniques and timeline
- Significant Reduction in concrete and building materials
- Optimize staff and security

Capital Cost vs. LCOE Chart:
- Water-cooled SMRs
- Adv SMRs
- Large Gen III Rx
- Target costs:
  - $30/MWh
  - $70/MWh
  - $100/MWh

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