

Energy Affordability: Key Factors for Industry

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Energy Affordability: Households vs. Industry

Households

“Can I pay my monthly bill?”



Industry

How can I manage price, volatility, and reliability risks?

“Energy Affordability” = Risk Management



Energy cost

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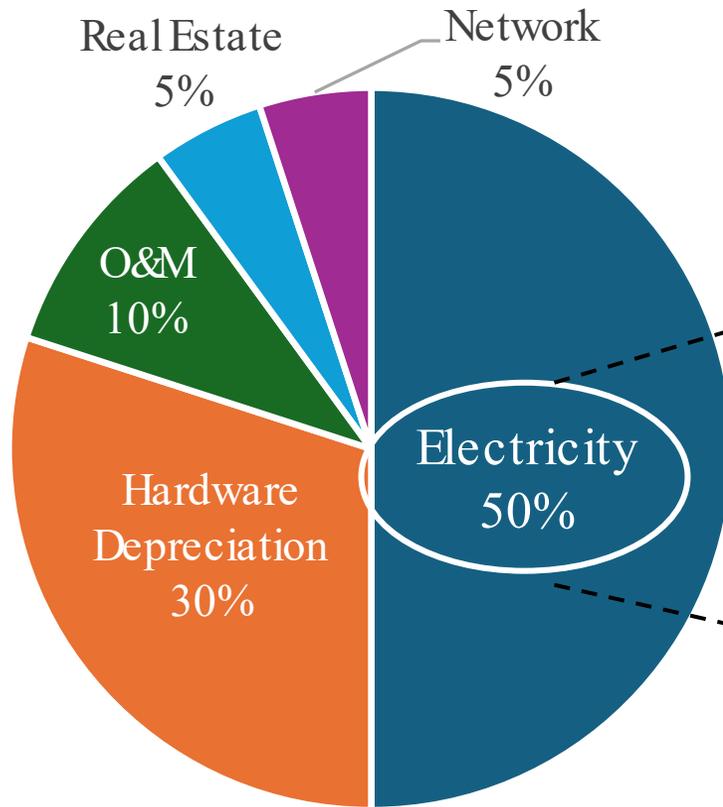
Volatility
(E.g., market, supply-
chain, policy)

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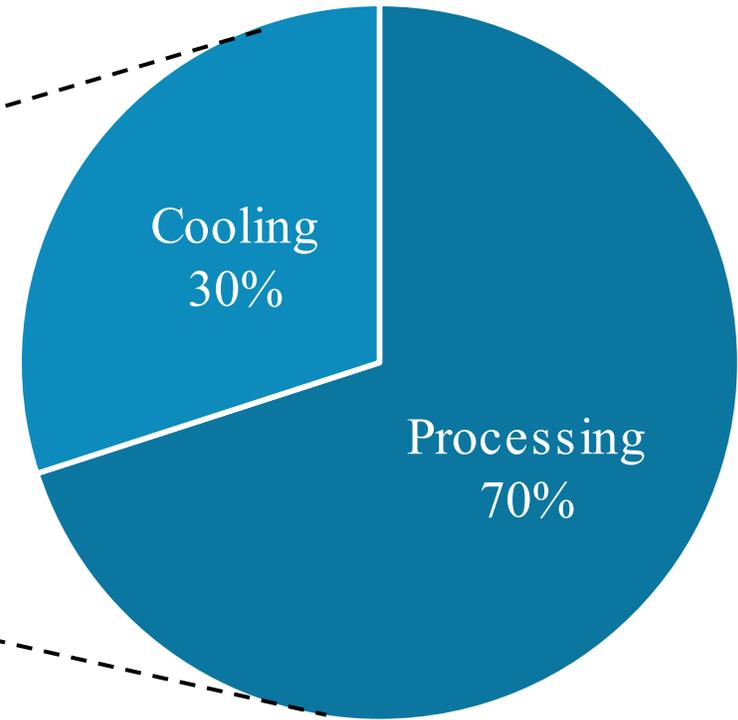


Reliability

Energy Cost (e.g., AI Data Centers)



Operating expenses for large AI Data Center (example)



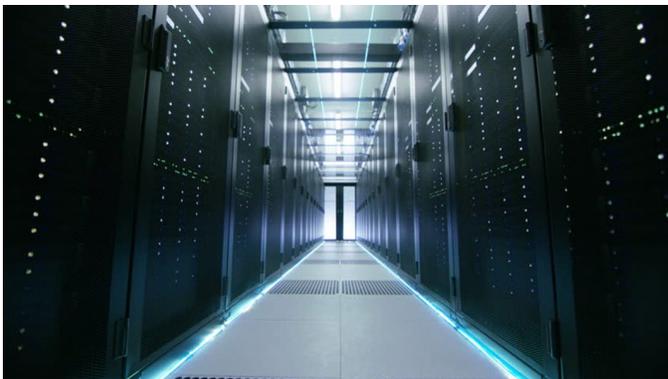
Electricity use (example)

Volatility



Short-Term Mitigation

- Load/supply flexibility
- AI-based forecasting
 - E.g., energy supply vs. demand, supply chain



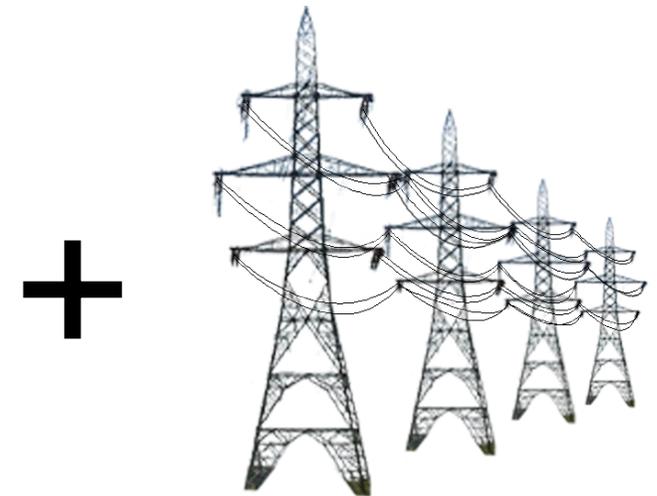
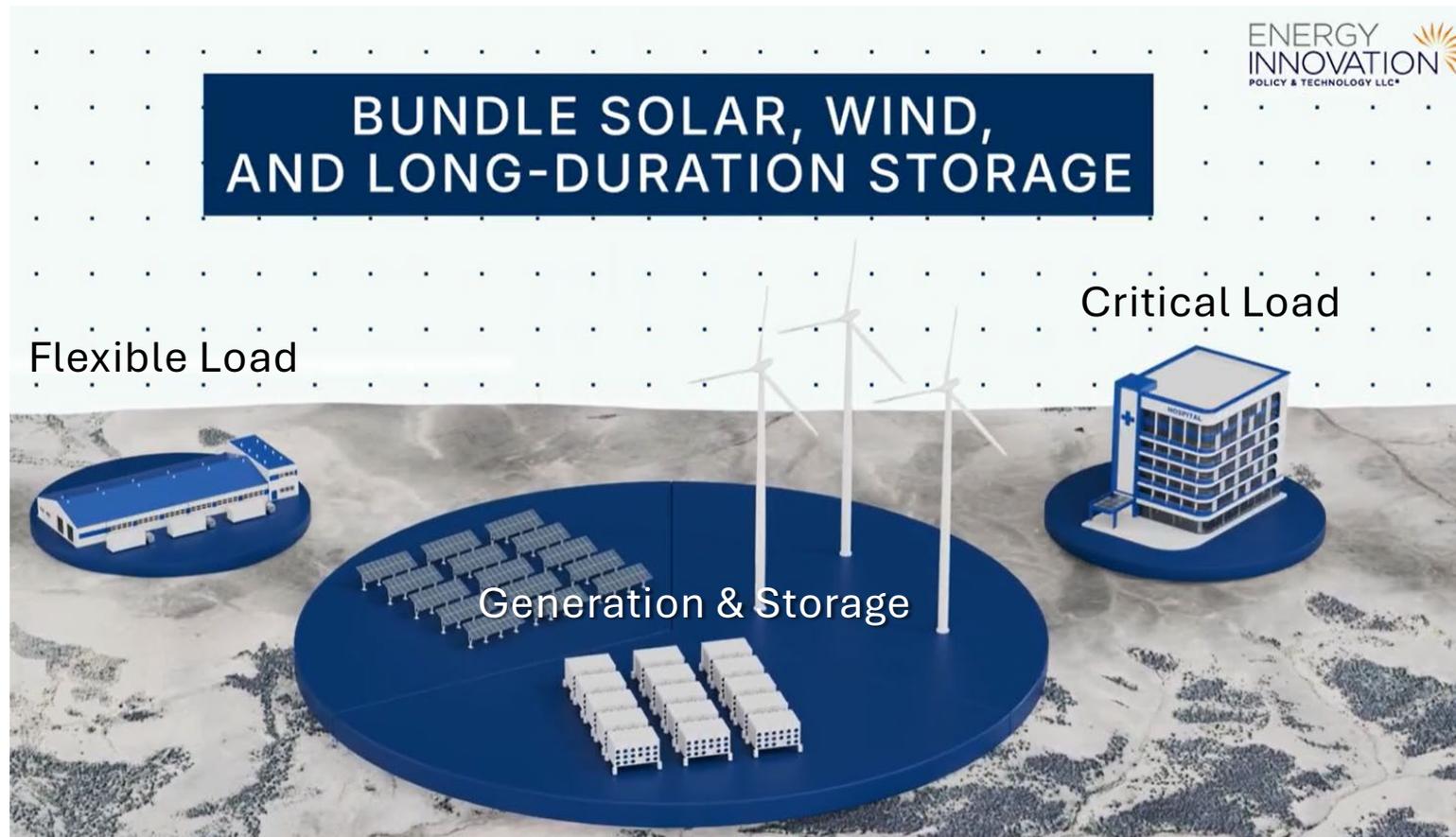
Long-Term Mitigation

- Long-term power purchase agreements (PPAs)
 - Google, Meta, Amazon, Microsoft
- Siting
 - Ex: ERCOT (deregulated TX market)
 - Typical electricity price is ~\$0.15/kWh
 - During Winter Storm Uri in 2021, prices reached \$9/kWh



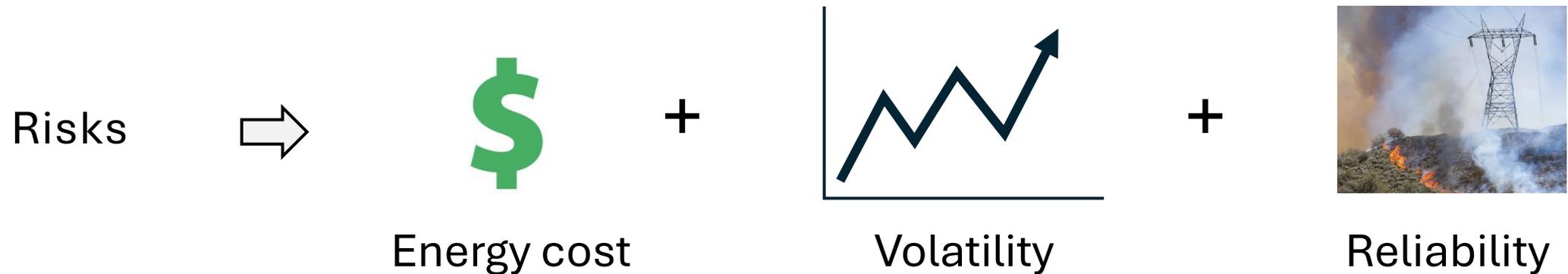
Reliability

- Integrated Infrastructure (Energy Parks)
 - Optimize supply and demand for load and grid flexibility



Summary

“Energy Affordability” for industries requires risk management



- Mitigation Examples \Rightarrow
- Efficiency
 - Siting
 - Flexibility
 - Long-term PPAs
 - Siting
 - Integrated infrastructure (e.g., energy parks)