Decision making for demonstration funding: Risk and portfolios

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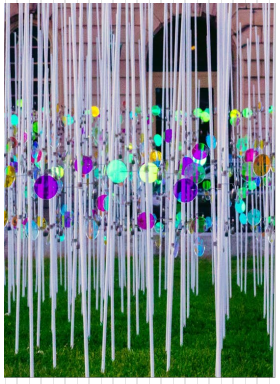
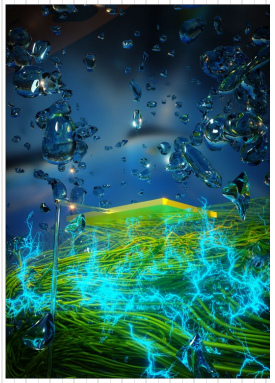




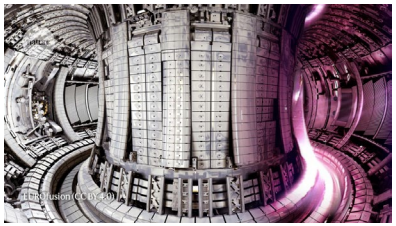
Energy Transition Institute @ UMass Amherst

Uncertainty

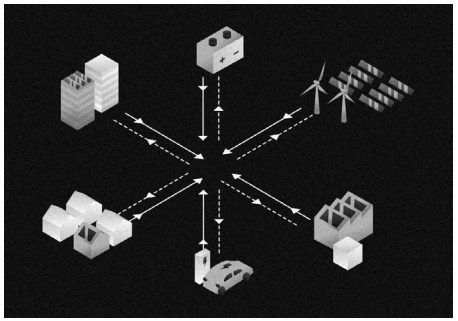
Rationale

Risk implications

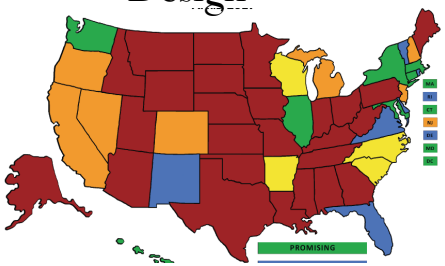
Portfolio implications



Technological



Design



Policy

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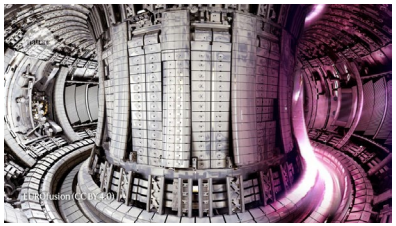

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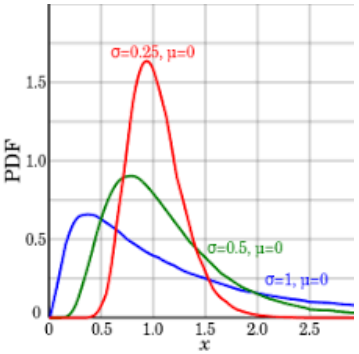

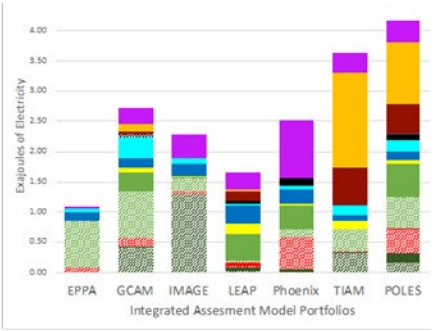

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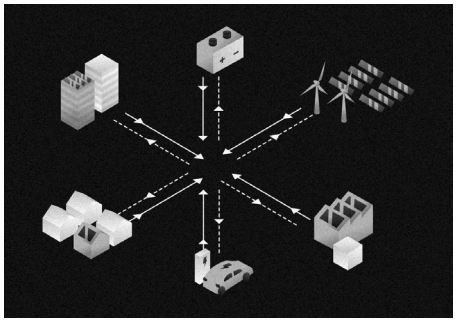

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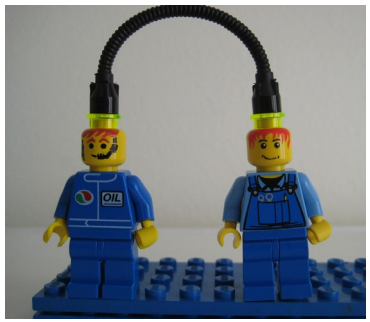
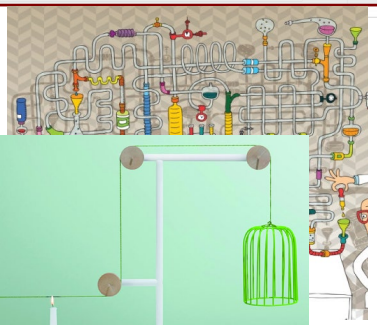
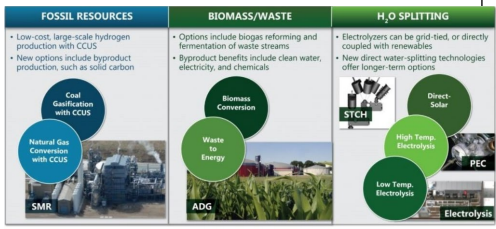
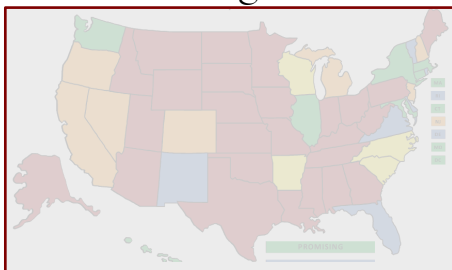






CCUS: carbon capture, utilization, and storage; SMR: steam methane reforming; ADG: anaerobic digester gas; STCH: solar thermochemical hydrogen; PEC: photoelectrochemical



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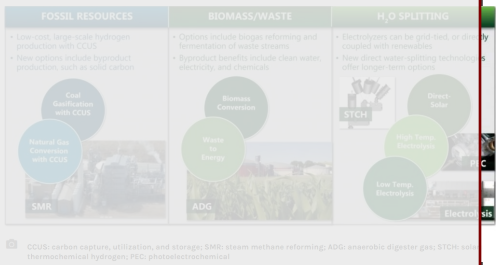
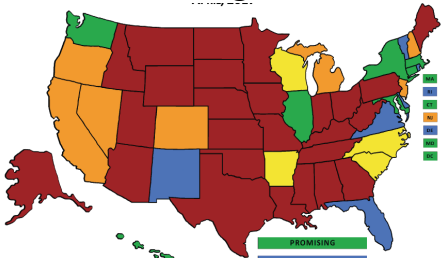
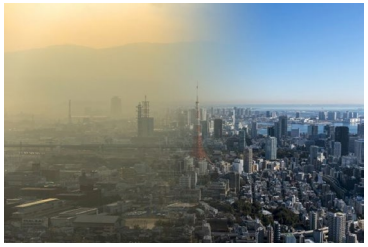
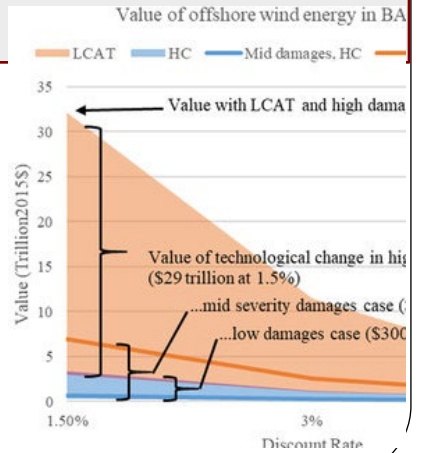








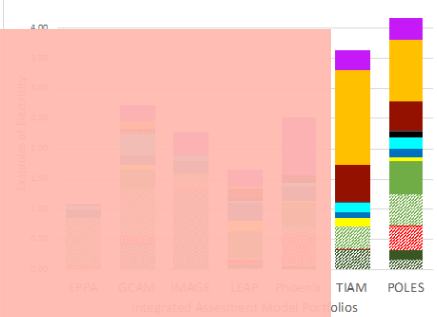
Policy

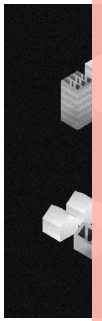
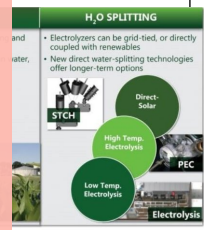
Diversify leadership

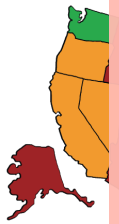
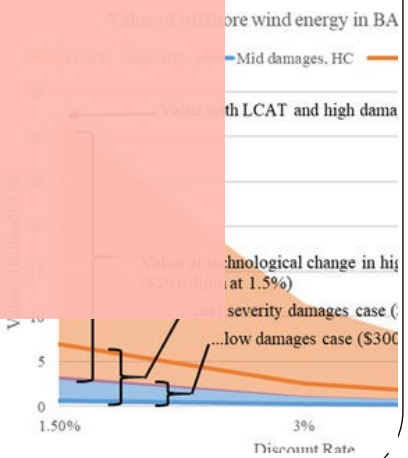
- *"Start ups funded by the top VCs were nearly 90% male. 72% of founders were white …14% were Ivy League-educated."* RateMyInvestor Report
- companies in the top quartile for gender diversity ….were **15 percent** more likely to experience **above-average profitability;** …(f)or ethnic and cultural diversity…a **35 percent** likelihood of outperformance. McKinsey and Company
- A.P. Ravikumar, E. Baker, A. Bates, D. Nock, D. Venkataraman, T. Johnson, et al., ***Enabling an Equitable Energy Transition Through Inclusive Research,*** Nature Energy, (2022). https://doi.org/10.1038/s41560-022-01145-z
- **Workshop on *Priorities and Research Needs for an Equitable Energy Transition*** from 9:30-1:30 on Friday, April 28, 2023, in Washington DC. To register: **https://forms.gle/1LaW9iP2ns2Q8ze67**. More info: https://nsf2026.umasscreate.net

Uncertainty | Rationale | Risk implications | Portfolio implications

- Diversify Risk Profiles
  - High risk, long tails
  - Opportunity to learn
  - Policy risk
- Diversify topics
  - Across technology categories
  - Across approaches
- Diversify leadership

Policy

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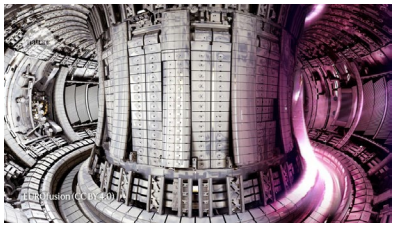

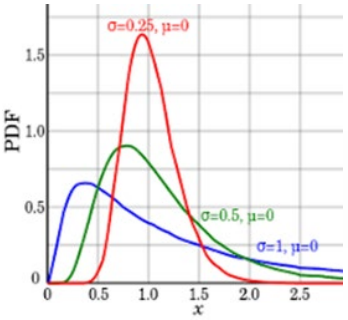

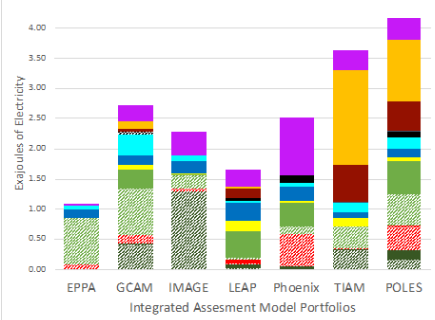

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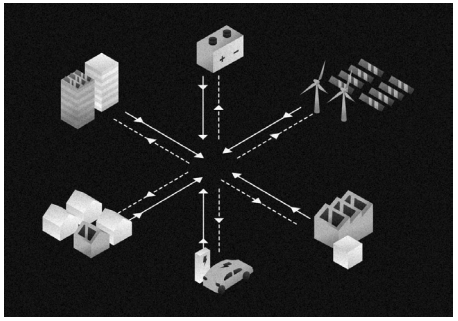

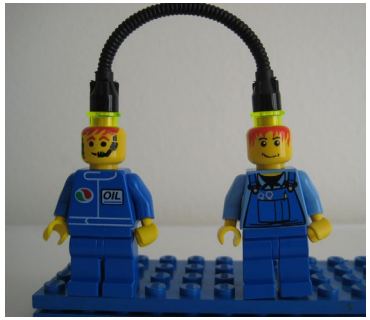

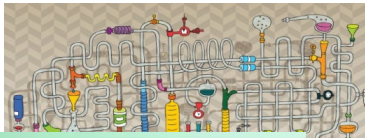

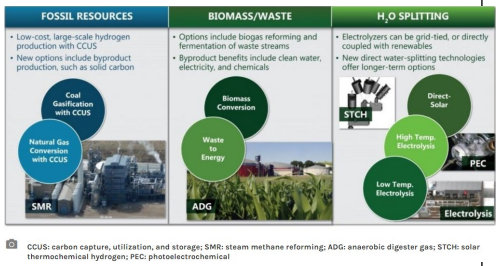

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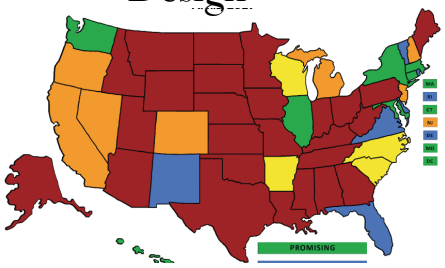

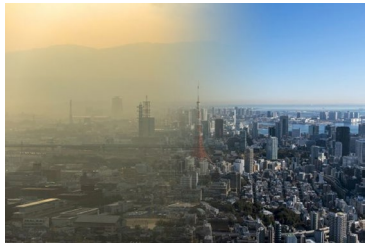

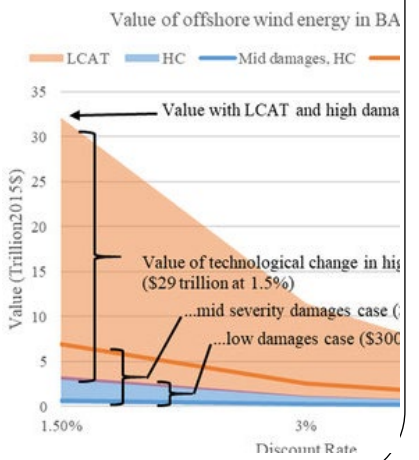

Policy

Uncertainty	Rationale	Risk implications	Portfolio implications
Technological	Risk aversion/long tails	Risky projects with large upside	Diversify technologies
Design	Cost of learning/spread out knowledge	Maximize option value	Diversify approaches
Policy	Costs and feasibility	Projects not profitable under current policy	Add options to portfolio