Energy Storage Challenges
Takeaways from State Case Studies

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STATE CASE STUDIES: COMMON CHALLENGES EMERGED

Case studies focused on five key states: California, Illinois, Massachusetts, New York, and Oregon.

Through interviews with policymakers, common barriers were identified, including:

- Grid interconnection barriers
- Questions of equity in energy storage program development
- Uncertainties about storage valuation, especially non-energy and non-monetizable benefits
- Difficulties in harnessing storage to meet state energy and environmental goals, especially distributed storage
- Knowledge barriers, especially with regard to future energy needs and future storage capabilities
- Uncertain or divided regulatory authority
- Insufficiently developed markets
- Questions about who should pay for energy storage investments, and how to allocate costs equitably
- Perceived high costs of energy storage
- Uncertainties about how to bring energy storage to scale, especially to provide longer-duration grid services
Grid Interconnection Barriers

**Problem:** Most proposed storage projects fail to achieve interconnection approval, due to high costs, long interconnection queues, and storage-specific barriers (both on distribution and transmission grids)

**Solutions:**

- Update and revise interconnection processes to incorporate storage operational characteristics
- Socialize required grid upgrade costs (reform “cost causation” model)
- Plan grid upgrades in a proactive, integrated and system-wide manner

New CEG report on interconnection barriers – webinar May 23
Equity in Energy Storage Program Development

**Problem**: How to provide equitable access to energy storage benefits, despite challenges such as high prices, immature markets

**Solutions**: Integrate equity provisions into state energy storage programs. For example:

- Incentive program adders (CT Energy Storage Solutions program)
- Equity carve-outs (CA SGIP program)
- Community storage (SMUD Storage Shares program)
- Technical assistance for multi-family affordable housing and other low-income community facilities (CEG TAF)
- Deployment grants for underserved and frontline communities (DOE Office of Electricity ES4SE program)
Storage Valuation, Especially Non-Energy and Non-Monetizable Benefits

**Problem:** markets are immature, lack pricing signals for many storage services

**Solution:** States fully value storage services even when markets do not; incentives are structured to compensate for immature storage markets

- States incorporate non-energy and non-monetizable benefits into storage cost-benefit analyses, and assign values – any value is better than no value!
  - Non-energy e.g. GHG emissions reductions
  - Non-monetizable e.g. improved energy resilience for critical facilities

- States employ BCA best practices to ensure storage is fairly evaluated for cost-effectiveness (utility IRP cost-effectiveness analyses often leave significant storage benefits off the table) – see CEG framework report on state storage BCA best practices
Harnessing storage to meet state energy and environmental goals, especially distributed storage

Problem: Incentivizing more energy storage deployment does not necessarily result in reduced GHG emissions, increased resilience, increased renewables/electrification, or a modernized grid.

Solution: Incentivize storage services/use, not just installation.

Examples:

CA SGIP and emissions benefits
ConnectedSolutions and related program models (MA, CT, RI, VT)
MA Clean Peak Energy Standard
Example: California SGIP (Self Generation Incentive Program)

- When California incentivized battery *deployment only*, it made GHG emissions *worse*.
- California solved their emissions problem by making 50% of the battery incentive contingent on battery *use* (batteries charging and discharging *at the right times*).
Takeaways

- **Good News: Energy storage has arrived!**
  - Lots of energy storage in interconnection queues
  - Leading clean energy states adopting storage targets and incentives
  - Battery demand exceeding supply

- **Bad News: Energy storage has arrived!**
  - New technology is challenging legacy systems
    - Interconnection processes
    - Regulatory structures
    - Program structures (NEM, RPS, energy efficiency plans)
    - Wholesale market rules
    - Valuation and cost-effectiveness
  - Storage industry ecosystem needs to develop
    - Raw materials sourcing
    - Reuse and recycling
    - Standardized financing and contracting
    - Permits and standards
    - Insurance, warranties
    - Commoditization of all kinds
  - Huge and immediate need to scale up storage production and deployment
Download the full report: https://www.cesa.org/resource-library/resource/states-energy-storage-policy-best-practices-for-decarbonization/
THANK YOU

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