

Energy Storage Ownership Models & Policy Goals

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Project Summary

Energy storage technologies offer an unprecedented degree of flexibility to the electric grid in both operational and locational terms. Who deploys energy storage and where it is deployed are two factors that have significant impact on how the device will be used. This project explores policy considerations underlying ownership decisions; different ownership models associated with energy storage and how storage is generally used under each of them; the use cases for energy storage identified by state policies; and how ownership models align with those policies, including any additional infrastructure or regulations necessary to enable a particular use under a given model.

State Policy Goals for Energy Storage

- Resource adequacy
- Peak Reduction
- Ancillary services
- Renewables integration
- Customer rate management
- Transmission/distribution system services
- Transmission/distribution investment deferral
- Resilience
- Decarbonization

Ownership Model Case Studies

BTM: Utility-Owned	BTM: Utility/Customer Hybrid	FTM: Utility/3 rd Party Hybrid
Liberty Utilities (NH) <ul style="list-style-type: none"> • Utility installs, owns, and controls device on customer premises • Used for customer rate management and peak reduction • Provides backup power to customers during outages 	Green Mountain Power (VT) <ul style="list-style-type: none"> • Initial program was similar to Liberty's • Now a bring-your-own device program • Customer buys device with help of large utility incentive • Utility dispatches devices for customer rate management and peak reduction • Peak reduction saved all customers \$500k in 2018 	Hawaiian Electric (HI) <ul style="list-style-type: none"> • Hybrid project: 30 MW solar and 30 MW/120 MWh storage • Agreement with project developer AES structured like a power purchase agreement (PPA) • AES builds and owns the project; utility pays a monthly lump-sum payment and controls assets 

Summary of Policy Issues

Arguments for Utility Ownership

- Opportunity for long-range, system-wide planning
- Opportunity to optimize the distribution system
- Enhanced flexibility to use cost-effective resources
- Enhanced economies of scale (i.e., prices drop with larger projects) + utilities have low cost of financing
- Ownership through ratepayers is most socially equitable

Arguments Against Utility Ownership

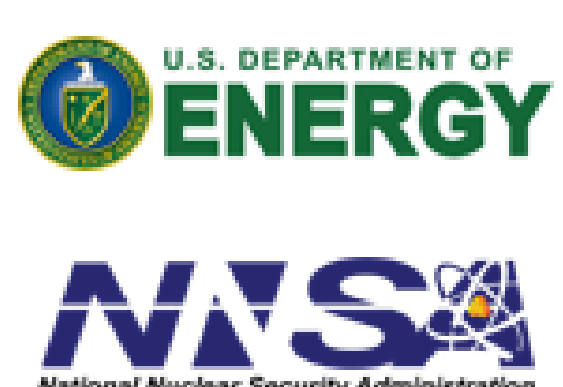
- Market power concerns: Utility ownership may preclude third-party participation.
- Utility ownership focus limits energy storage on reliability services only, forsaking other applications for storage
- Uncertainties about cost recovery and equitable rate treatment among customers
- Non-utility ownership will do more to ensure that storage will be fairly compensated for the broadest possible set of benefits

Ownership and Policy: Identifying the Nexus Points

Owner	Resource Adequacy	Peak Reduction	Ancillary services	Renewables Integration	Customer Rate Management	T&D Services	T&D Deferral	Resilience	Decarbonization
Utility	●	●	●	●	○	●	●	●	●
Third Party	●	●	◐	●	○	○	●	●	◐
Utility/Third Party Hybrid	●	●	●	●	○	●	●	●	●
Utility	●	●	○	●	●	●	●	●	●
Customer	◐	◐	○	●	●	◐	◐	●	◐
Utility/Customer Hybrid	●	●	○	●	●	●	●	●	●
Third Party/Customer Hybrid	●	●	○	●	●	◐	◐	●	◐

Front of Meter ● Readily provided ◐ Conditionally provided ○ Cannot be provided
 Behind the Meter

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