

Impact Assessments for Behind-the-Meter Energy Storage: Early Outcomes and Cross-Site Lessons from Molokai, Savannah, and Talent

Adrienne L. S. Rackley (1), Brittany Y. Davis (1), Lin Zeng (1), Andrew White (2)
(1) Pacific Northwest National Laboratory, (2) Formerly of PNNL

PROJECT PROFILE

Topic Area: Analytics & Tools; Grid Resilience & Reliability
Vertical: Demonstration Projects; Analytics; Grid Integration and Field Validation
Strategic Pathway: Stabilize; Optimize; Grow
Project Start and Finish: FY25-FY26

PROBLEM

Energy storage deployments are often assessed by installed capacity and equipment commissioning milestones, but less often by operational outcomes such as reliability, cost stability, emergency functionality, and user experience.

This project developed impact assessment methods and applied them to evaluate real-world project outcomes including energy affordability, reliability, outage performance, and emergency functionality across three deployment settings.

APPROACH

The team co-developed site-specific metrics with project participants and established baseline/post-deployment comparison frameworks across all three projects. Metric coverage varies by deployment setting, but all three sites assess core outcomes related to reliability and operational performance.

- Inputs included tailored methods and data sources:
- Household surveys and workforce records for Ho‘āhu Energy Cooperative Molokai (HECM) on Molokai, HI
 - Utility bills, battery logs, and focus groups for Harambee House (HH) in Savannah, GA
 - Resilience metrics and student surveys for Phoenix-Talent School District (P-T S) in Talent, OR

Table 1. Impact Assessment Metrics Selected Across Sites

Metric Sub-Category	HECM	HH	P-T S
Cost Savings	■	■	□
Energy Reliability	■	■	■
Critical Services	□	■	■
Emergency Ops			■
User Experience	■	□	■
Workforce	■		□
Grid Support		■	

Legend

- Primary metric selected in Task 1
- Related / partial / partner-tracked
- Blank = Not a primary assessment focus

EARLY RESULTS (data collection and evaluation ongoing)



Molokai, HI
Ho‘āhu Energy Cooperative Molokai

- Average savings of >\$350/month per household
- Less time obtaining fuel and ice
- Improved daily convenience
- Workforce utilization tracked



Savannah, GA
Harambee House

- 25-30% lower energy bill costs (Jun-Feb)
- Improved continuity of critical services
- Reduced grid electricity use
- Priority outage services identified



Talent, OR
Phoenix-Talent School District

- School outage continuity assessment underway
- Shelter capacity metric defined
- Critical resources tracked
- Student outage survey ready

Tailored impact assessments can capture operational value beyond installation metrics alone.

CONCLUSIONS & IMPACT

Impact assessment methods must match deployment context. Early findings suggest behind-the-meter storage can provide measurable benefits in affordability, reliability, and outage continuity. Cross-site lessons from these projects can inform future DOE-supported energy storage evaluations and deployments.

HECM: installations have generated strong local interest and a growing waitlist of households interested in BESS.

HH and P-T S: findings are informing installation and management of additional resilience hubs.

FUTURE DIRECTIONS

- Complete data collection and post-deployment analysis
- Compare results across sites
- Translate lessons learned into replicable evaluation methods for future projects

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For additional information, contact:

Adrienne Rackley
(509) 371-6352
Adrienne.Rackley@pnnl.gov