



# **MAINE PUC ENERGY STORAGE COMMISSION ENERGY STORAGE SYSTEM CASE STUDIES**

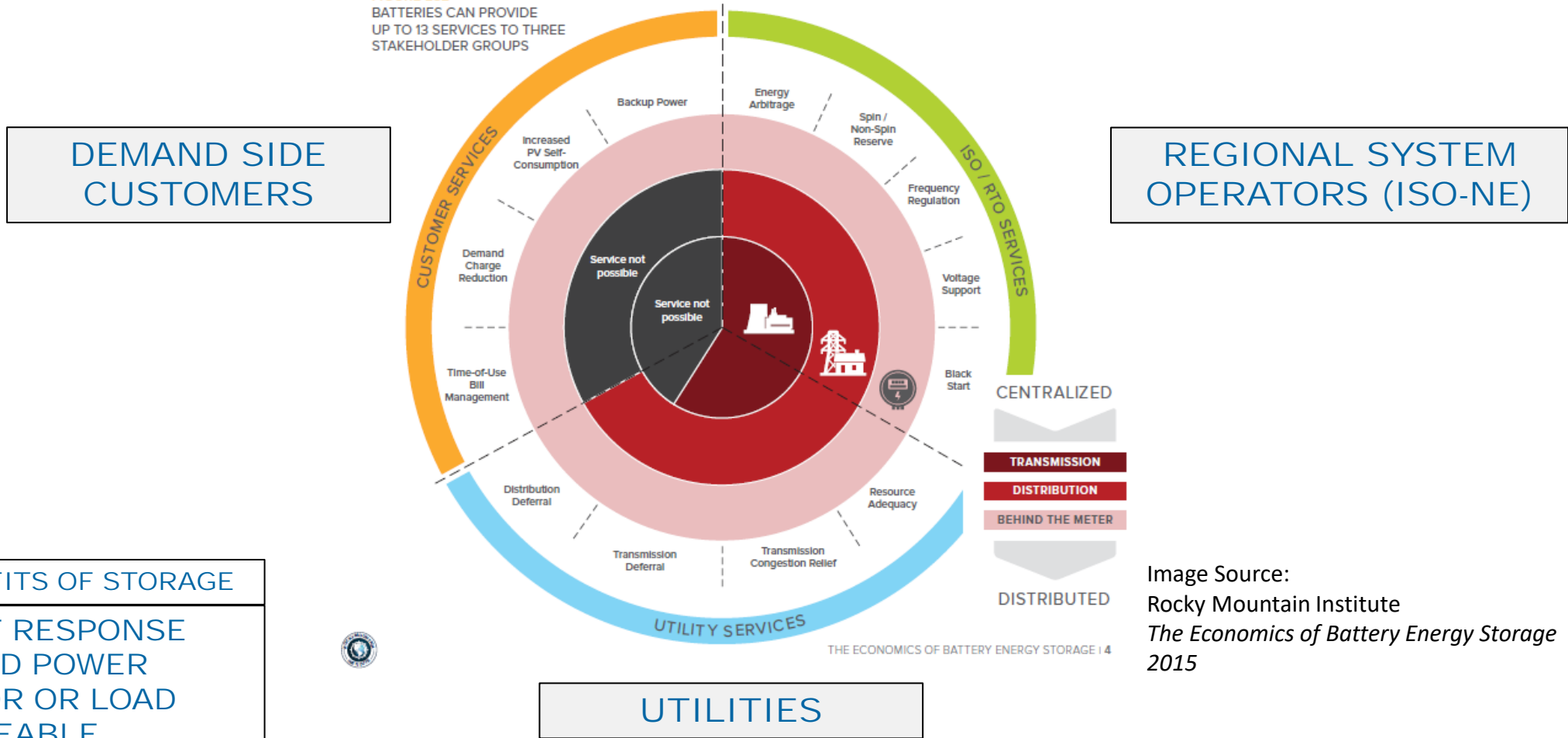
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# VALUE OF ENERGY STORAGE

**FIGURE ES2**  
BATTERIES CAN PROVIDE UP TO 13 SERVICES TO THREE STAKEHOLDER GROUPS



- UNIQUE BENEFITS OF STORAGE**
- ✓ VERY FAST RESPONSE
  - ✓ ON DEMAND POWER
  - ✓ GENERATOR OR LOAD
  - ✓ RE-CHARGEABLE

Image Source:  
Rocky Mountain Institute  
*The Economics of Battery Energy Storage 2015*

# PORTSMOUTH NAVAL SHIPYARD

KITTERY, ME

Ancillary Services to ISO-NE  
Microgrid Support



1 MW / 1 MWH

BATTERY SYSTEM SIZE

Q4 2020

PLANNED OPERATION DATE

BEHIND THE METER

Ameresco designed and installed three phases of comprehensive energy conservation projects under ESPC over 18yrs.

In 2016 a microgrid solution funded by a DOD grant was implemented to demonstrate islanding capabilities, which eliminates downtime during a loss of the electric public utility.

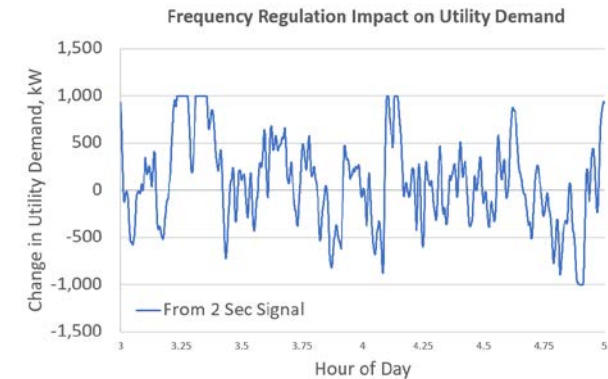
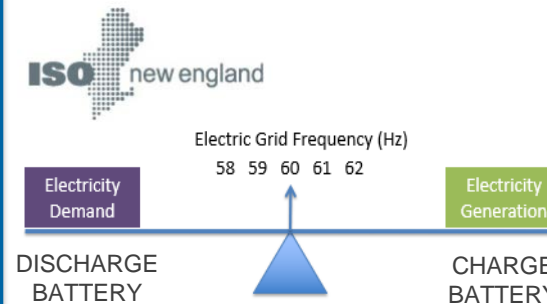
New BESS will enhance this islanding capability, funded through a new comprehensive energy savings performance contract.

## RESILIENCY SUPPORT

- On site CHP generation and advanced controls allow site to island from the utility during an outage
- BESS enhances microgrid capability of site by providing instantaneous backup power and seamless islanding ability
- Abilities of the BESS to respond very fast (ms) and charge or discharge offer unique value to the microgrid



## ISO-NE FREQUENCY REGULATION OPERATION



- BESS supports overall grid reliability, benefiting the Navy and the greater Maine community
- New revenue stream for the Navy to manage its electricity costs

# MCRD Parris Island

Parris Island, SC  
 PV + Storage (Increased PV Self Consumption)  
 Microgrid Support



4 MW / 8 MWH

SEP 2018

BEHIND THE  
 METER

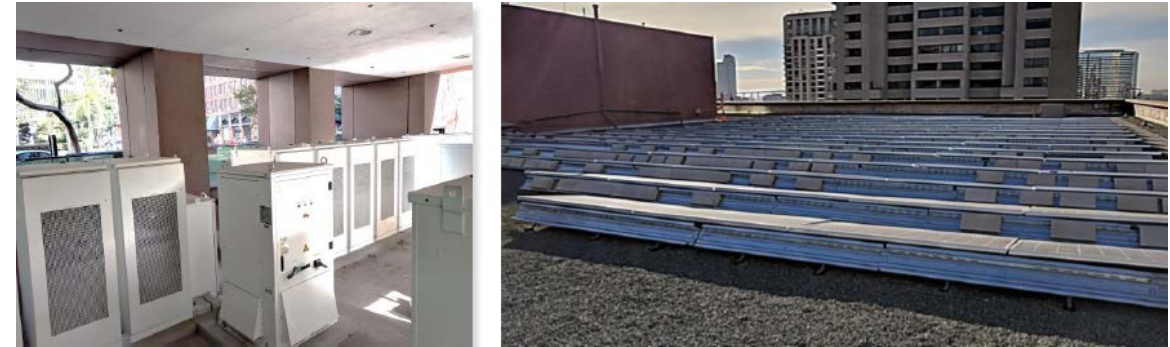
BATTERY  
 SYSTEM SIZE

COMMISSIONING DATE

- BESS captures surplus PV generation from 6.7 MW of on-site Solar PV, using this energy on site & avoiding curtailment. Capacity to store and utilize over 1,120,000 kWh of annual PV generated energy.
- BESS provides reliable, fast response and islanding capability, supporting the Depot electric grid during utility disturbances

# Schwartz Federal Courthouse

San Diego, CA  
 PV + Storage  
 (Renewable Energy Production + Demand Charge Reduction)



0.75 MW / 1.5 MWH

FEB 2018

BEHIND THE  
 METER

BATTERY  
 SYSTEM SIZE

COMMISSIONING DATE

- BESS reduces site's monthly on peak utility demand by up to 387 kW, yielding significant electric utility bill savings
- 305 kW rooftop Solar PV provides 482 MWh of annual renewable energy (7.5% of site goal of 25% renewables by 2025)

# Plymouth South High School

Plymouth, MA

BTM Demand Charge Management



0.25 MW / 0.5 MWH

BATTERY  
SYSTEM SIZE

Q4 2019

COMMISSIONING DATE

BEHIND THE  
METER

- BESS reduces school's monthly on peak utility demand and associated billing costs
- 332 kW Rooftop Solar PV on site
- BESS also anticipated to participate in Eversource's Connected Solutions utility demand response program.

## Thoughts on Maine Policy Development

- Amendment to interconnection tariff to allow for storage in addition to solar systems
- Need for capacity rights buyout option (see MA DPU Docket 17-146)
- Incentive programs and structured value streams to drive project economic viability – including a storage adder to DG procurement program in addition to separate incentives
  - Examples include MA SMART program, NY Retail and Bulk Storage incentives
  - California Self Generation Incentive Program (SGIP)
  - Demand Response programs (MA, NY)
  - Non-wires alternatives procurement (NY)
  - Storage as an alternative solution to upgrades