

RI Energy Storage Initiative

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Energy Storage Within EE

Plans in 2019

- The Company will be implementing its “Energy Storage Initiative” in 2019, which will incentivize a demonstration of 2 MWs of energy storage-enabled DR
- The Energy Storage Initiative is technology agnostic, though the predominant technology is expected to be Li-ion battery storage systems
- Incentive initially set at \$300/kW-year and is primarily targeted to C&I customers, though it is open to all customer classes
- Separate and distinct from storage demos approved through the rate case

Future Plans

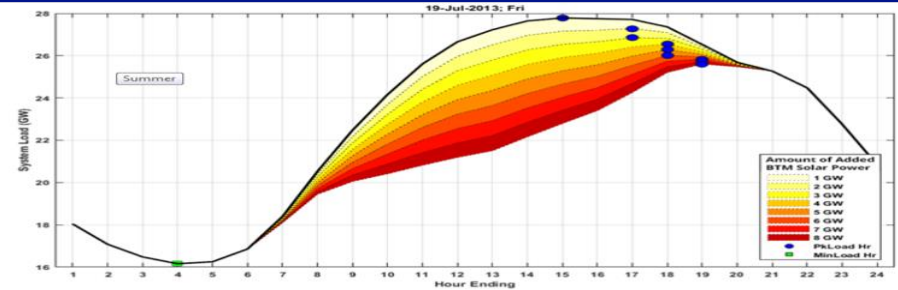
- The Company is looking to scale the Energy Storage Initiative in future years to achieve higher levels of peak load reduction within RI
- The Energy Storage Initiative is founded on the principle of creating value for customers

The Case for Energy Storage in RI

Increasing solar DG penetration is shifting peak load later in the day, reducing solar peak coincidence factors by 30% by 2028

- Peak load hour shifting from ~ 2pm to 5 pm by 2028
- Potential for energy storage to flatten peak load by up to 5%-10%; equates to a **90-180 MW opportunity** in RI
- BTM load reductions higher value than FTM generation due to FCM market rules applicable to subsidized resources

Summer load profile shifting later in day with increasing solar DG penetration – Source: ISO-NE



Shifting 10% of RI peak load would create annual benefits of ~\$130 million

<p>Avoided Costs</p>	<ul style="list-style-type: none"> ■ Energy Arbitrage ■ Capacity ■ T&D deferral ■ Wholesale price reduction (DRIPE) ■ Reliability 	<p>Annual System Benefits/kW</p> <p>Host Customer Benefits/kW</p>	
<p>Customer-facing Benefits</p>	<ul style="list-style-type: none"> ■ TOU arbitrage opportunities ■ Demand charge/ICAP management ■ Resiliency (backup power) 		
<p>Other Benefits</p>	<ul style="list-style-type: none"> ■ Power quality benefits ■ Renewables integration benefits 		
		<p>180MW x ~\$700/kW = ~\$130M</p>	<p>Host Customer Value Prop</p>

Avoided Cost of Capacity

Interaction with ISO-NE Load Forecast and FCM

- Wholesale capacity benefits from peak load reductions vary based on two types of interactions with the FCM:
 1. Actively Bid in FCM
 2. Passively reduce peak load forecast and resulting Installed Capacity Requirement (ICR)
- Passive capacity benefits are further differentiated based on frequency of load reductions
 1. Daily load reductions result in 100% of capacity being reduced from load forecast and ICR
 2. Targeted peak load reductions result in muted impact on load forecast and ICR (estimated at 10% of load reduced)

Current FCM Participation Models

- EE programs actively participate in the FCM
- National Grid's DR programs opted to act as passive load reducers due to FCM participation barriers related to metering infrastructure and market risks associated with active DR

Energy Storage Initiative

Energy storage-enabled DR is a cost effective way to achieve scalable load reductions

Pay for Performance

- Only pay for MWs of load reduction achieved
- 5-year guarantee for incentive level to address market barriers around customer financing

Daily Load Reduction

- Storage systems dispatched to target daily peak load reductions in the summer in order to maximize capacity benefits

Cost Effective

- 2019 EE Plan BC screening yields a 3.1 BC Ratio
- Incentivizes load reduction based on value to grid, rather than cost of technology

Scalable

- Traditional interruptible-load DR is limited in scale and frequency of dispatches
- Storage has no impact on customer operations and is scalable

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Acronym Definitions

BC Ratio: Benefit-Cost Ratio

BTM: Behind-the-Meter

DG: Distributed Generation

DR: Demand Response

DRIPLE: Demand Reduction Induced Price Effect

FTM: Front-of-the-Meter

FCM: Forward Capacity Market

ICAP: Installed Capacity

ICR: Installed Capacity Requirement

ISO-NE: Independent System Operator, New England

TOU: Time of Use