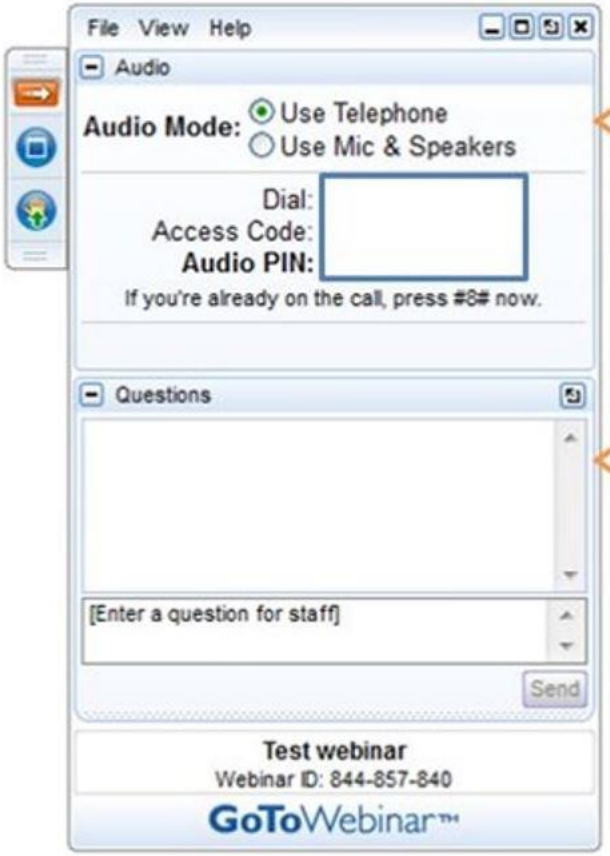
Energy Storage Technology Advancement Partnership (ESTAP) Webinar:

Energy Storage in Massachusetts: What the Study Said, and What's Next

October 27, 2016

Hosted by Todd Olinsky-Paul
ESTAP Project Director
Clean Energy States Alliance

Housekeeping



All participants are in "Listen-Only" mode. Select "Use Mic & Speakers" to avoid toll charges and use your computer's VOIP capabilities. Or select "Use Telephone" and enter your PIN onto your phone key pad.

Submit your questions at any time by typing in the Question Box and hitting Send.

This webinar is being recorded.

You will find a recording of this webinar, as well as all previous CESA webcasts, archived on the CESA website at

www.cesa.org/webinars

State & Federal Energy Storage Technology Advancement Partnership (ESTAP)

Todd Olinsky-Paul

Project Director

Clean Energy States Alliance (CESA)

Thank You:

Dr. Imre Gyuk
U.S. Department of Energy,
Office of Electricity Delivery and
Energy Reliability

Dan Borneo
Sandia National Laboratories

CleanEnergy States Alliance

Sandia National Laboratories

U.S. DEPARTMENT OF ENERGY

ESTAP is a project of CESA

Clean Energy States Alliance (CESA) is a non-profit organization providing a forum for states to work together to implement effective clean energy policies & programs:

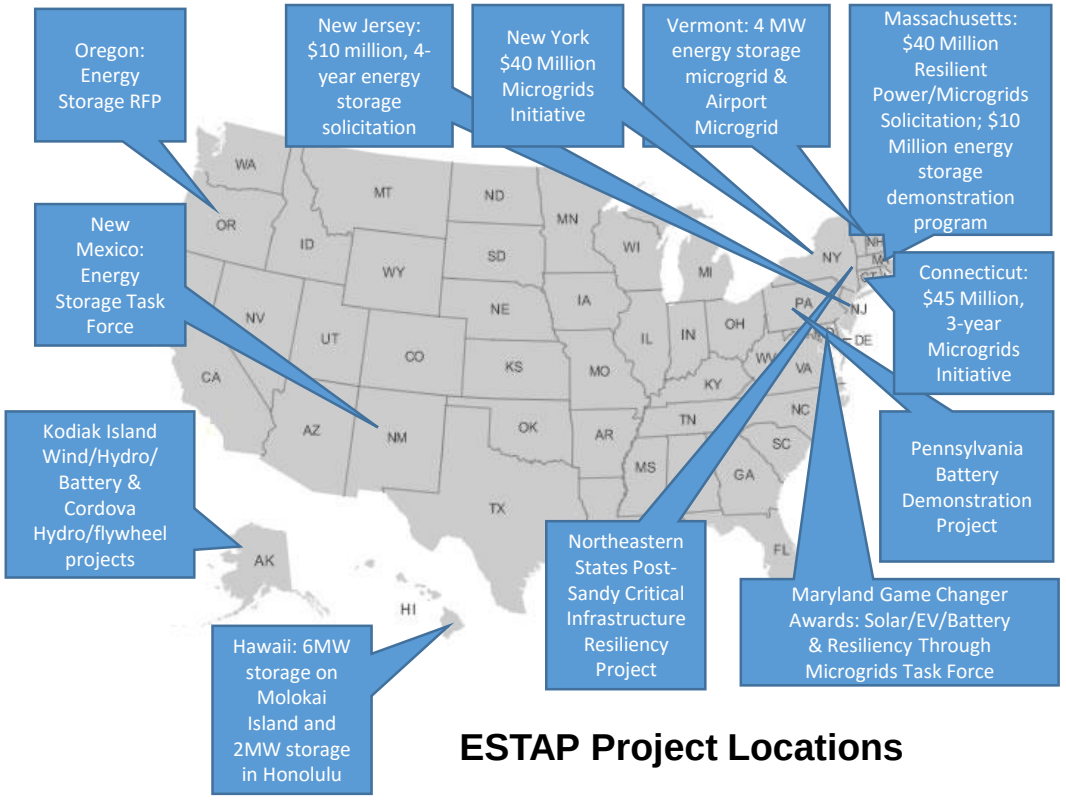
State & Federal Energy Storage Technology Advancement Partnership (ESTAP) is conducted under contract with Sandia National Laboratories, with funding from US DOE.

ESTAP Key Activities:

1. Disseminate information to stakeholders
   - ESTAP listserv >3,000 members
   - Webinars, conferences, information updates, surveys.

2. Facilitate public/private partnerships to support joint federal/state energy storage demonstration project deployment

3. Support state energy storage efforts with technical, policy and program assistance



ESTAP Project Locations

CleanEnergy States Alliance

Sandia National Laboratories

U.S. DEPARTMENT OF ENERGY

Energy Storage Technology Advancement Partnership

More CESA Projects

Overview

ESTAP Resource Library

ESTAP Webinars

ESTAP News

ESTAP Listserv Signup

ESTAP

Project Director: Todd Olinsky-Paul

Contact: Todd Olinsky-Paul, Todd@cleanegroup.org

SIGN UP FOR THIS e-MAILING LIST

The Energy Storage Technology Advancement Partnership (ESTAP) is a federal-state funding and information sharing project, managed by CESA, that aims to accelerate the deployment of electrical energy storage technologies in the U.S.

The project's objective is to accelerate the pace of deployment of energy storage technologies in the United States through the creation of technical assistance and co-funding partnerships between states and the U.S. Department of Energy.

ESTAP conducts two key activities:

1) Disseminate information to stakeholders through:

- The ESTAP listserv (>2,000 members)
- Webinars, conferences, information updates

NEW RESOURCES

October 14, 2015
Resilience for Free: How Solar+Storage Could Protect Multifamily Affordable Housing from Power Outages at Little or No Net Cost
By Clean Energy Group

September 30, 2015
Webinar Slides: Energy Storage Market Updates, 9.30.15

UPCOMING EVENTS

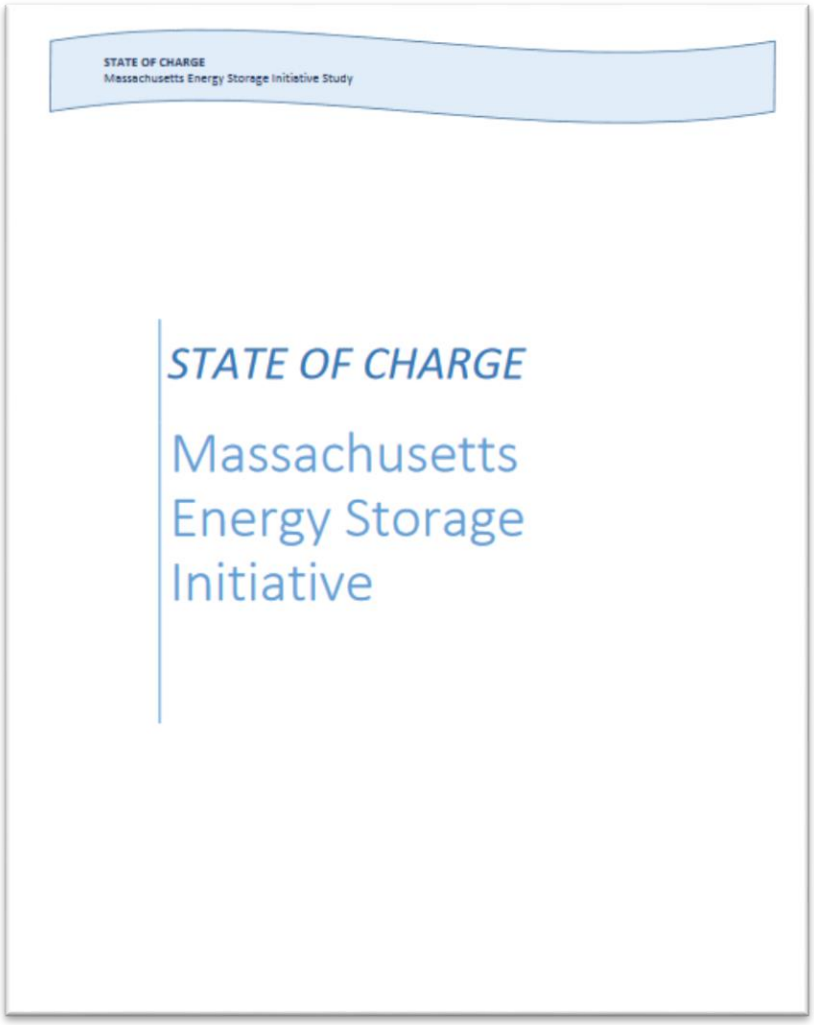
December 16, 2015
ESTAP Webinar: State of the U.S. Energy Storage Industry,

More Events

LATEST NEWS

November 30, 2015
Massachusetts Takes the Lead on Resilient

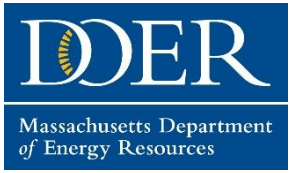
State of Charge: Massachusetts Energy Storage Initiative



Available at:
www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/energy-storage-initiative/

Panelists

- **Dr. Imre Gyuk**, U.S. Department of Energy Office of Electricity Delivery and Energy Reliability
- **Kavita Ravi**, Massachusetts Clean Energy Center
- **Jacqueline DeRosa**, Customized Energy Solutions
- **Randell Johnson**, Alevo Analytics
- **Will Lauwers**, Massachusetts Department of Energy Resources
- **Todd Olinsky-Paul**, Clean Energy States Alliance (Moderator)



DOE-OE Projects supporting the Massachusetts Energy Storage Initiative

IMRE GYUK, PROGRAM MANAGER
ENERGY STORAGE RESEARCH, DOE

DOE applauds the “State of Charge” report commissioned by the Massachusetts Department of Energy Resources (DOER) and Massachusetts Clean Energy Center (MassCEC) which recommends policy and program initiatives designed to support deployment of 600MW of energy Storage by 2025.

The DOE Office of Electricity’s Energy Storage Program is pleased to participate in this initiative through analysis, leveraged funding, and joint deployments. A few of the projects should be mentioned:

Sterling MA
MA-DOER: Microgrid/Storage Project

Sterling Municipal Light Department

$1.5M Grant from Community Clean Energy Resiliency Initiative.

1MW/2hr storage to provide resiliency for Police HQ and Dispatch Center

In conjunction with existing 3.4 MW PV

DOE-OE providing funds and technical support towards expansion to 2MW/3MWh

- Backup for police station / dispatch center
- Cost savings through capacity reduction
- Revenues from demand charges and arbitrage
- Integration of intermittent PV

Northampton, MA
MA-DOER: Microgrid / Storage Project

- Brings multiple assets together to improve resiliency
  - *Biomass, PV, Diesel*
  - *Energy Storage*
- Islands 3 abutting campuses during outage.
  - Northampton Dept. of Public Works
  - Smith Vocational & Agricultural High School.
  - Cooley Dickinson Hospital
- Energy storage benefits:
  - Demand charges
  - Black start capability for biomass facility during extended outages
  - Reduce diesel during an outage and improve resiliency.

With DOE support, PNNL will model microgrid operations in order to evaluate financial benefits and optimally scale all energy assets during design phase.

ARRA – Vionx: Two Grid-scale Flow Batteries in MA

500 kW / 6 hrs Worcester Project
Under Construction – Wind Integration

- Foundation 50% complete
- All 8 Battery Containers delivered to site prepped for install once foundation is finished
- Installation targeted to be complete 16/Q4

500 kW / 6 hrs Everett Project
Solar PV Integration

- Permits in process (Chpt 91/ Build)
- All 8 Battery Containers are going through final inspection
- Installation to be completed 16/Q4

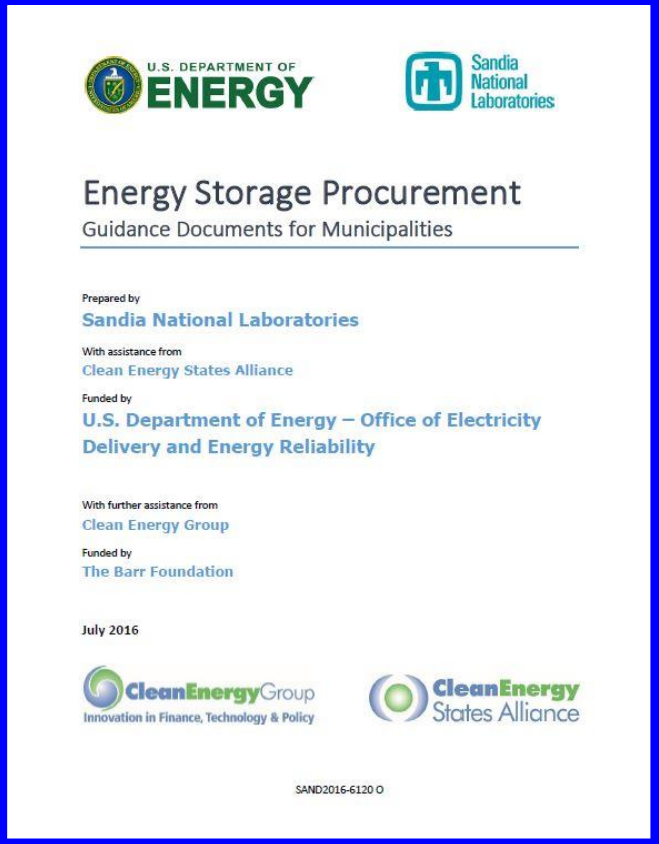
VIONX ENERGY™ · SIEMENS · 3M · United Technologies · nationalgrid

Energy Storage Procurement, Guidance Document for Municipalities

This document was a response to requests from Massachusetts municipalities engaged in energy storage procurement, for assistance in drafting RFPs for equipment and services. It is now available for use by any entity procuring storage.

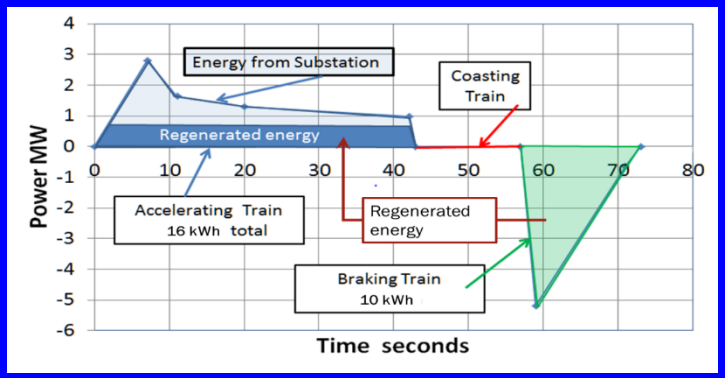
- Developed by Sandia National Laboratories
- Funded by DOE-OE
- Produced in partnership with CESA
- Contains two sample RFPs developed with Sterling, MA, plus a matrix of elements to include in an energy storage RFP

This document has generated a lot of interest, including from IEEE, which invited SNL to present on it at their PES GM Supersession on July 19 in Boston.



Helix Power (MA based) : Regenerative Metro Train Braking

Metro trains have used regen braking since the '80s.



Why is thisimportant?

1. **$10+B market**
2. **Metros are usually highest power usage customer**
   - i.e. NYC Transit Benefits
     - 50% ($115M) annual savings
     - 20+% IRR
     - 350K tons of CO2 reduction
     - Additional ~100MW peak shaving virtual capacity in NYC

Building Strong Partners

- DOE --$450K grants for market study, prelim. design, risk reduction
- NYC Transit / ConEd
  - develop requirements
- NYSERDA - $2.5M award for flywheel Development; raising $3M cost share
- Starting relationships:
  -- Comm. of MA, MassCEC and MBTA

Helix Power Technology

- Flywheel stores 1MW – 90 seconds
- 1 million full cycles in 20 years
- Can operate continuously at full power
- 10x-100x faster than batteries
- 50% of Train Energy can be recycled!

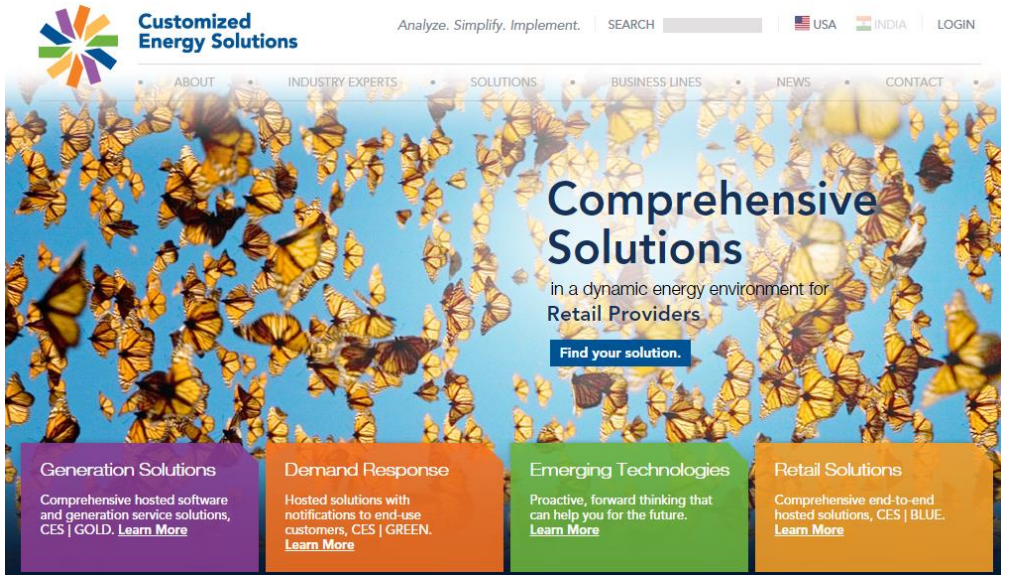
The State of Charge

CESA / CEG Webinar on October 27, 2016

Jacqueline DeRosa, VP of Emerging Technologies

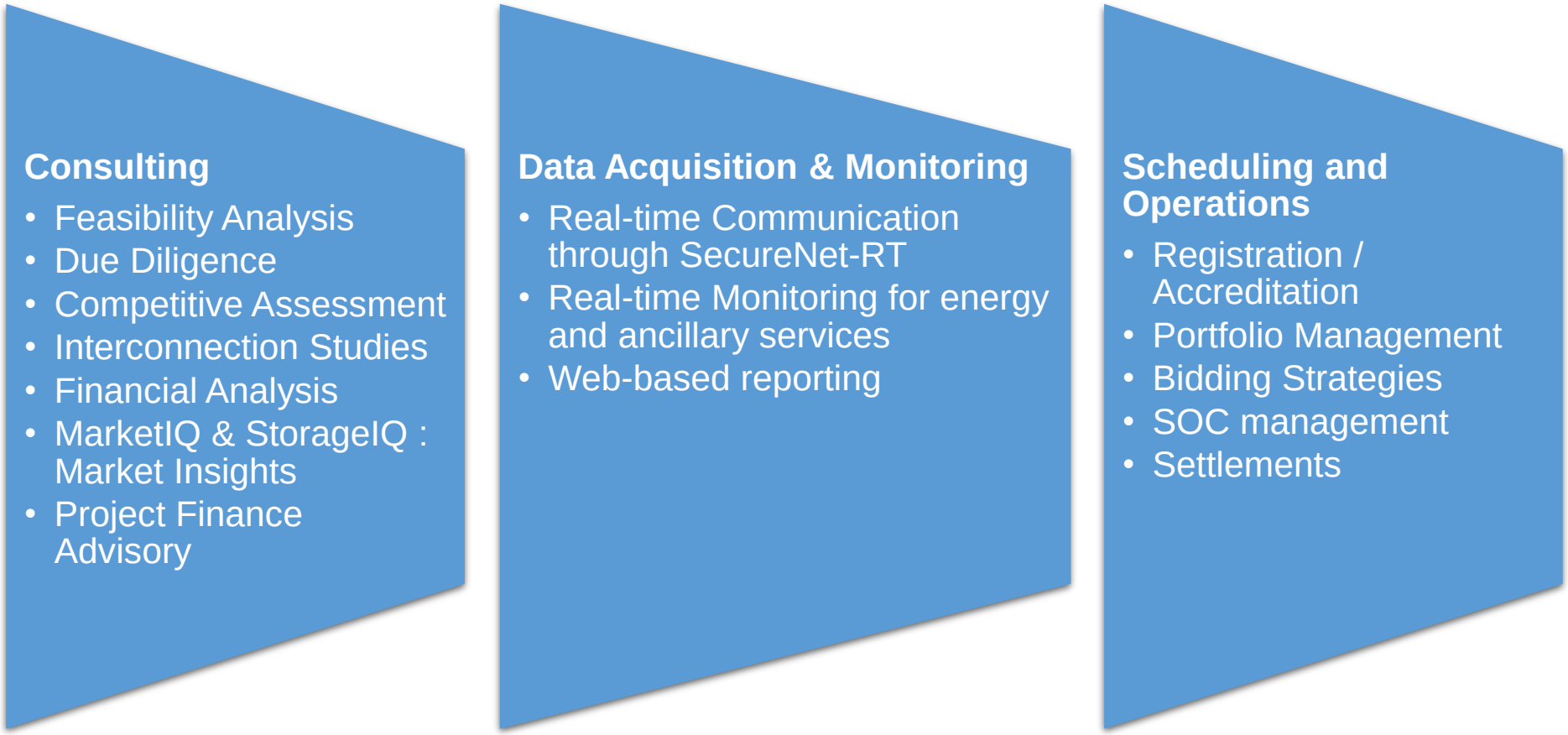
Customized Energy Solutions

- CES is a privately held corporation headquartered in Philadelphia, Pennsylvania
- At the forefront of competitive electricity markets and emerging technology trends with focus on DR, energy storage and smart grid.
- Customized helps over 400 clients globally
- Involved with active management of over 4000 MWs of resources which include conventional, renewable, demand response, and energy storage resources



- 9 Regional offices in the US and Canada
- Indian operations launched in 2010 with headquarters in Pune
- Over 130 staff members in North America and 15+ in India
- Expanded business to Japan & Mexico in 2015

CES Emerging Tech Service Offerings



CES Energy Storage Services

- Markets & Regulatory
  - Storage Market Overview Studies
  - Storage IQ: ISO/RTO storage activity reporting
- Modeling and Consulting
  - Price forecasts
  - Economic analysis and valuation
  - Optimization of product configuration
- Financial Advisory
  - Help secure funding
- Project Development & RFP Support
  - Site selection, interconnection, bid submissions
- Market Operations

Customized assists clients from concept to market implementation

Integrating Energy Storage Into Energy Markets

- CES Schedules Energy Storage Resources into the ISOs/RTOs
  - 20 MW flywheel facility in NYISO: 3 years
  - 4 MW battery facility in PJM: 1.5 years
  - 2 MW battery facility in PJM: 1 year
  - 4 MW battery facility in IESO: 10 months
  - 2 x 20 MWs Batteries in PJM: September 2015
  - 4 more projects totaling 32 MWs of battery facilities in PJM and ISO-NE in 2016
- CES also provides telemetry to ~25 MWs of both in front and behind the meter storage resources in PJM

Also previously scheduled: 32 MW battery facility in PJM: 2 years and 8 MW battery facility in NYISO: 1.5 years

We offer bidding strategies, state of charge management, scheduling, and dispatch.

Energy Storage Initiative
Goals of the Study

"The Commonwealth's plans for energy storage will allow the state to move toward establishing a mature local market for these technologies that will, in turn, benefit ratepayers and the local economy,"

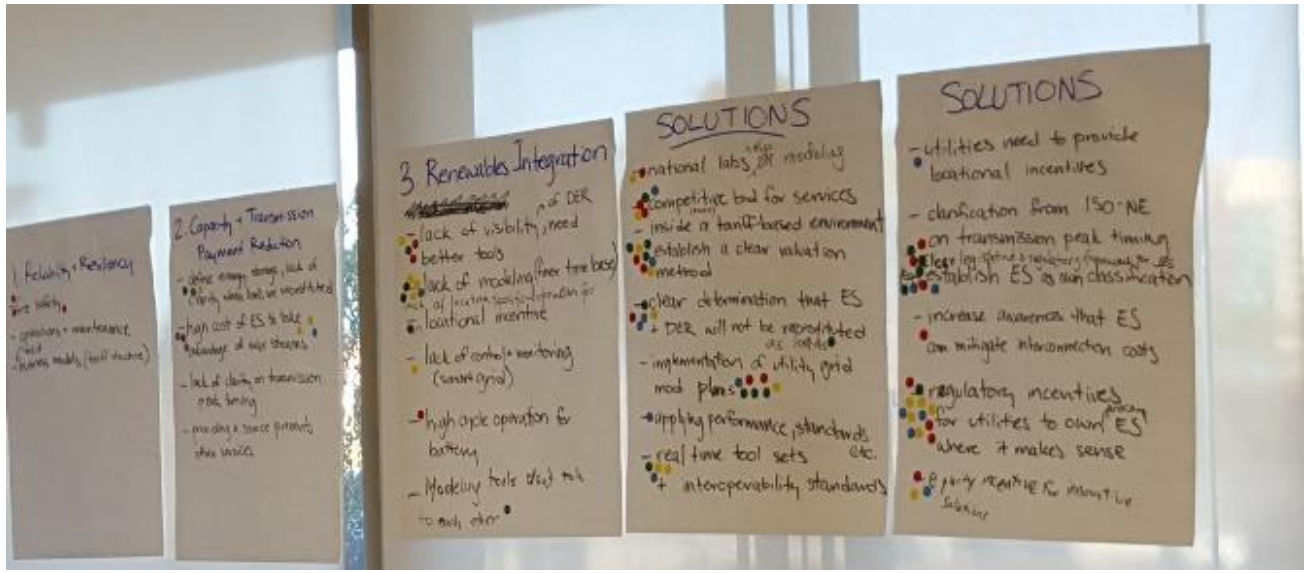
- Analyze the storage industry landscape, review economic development and market opportunities for energy storage, and examine potential policies and programs that could be implemented to better utilize energy storage in Massachusetts.
- Provide policy and regulatory recommendations along with cost-benefit analysis
- Engage stakeholders such as ISO-NE, utilities, the Massachusetts Department of Public Utilities (DPU), storage industry, U.S. Department of Energy (DOE) labs, and other interested parties

The Commonwealth can nurture and grow the energy storage industry through programs and initiatives aimed at both attracting business and deploying the technology.

Energy Storage Stakeholder Perspectives

➢Stakeholders provided feedback on:

- Policy and Regulatory Challenges
- Market Barriers
- Deployment and Market Growth
- Renewable Integration
- Financing and Monetization
- Ownership Models
- Data Availability
- Locational Benefits



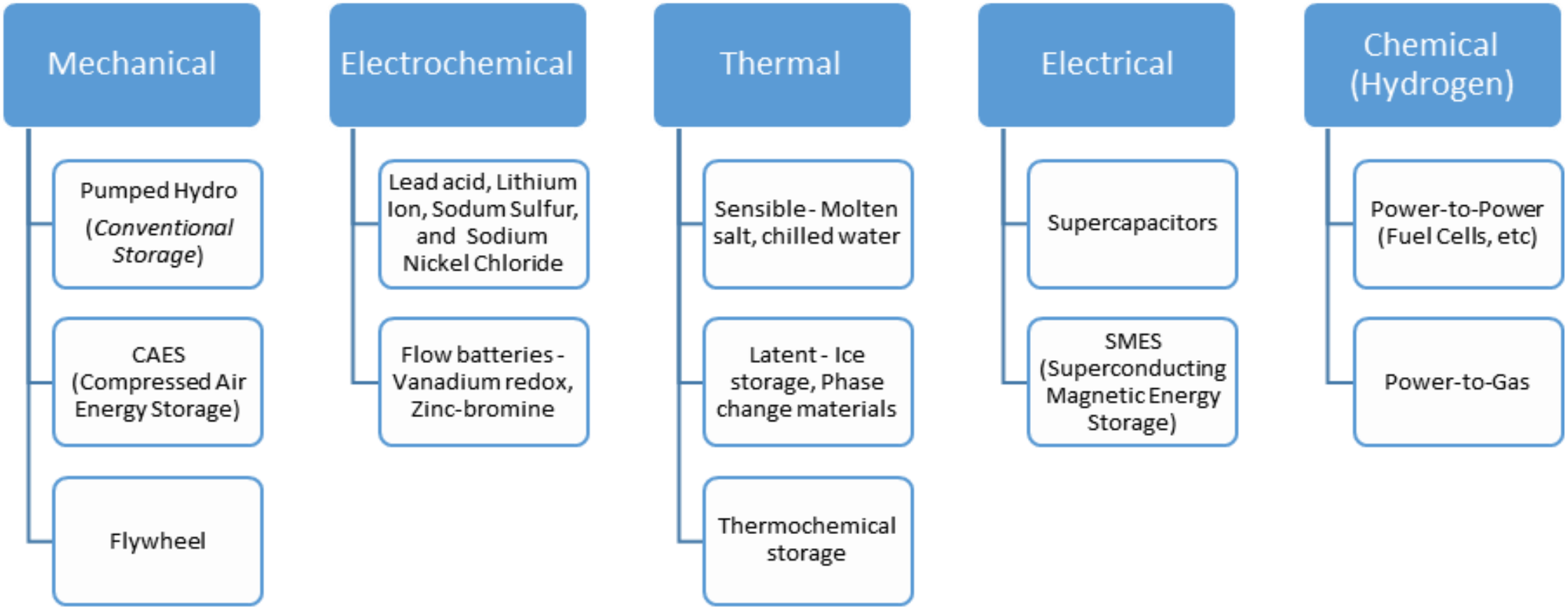
- The stakeholder perspectives helped shape and prioritize the modeling and use cases presented
- Further stakeholder engagement during the modeling process was utilized to refine business models

Stakeholders, including utilities, MLPs, solar developers, and competitive suppliers, expressed interest in storage as a "**game changer**" in the energy system

Study Results

- Recommends a suite of policies designed to promote the development of **600 MW of advanced energy storage in Massachusetts by 2025.**
- Provides $800 million in system benefits to Massachusetts ratepayers.
- Policies will increase grid resiliency and reduce greenhouse gas emissions
- Recommendations include:
  - *Demonstration funding through the ESI, Inclusion in existing DOER and MassCEC grant programs, encouraging expanded use of energy storage in existing energy efficiency programs, considering energy storage as a utility grid modernization asset, amending the Alternative Portfolio Standard (APS) to include all types of advanced energy storage, Inclusion of solar plus storage in the next solar incentive program, and enabling pairing storage with renewables in future long-term clean energy procurements.*

Advanced Energy Storage Technologies



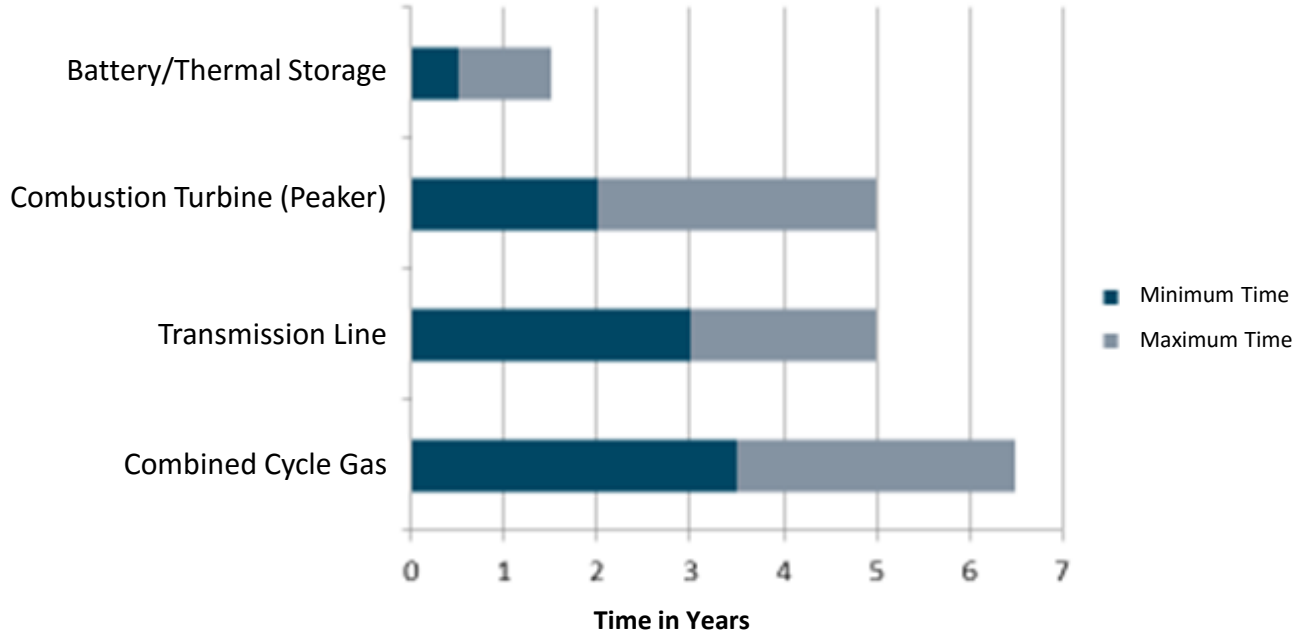
- Pumped Hydro Storage is often referred to as a “conventional” storage technology
- More recent emerging forms of energy storage such as batteries, flywheels, and new compressed air energy technologies are often referred to as “**advanced energy storage**”.

Energy Storage Attributes

Energy storage resources can be installed much more quickly than traditional resources, reducing risk, and increasing technology flexibility

- Energy Storage is:
  - Proven technology
  - Modular and flexible in design
  - Useful in multiple applications
  - Quick to respond (dispatchable)
  - Easy to site
  - Quick to market

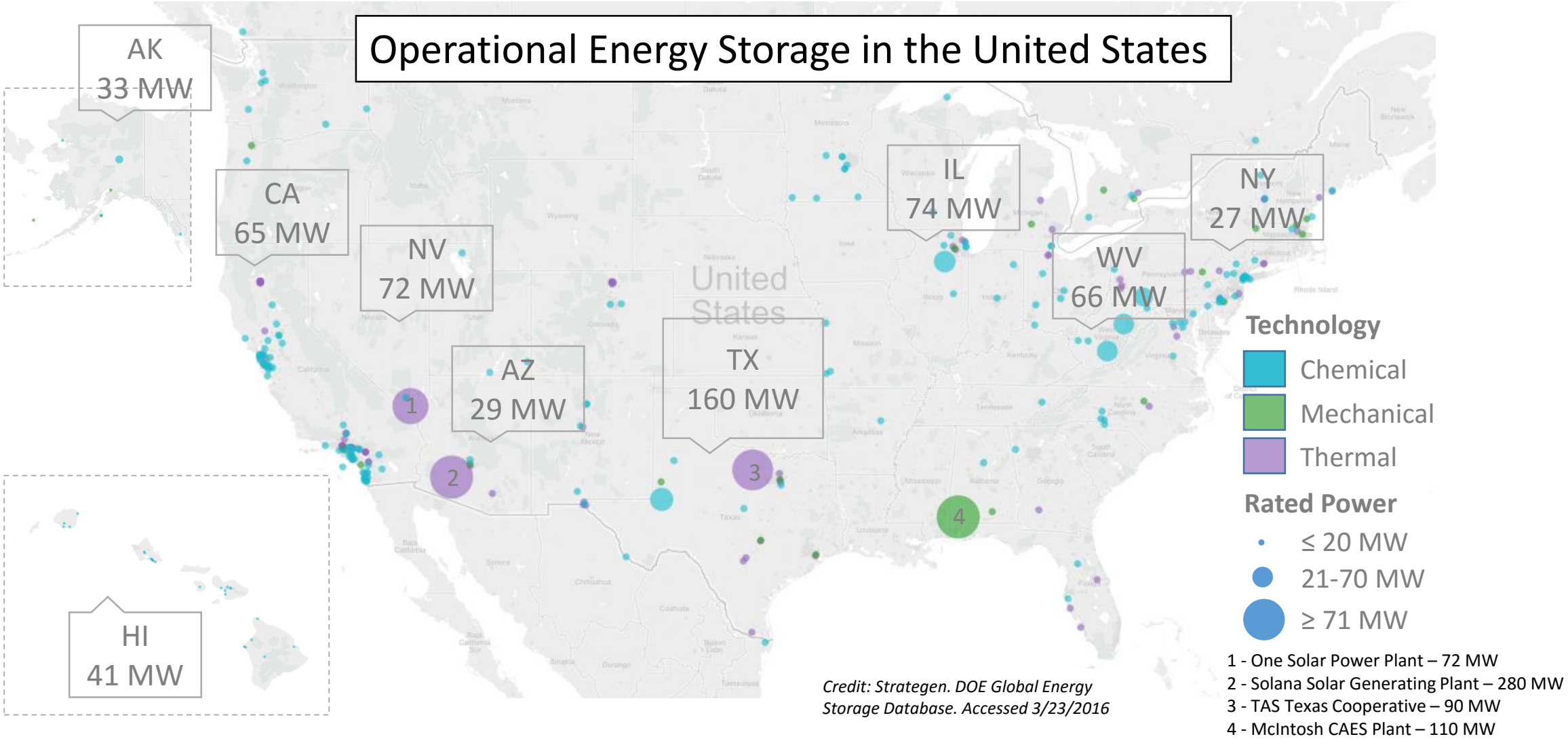
Siting, Permitting, and Installation Time by Resource



Energy storage solutions will deliver smarter, more dynamic energy services, address peak demand challenges and enable the expanded use of renewable generation like wind and solar. The net result will be a more resilient and flexible grid infrastructure that benefits American businesses and consumers."

- M. Roberts, Executive Director, Energy Storage Association

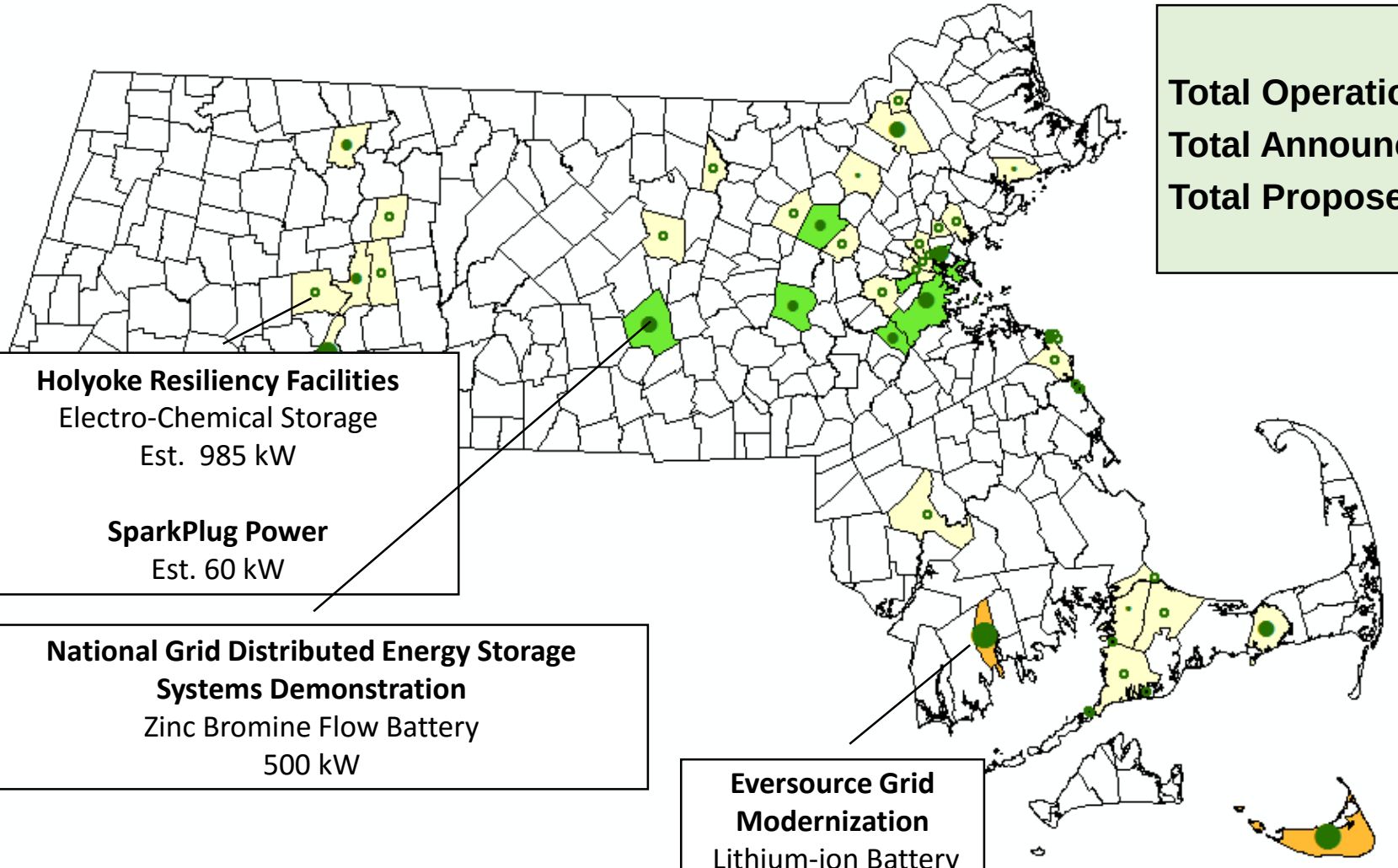
Storage is Real: Growing Deployment in the US & Globally



Credit: Strategen. DOE Global Energy Storage Database. Accessed 3/23/2016

Advanced energy storage has moved out of the research and development phase.
It is commercially viable and there are over **500 MW** operating throughout the US.

Interest in Utilizing Storage is Growing in Massachusetts but Deployment is Limited (2 MW)



Holyoke Resiliency Facilities
Electro-Chemical Storage
Est. 985 kW

SparkPlug Power
Est. 60 kW

National Grid Distributed Energy Storage Systems Demonstration
Zinc Bromine Flow Battery
500 kW

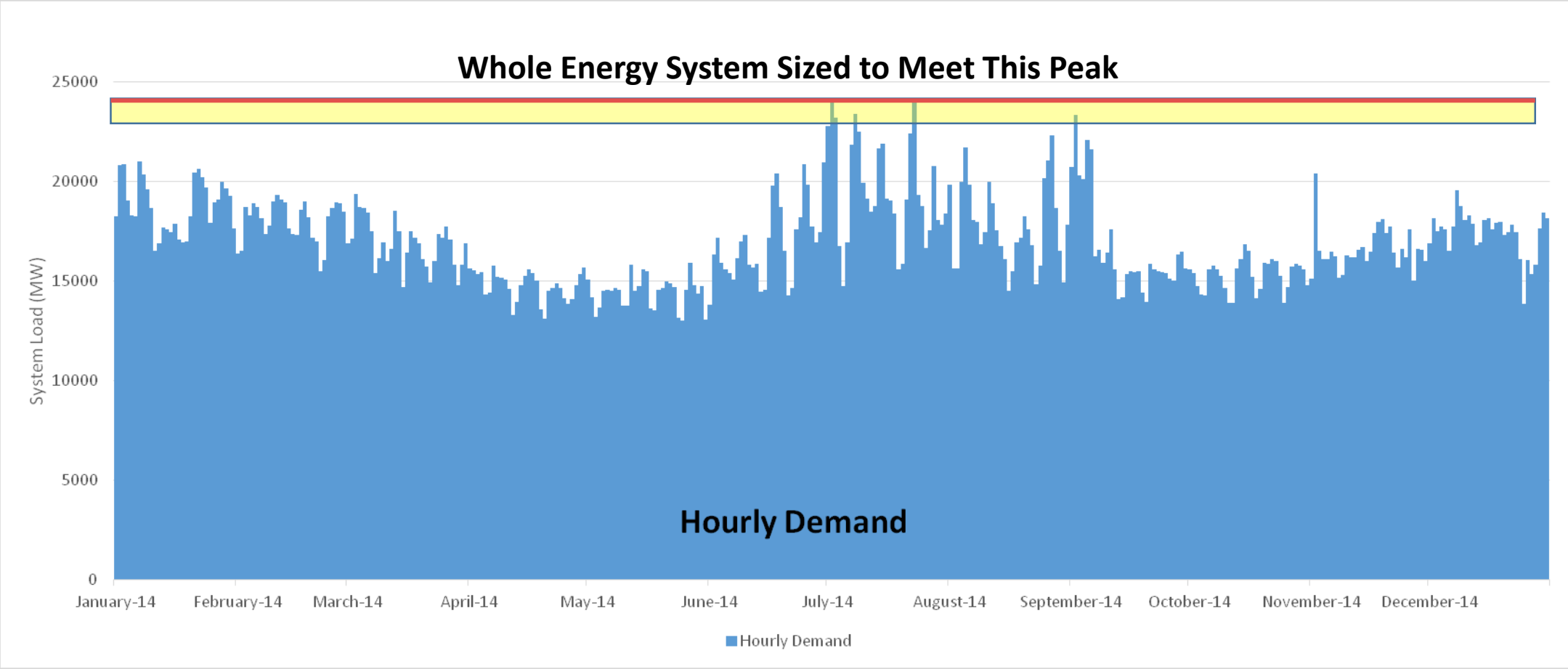
Eversource Grid Modernization
Lithium-ion Battery
Est. 4000 kW

	MW
Total Operational Advanced Storage	1.4
Total Announced Advanced Storage	4.4
Total Proposed Advanced Storage	8.1
Total	13.9

Massachusetts Storage Projects

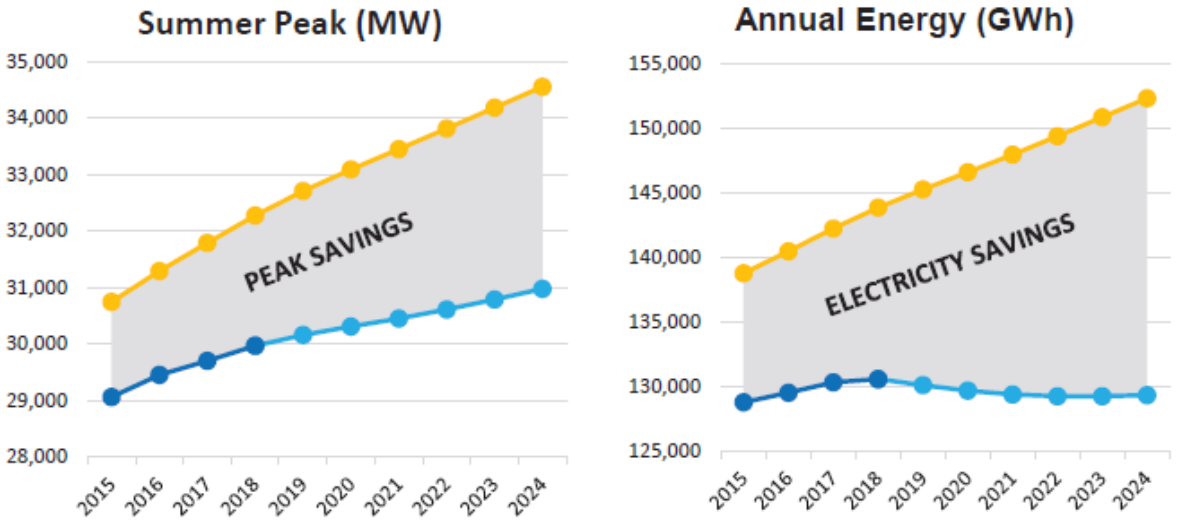
Status	Estimated Capacity (kW)
Announced	TBD
Proposed	6-39
Operational	40-250
	251-512
	513-983
	984 - 4000

Electric Grid is Sized for Highest Hour of Demand

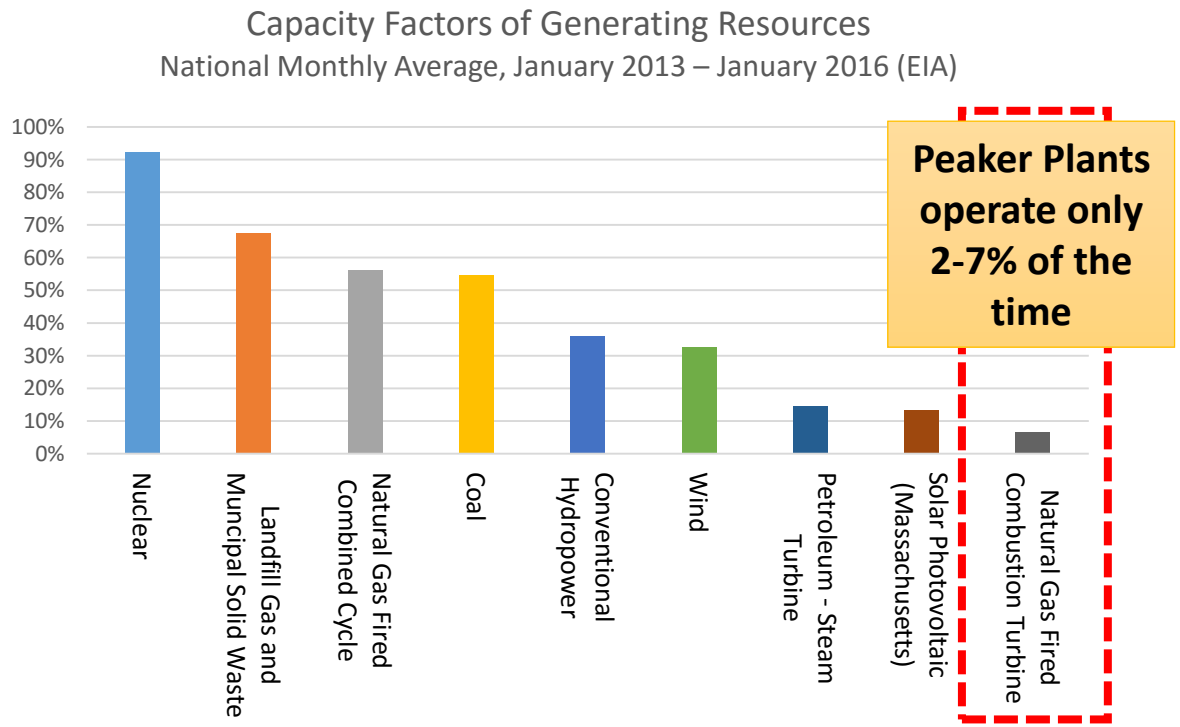


Top 1% of Hours accounts for 8% of Massachusetts Spend on Electricity
Top 10% of Hours accounts for 40% of Electricity Spend

While Energy Efficiency has Decreased Average Energy Consumption, Peak Continues to Grow (1.5% per year)

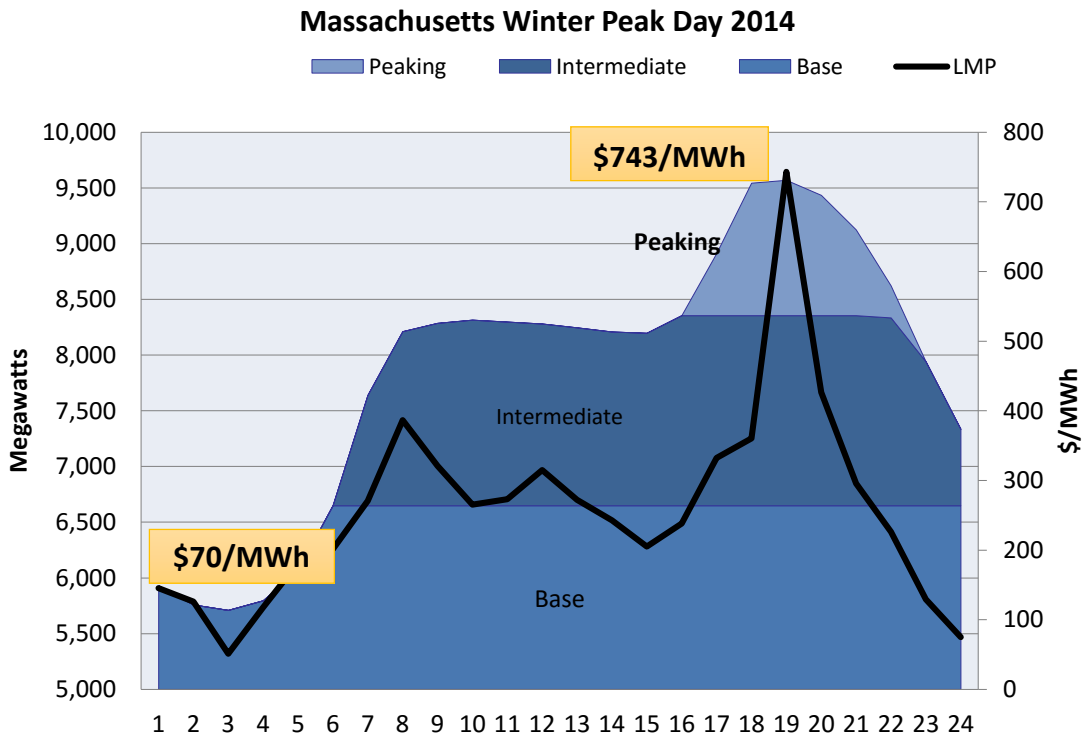


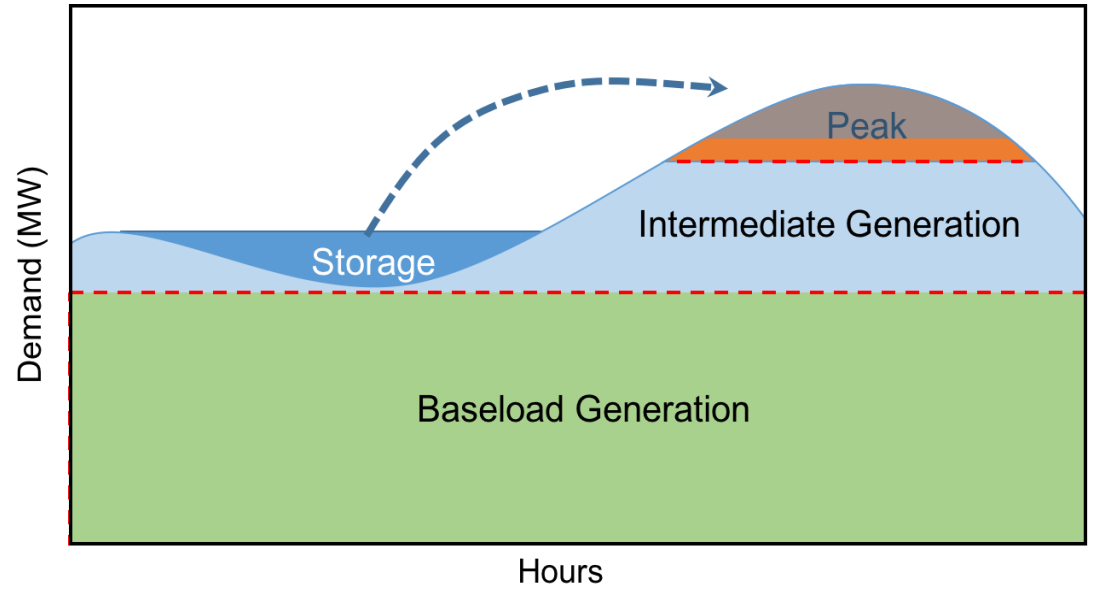
Source: ISO-NE State of the Grid- 2016



Growing peak results in inefficient use of grid assets, including generation, transmission and distribution, increasing the cost to ratepayers

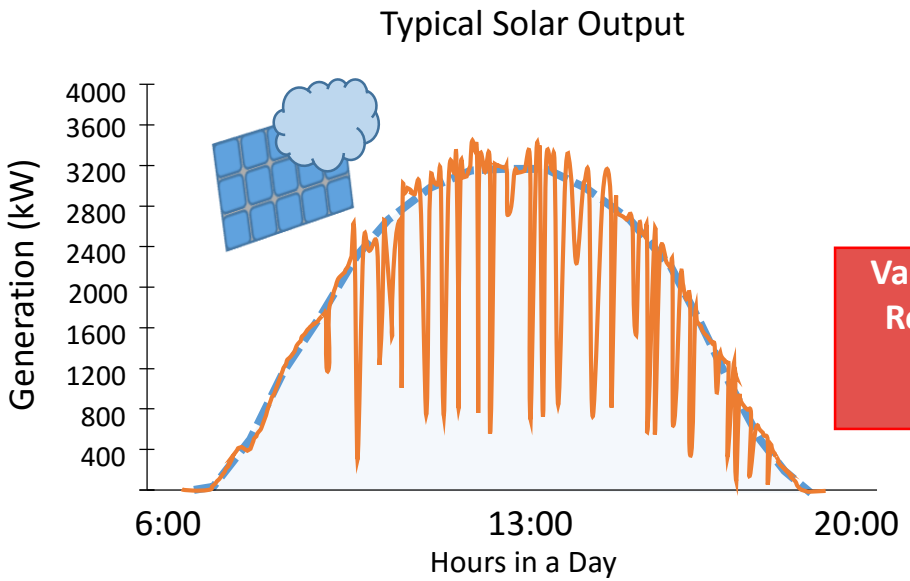
Storage is “Game Changer” for Meeting Peak





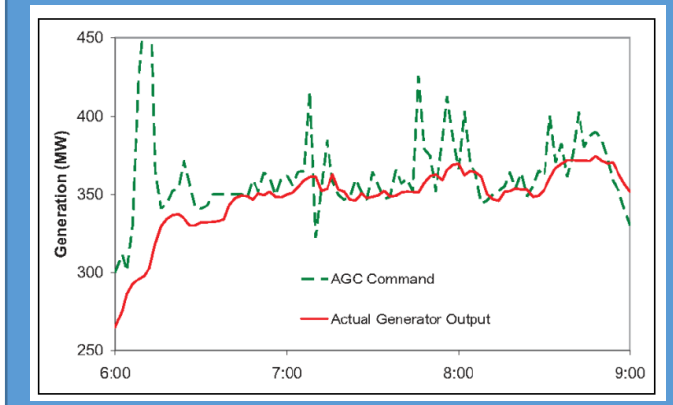
Energy storage is the only technology that can use energy generated during low cost off-peak periods to serve load during expensive peak.

Increased Renewables to Meet State GHG Goals Requires Increased Grid Flexibility to Manage Intermittency

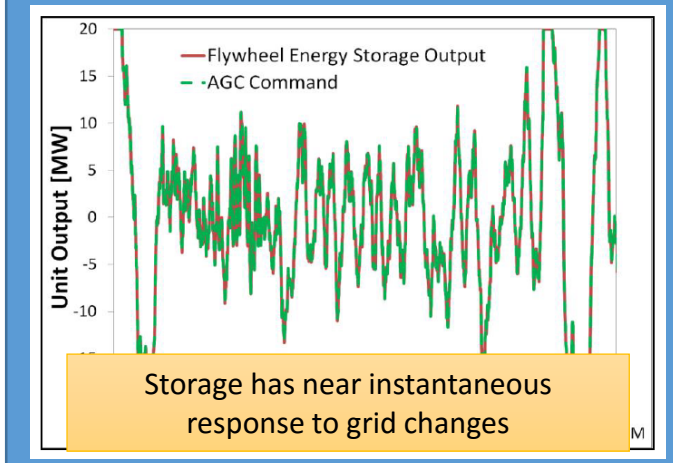


Renewable resources, such as solar, can have variable generation

Variable Output Generators Requires Fast and Flexible Resources to Maintain Balance and Reliability



Slow-ramping Generator



Fast-responding Energy Storage

According to ISO-NE "State of the Grid – 2016", fast and flexible resources will be needed to balance intermittent resources' variable output. Storage can provide this flexibility.

ALEVO ANALYTICS PRESENTATION OF SYSTEM MODELING

MODELING AND RESULTS

Dr. Randell Johnson,
Chief Analytics Officer

STORAGE IN COMMODITY SUPPLY CHAINS

FOOD

Warehouses
Grocery stores
Freezers & refrigerators

WATER

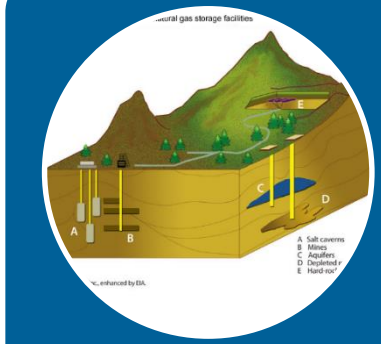
Reservoirs
Above-ground tanks
Water bottles

GASOLINE

Underground tanks
Above-ground tanks
Tank trucks
Portable fuel tanks

OIL

Above-ground tanks
Piping



NATURAL GAS

Depleted fields
Aquifers
Salt caverns
Pipelines
Above-ground tanks

ELECTRICITY

Energy Storage Technologies

Currently less than 1% of daily electricity consumption for MA

Storage capacity more than 10% of daily consumption

STORAGE OPTIMIZATION

Model Details

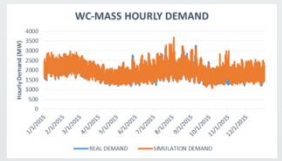
- Generators
- Nodes
- Trans. Lines
- Transformer
- Renewables

Uncertainties

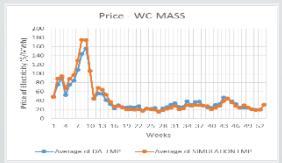
- Load Growth
- Fuel Prices
- Regional System Plan
- Renewable Availability

BENCHMARK

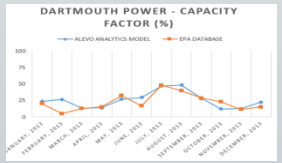
- Demand



- Price



- Cap. Factor



- Gen. Cap.
- Emission

CAPACITY OPTIMIZATION

Storage Technology Categories

- Long Duration
- Medium-Long Duration
- Medium-Short Duration
- Short Duration

- Where?
- How much?
- When?

PRODUCTION COST MODEL

- Hourly Day-ahead Market
- Sub-hourly Real-time Market

Storage bring efficiency to Day-Ahead and Real Time markets and simultaneously advantages to distribution, transmission and generation.

STORAGE PROGRAM

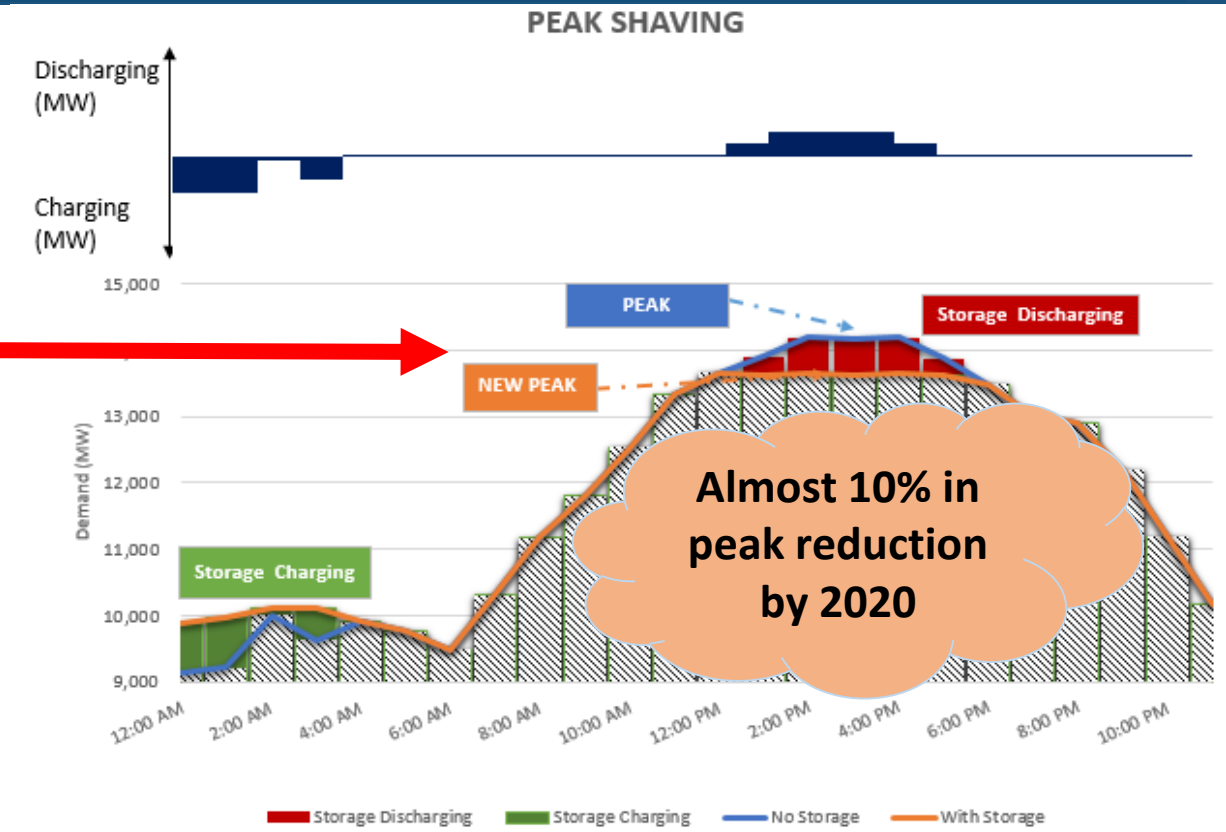
Evaluation

- MA Ratepayer Benefits
- Emission
- Reliability
- Renewable Integration
- Reserves
- Peak Demand
- Use Cases
- T&D Deferral
- ISO-NE Production Cost

STORAGE PEAK REDUCTION

Year	Peak Demand for Base Case (MW)	Peak Demand for Energy Storage Case (MW)	Delta in Peak Demand (MW)	% Reduction in Peak Demand
2019	8,828	8,119	709	8.04%
2020	9,293	8,385	908	9.77%

Total Savings (thousand $)	Capital Cost	2017	2018	2019	2020
Natural Gas Conventional Combustion Turbine	973$/kW	137,193	392,119	689,857	883,484
Natural Gas Advanced Combustion Turbine	676$/kW	95,316	272,428	479,284	613,808



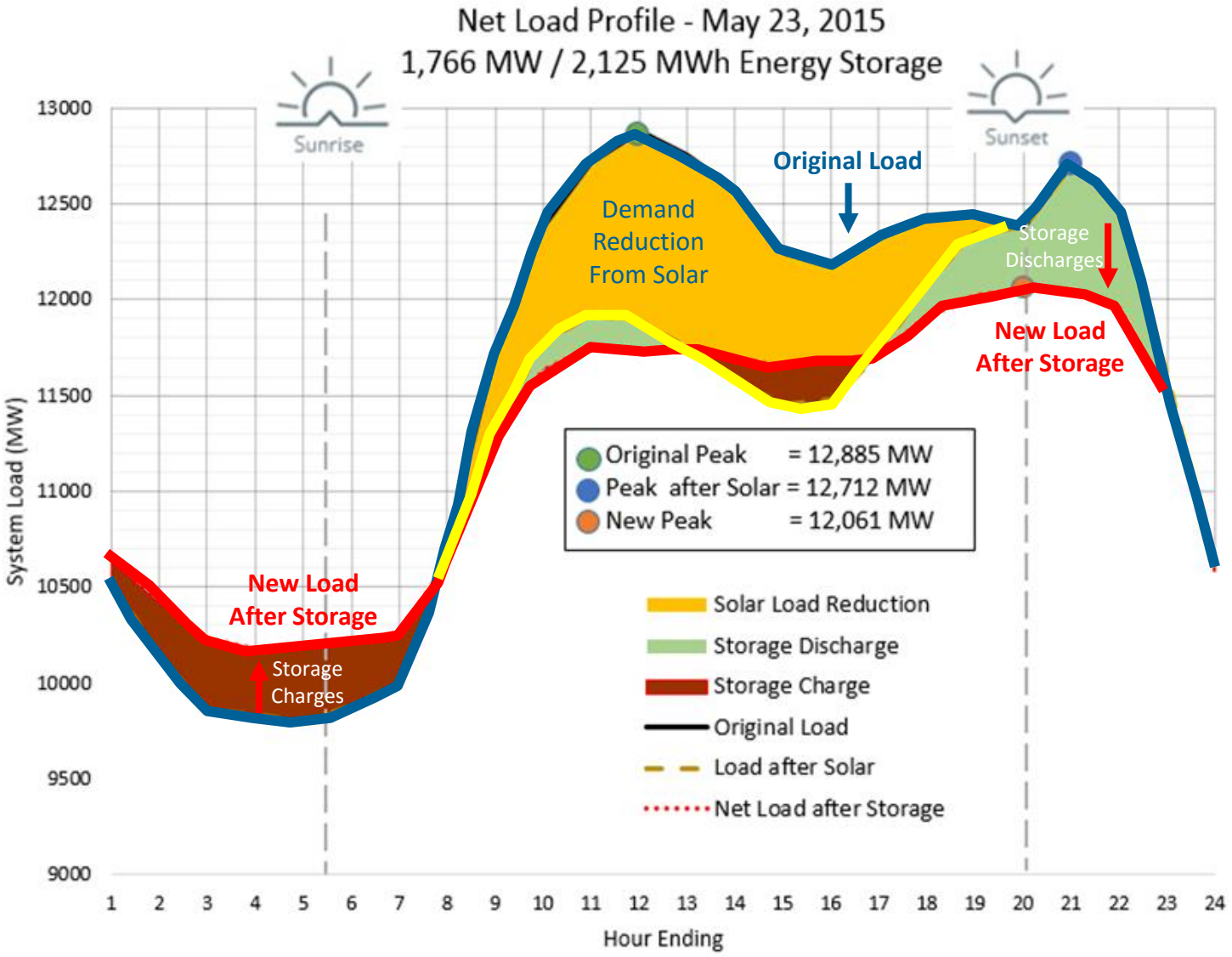
Almost 10% in peak reduction by 2020

- **Storage dispatched on peak days to get maximum peak shaving.**
- **Reduction of the peak can reduce the need for additional peaker resources and avoid capital costs**

$1093 million peaking plant cost reduction over 10 years.

ALEVO ANALYTICS

TIME SHIFT OF RENEWABLES AND PEAK REDUCTION



$219 million increased renewable integration savings over 10 years.

- **Solar reduces system peak and storage can provide additional peak reduction after sunset**
- **Time shift of renewables**
- **Relieving distribution constraints**
- Helps meeting the state's **current solar target**

SYSTEM BENEFITS

Benefit Categories	Benefit Description	
Energy Cost Reduction	Energy storage replaces the use of inefficient generators at peak times causing: 1) reduced peak prices which 2) reduces the overall average energy price. This also benefits the natural gas supply infrastructure.	$275M
Reduced Peak	Energy storage can provide peaking capacity to 1) defer the capital costs peaker plants and 2) reduced cost in the the capacity market	$1093M
Ancillary Services Cost Reduction	Energy storage would reduce the overall costs of ancillary services required by the grid system through: 1) frequency regulation, 2) spinning reserve, and 3) voltage stabilization	$200M
Wholesale Market Cost Reduction	Energy storage can be a flexible and rapid tool that help generators operate more efficiently through: 1) less wear and tear, 2) less start up and shut down costs, and 3) reduced GHG emissions.	$197M
T&D Cost Reduction	Energy storage 1) reduces the losses and maintenance of system, 2) provides reactive power support, 3) increases resilience, and 4) defers investment	$305M
Increased Renewable Integration	Energy storage reduces cost in integrating renewable energy by 1) addressing reverse power flow and 2) avoiding feeder upgrades	$219M
Total System Benefits		**$2,288M**

Energy Storage Application Use Cases

Analyses of specific applications and business models to utilize energy storage across the Massachusetts electric grid

Storage Use Cases

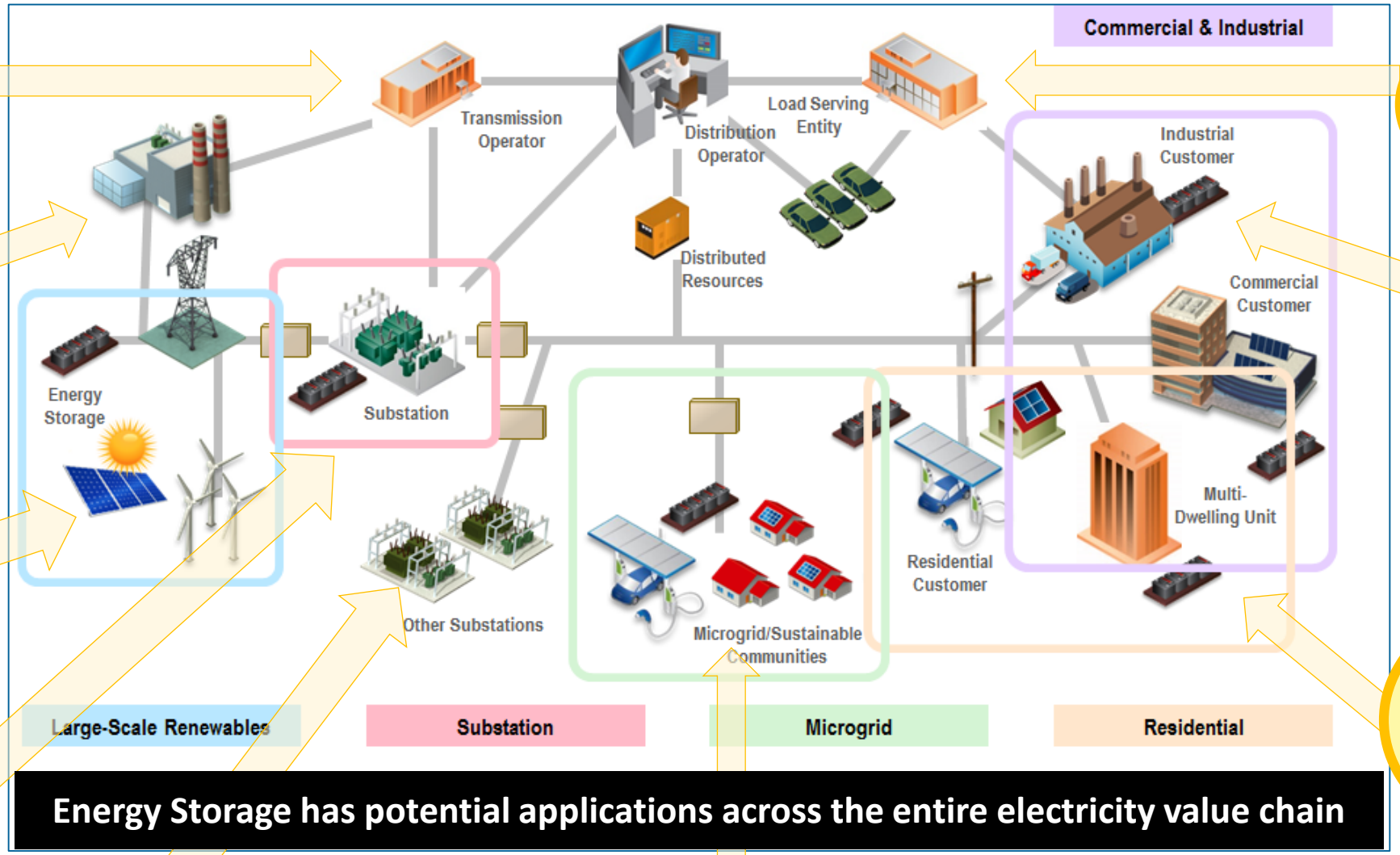
The Study analyzed the economics and business models of ten storage use cases to inform specific policy and program recommendations

Merchant Frequency Regulation (ATRR)

Merchant Generator + Storage

Merchant Solar + Storage

Utility Grid Mod Asset



LSE/ Competitive Supplier

C&I BTM Solar + Storage

Residential BTM dispatched by utilities

MLP Asset

Microgrid/ Resiliency

System Modeled Results

Use Case		Estimated Share of 1766 MW Recommendation		Millions $		Benefit/Cost Ratio
		%	MW	Combined Benefits (Market Revenue + System Benefits	Cost	
Investor Owned Utility (IOU) Grid Mod Asset: Distributed Storage at Utility Substations		40%	707	1301	387	3.36
Municipal Light Plant (MLP) Asset		10%	177	446	97	4.60
Load Serving Entity (LSE)/Competitive Electricity Supplier Portfolio Optimization		8%	141	158	77	2.05
Behind the Meter	C&I Solar + Storage	6%	106	103	58	1.78
	Residential Storage	4%	71	19	53	0.49
	Residential Storage Dispatched by Utility	5.5%	96	129	39	2.43
Merchant	Alternative Technology Regulation Resource	1.5%	28	45	15	3.00
	Storage + Solar	10.5%	185	373	102	3.66
	Stand-alone Storage or Co-Located with Traditional Generation Plant	9.5%	168	405	92	4.40
Resiliency/Microgrid		5%	87	133	48	2.77

IOU Use Cases:
Storage as a Utility Asset

- Storage distributed across a utility's system provides the utility a **large aggregated, flexible tool** to manage peaks, integrate renewables, and mitigate outages

- Storage has the potential to meet several of the objectives outlined in the DPU Grid Modernization proceeding:
  - Optimizing Demand by reducing system and customer costs at peak
  - Reducing the effects of outages
  - Integrating distributed resources, particularly Solar PV

Given the recent advances in energy storage technology and cost-effectiveness, it is hard to imagine a modern electric distribution system that does not include energy storage.

- IOU Grid Modernization Plan

Use Case #1: IOU Storage Asset

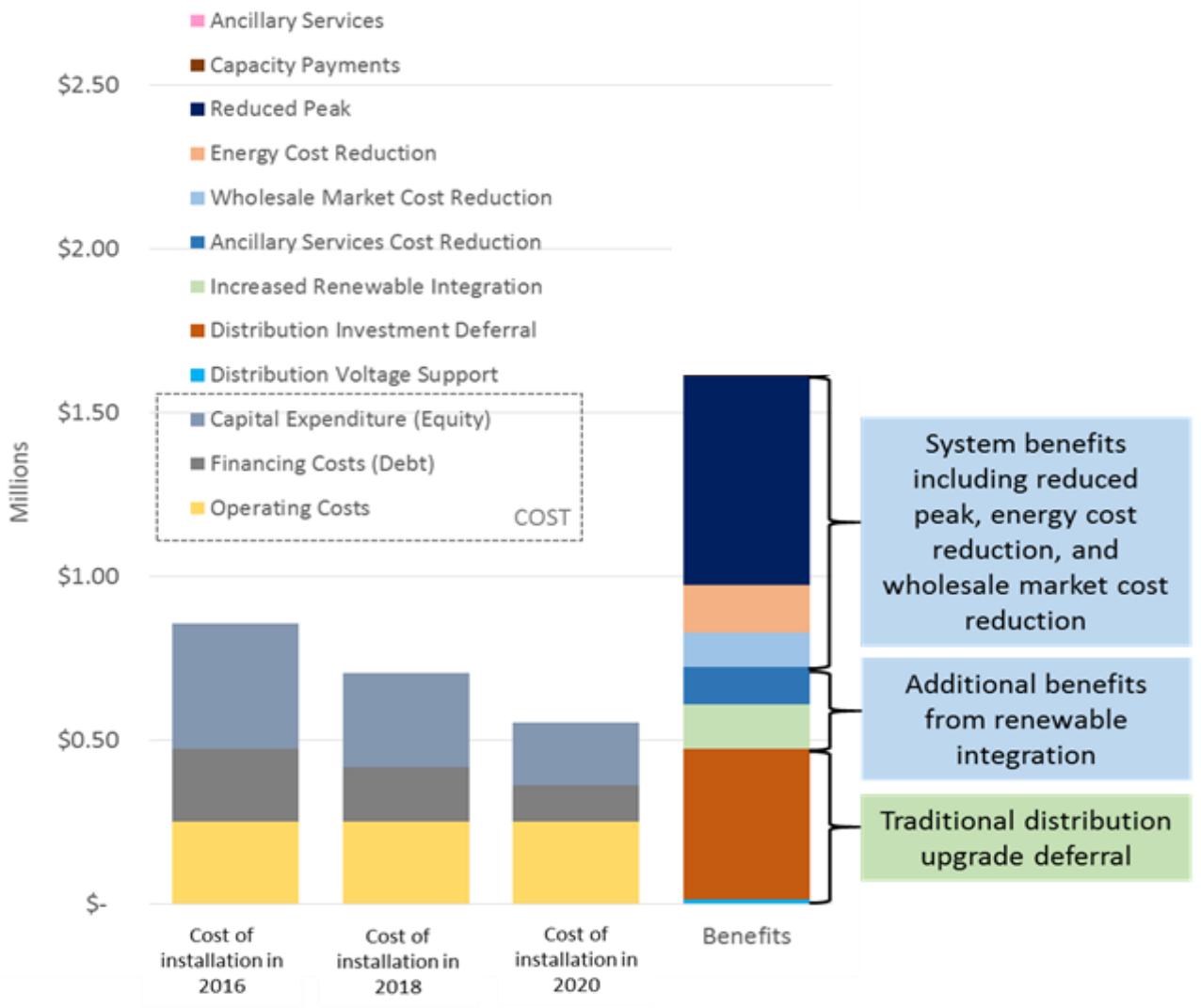
Utility Grid Modernization Plans may include storage if supported by a comprehensive *business case analysis*:

- Rationale and business drivers for the proposed investment
- Identification of all quantifiable and non-quantifiable benefits and costs

Benefit-Cost Analysis shows:

- Benefits must be monetized beyond traditional voltage support and upgrade deferral
- Cost effective when additional benefits are included
  - Renewable DG Integration
  - Peak Demand Reduction
- Additionally, sales to ISO-NE allowed in current legislation may offset storage costs to the ratepayer

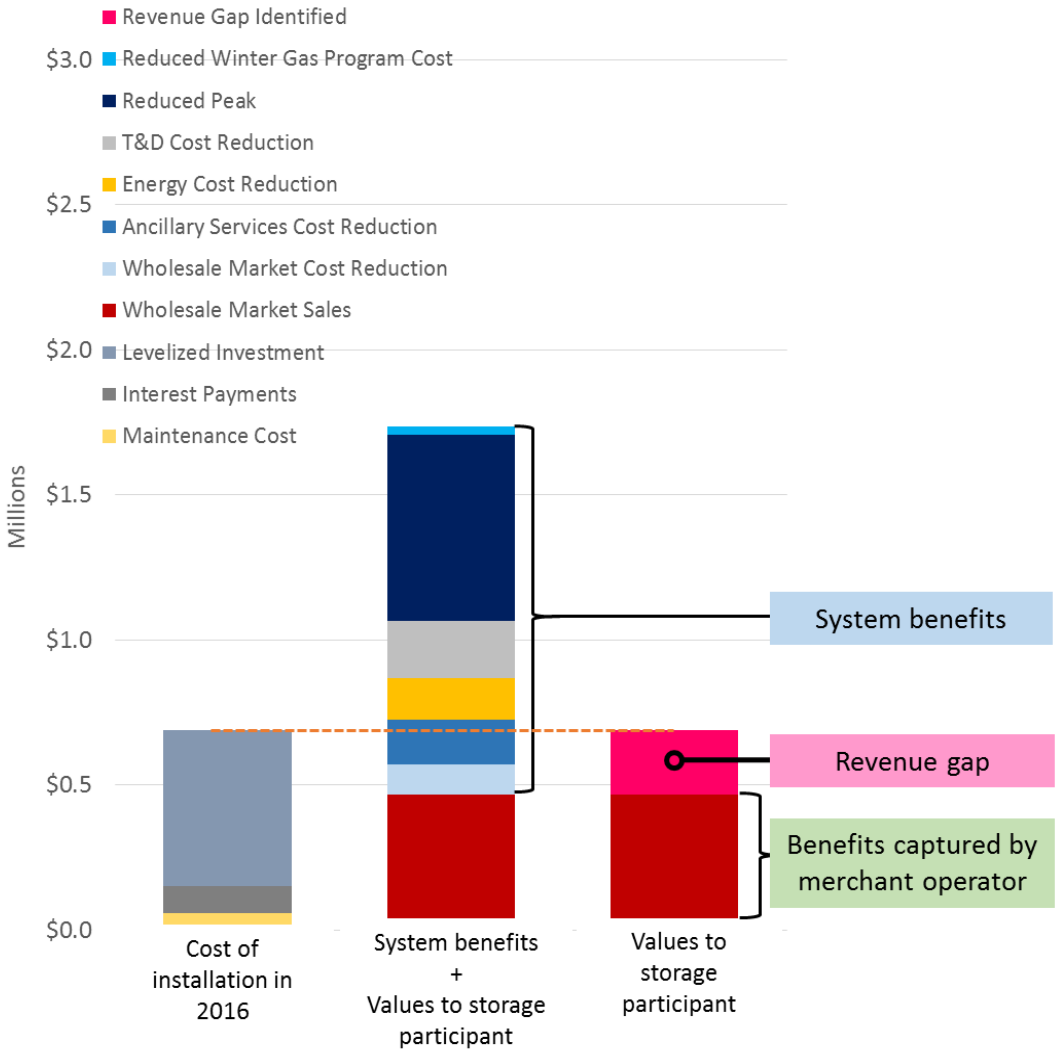
Benefit-Cost Analysis
1MW/1MWh



Use Case #5C: Merchant Gas + Storage Asset

- Storage, co-located or coordinated with a gas generator, is dispatched to work with wholesale markets to improve the efficiency of generators.
  - Storage can take over load ramping and frequency response responsibilities, allowing the generator to operate at constant output near optimal heat rate, reducing the associated maintenance costs and GHG emissions.
  - Storage enabling generators to operate at optimal heat rate is especially important to the North East in coping with gas shortage during the winter.
  - Storage described above can still participate in the wholesale market of ISO-NE.
- The electricity system benefits from more efficient operation of the generators, lower cost of ancillary services, lower energy price, easier renewable integration, reduced peak capacity cost, and lower emission.
- The storage asset would be dispatched to work with wholesale markets to improve efficiency of generators,
  - Reduce starts and stops
  - Reduce emissions
- The project is cost-effective if system benefits are included.
- Challenge: ISO-NE rules around co-located resources to be registered as a single asset and share responsibilities are unclear or do not currently exist.

Benefit-Cost Analysis
1MW/1MWh



Recommendations to Unlock the Use of Storage in MA

Grant and Rebate Programs

- **Energy Storage Initiative (ESI) RFP**
- **Rebate Program for Customer-sited Storage ("MOR-Storage")**
- **Launch C&I Solar + Storage Feasibility Grant programs**
- **Community Resiliency Grants – Part III**
- **Green Communities Designation and Grants**
- **Add All Types of Advanced Energy Storage to APS**
- **Evaluate Storage in development of Next Generation Solar Incentive Program**
- **Storage as Grid Modernization Asset**
- **Storage as Peak Demand Savings tool in EE Plans**
- **Allow bids that have energy storage components in any possible future long-term clean energy procurements**
- **Workforce and Technology Development**

Comprehensive Clean Energy Diversification Legislation (H. 4568) clarified this issue after the study findings were completed

- Utilities May own storage
- Storage is defined

Recommendations to Unlock the Use of Storage in MA

ISO Market Rules

- **Challenges**
  - Storage Cannot Fully Participate in All Markets
  - ISO-NE cannot utilize energy storage as a flexible resource
  - Energy storage is not on level playing field
- **Recommendations**
  - Create an Advanced Storage Working Group at ISO-NE
  - Create Storage-Specific Rules
    - Optimization, Bidding, Scheduling and Dispatch for Energy and Ancillary Services
    - Capacity Market
    - Interconnection
    - Transmission Planning
    - Behind the Meter
    - Load Reconstitution

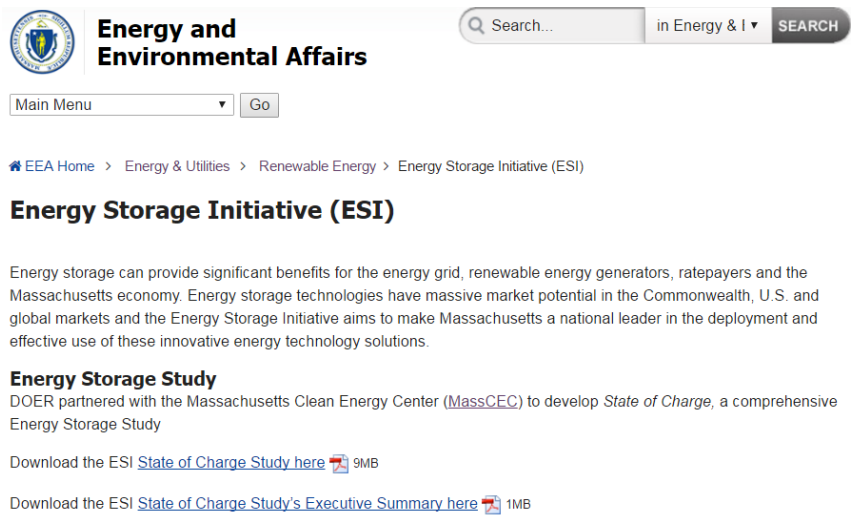
Next Steps and Timing

Fall 2016

- *State of Charge* Study Release 9/16/16
- *State of Charge* Stakeholder Session 9/27/16
- Mid-October Stakeholder Panel Session Regarding Legislation Energy Storage Component
- Release RFP for ESI Demonstrations
- Resiliency Grant program
- Finalize Storage in development of Next Generation Solar Incentive Program

Other (2016 – 2017 TBD): Through EEAC, encourage DPU review of guidelines to accommodate storage in demand reduction programs

- Enable Storage to be included in Future Long-term Renewable Energy Procurements
- Engage ISO-NE Market Rule Changes
- Expand MassCEC Investment Programs to support energy storage companies in Massachusetts



Stay up to date by joining the ESI mailing list at: http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/energy-storage-initiative/

Questions?

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