

# HB 773 / SB 715







## Energy Storage Study

PPRAC Status Update  
November 15, 2017



# Project Milestones (2018)



-  January - Preliminary Findings/Status Report to GAM
-  April - Initial Draft Report
-  July - Draft Report
-  August - Public Meetings
-  October - Executive Review
-  December - Final Report to GAM

# Project Strategy

- 1-on-1 conversations with stakeholders
- Site visit(s) to view and discuss one or more working energy storage systems in the region
- Literature review (reports by EEI, EPRI, ESA, FERC, IREC, PJM, RMI, other states, etc.)
- News monitoring (Energy Storage News, GreenTech Media, Utility Dive, etc.)
- Public meeting(s) to preview major findings and invite feedback on Draft Report



- PPRAC Energy Storage Work Group meetings (quarterly)
- PPRAC meetings (biannual)

# Summer/Fall Activities



- **Meetings/Calls with Storage Development Community**
  - Energy Storage Association, Edison Energy, Ingersoll Rand and Calmec, Flonium, Schneider Electric, Sunverge, Tesla, WindSoHy
- **Meetings/Calls with Other Stakeholders**
  - Alevo Analytics, Bloom Energy, Edison Electric Institute, Delegate Korman, Maryland Clean Energy Center, Montgomery County, PJM, UMD Energy Innovation Institute
- **Meetings/Calls with Utilities**
  - BGE, Exelon, Pepco



# Activities continued



## • State Agency Coordination

- Monthly MEA-PSC-PPRP calls
- Ongoing monitoring of PC 44 Integration & Energy Storage Working Groups
- Meeting with PSC staff experts to discuss regulatory sections of Energy Study outline
- Coordination with Andrew Johnston on meetings/calls with stakeholders

# Activities continued

## **Energy Storage Update** Status, Trends, Research Directions, and Resources

**Ben Kaun**  
Program Manager, Energy Storage and Distributed  
Generation

**Presentation to Maryland PSC Energy Storage  
WG**

15 July 2017





# Activities continued



# Activities continued



- **Work Group Meetings**

- Meeting #1: July 17<sup>th</sup> Teleconference Call

- Report outline
    - Strategy and deadlines
    - Member goals

- Meeting #2: October 26<sup>th</sup>

- Overview of energy storage use case universe
    - Primary barriers to storage in Maryland

- Meeting #3:

- Wednesday, January 17<sup>th</sup>, 9AM - 12PM**

- DNR C-1 Conference Room, Annapolis, MD**

- Preliminary findings and status report to GAM
      - Ownership discussion (PC-44) - ?





- **Report Development**

- Style guide completed
- Drafting
  - 2. *Storage Technologies*
  - 4. *Status of Storage in Maryland*
  - 5. *Policies in Other States*
- Researching/Outlining
  - 3. *Cost and Value of Storage*
  - 6. *Revisions to Regulatory Policies*
  - 7. *Wholesale Market Factors*

# Next Steps



- **Meetings/Calls with Stakeholders**

- American Wind Energy Association, Solar Energy Industries Association
- American Public Power Association, National Rural Electric Coop Association
- BGE, SMECO

- **Ongoing**

- PC-44 monitoring
- PSC-MEA-PPRP coordination
- Research/outlining/writing

- **Next Work Group Meeting:**

- Wednesday, January 17<sup>th</sup>, 9-12, DNR C-1 Conference Room

# Initial Findings – Barriers in MD



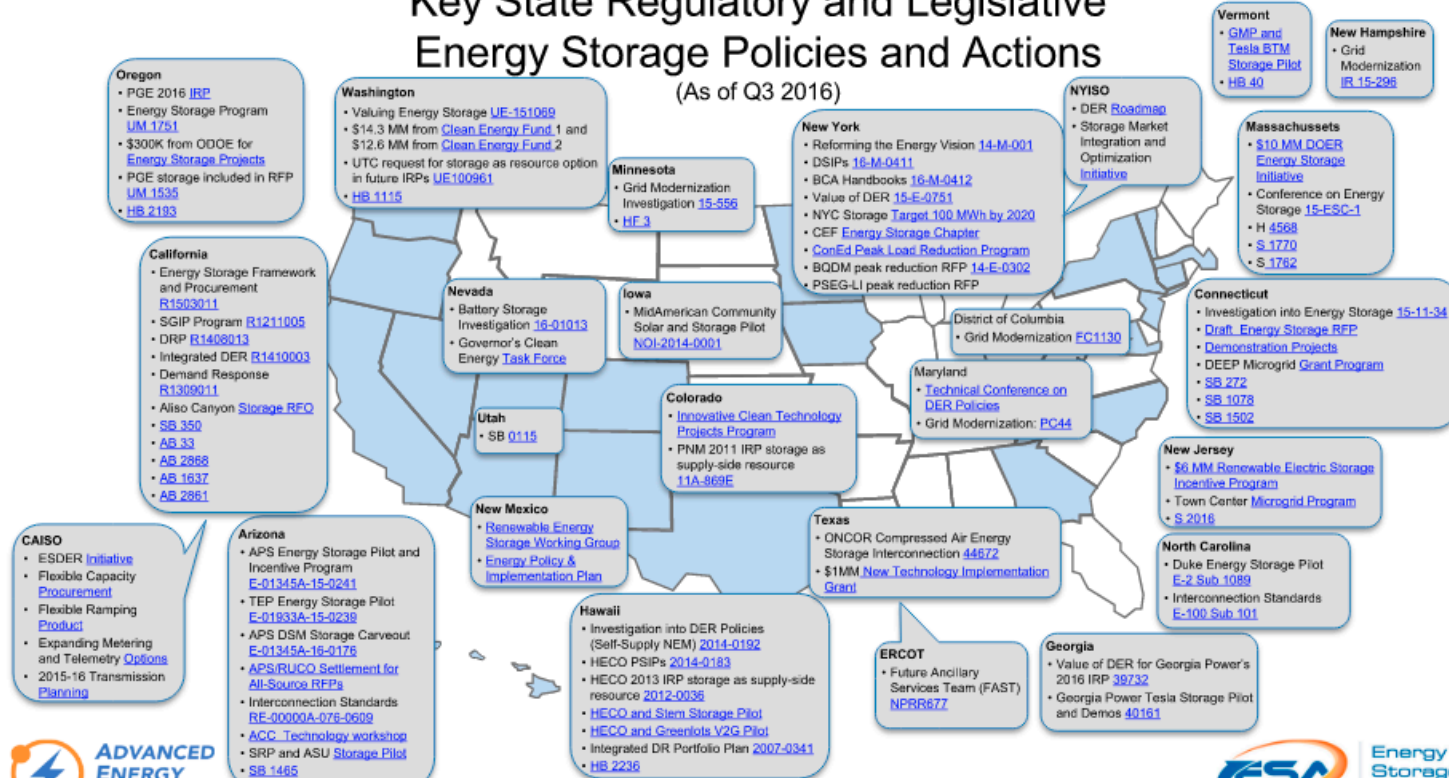
Based on PPRP discussions with stakeholders across the energy industry

- **Costs**
  - High capital costs/expensive financing
- **Value**
  - Inability to capture multiple revenue streams
- **Ownership**
  - Lack of clarity regarding utility ownership/cost recovery
- **Education**
  - Knowledge gaps about non-battery technologies and uses
  - Lack of first-hand experience, real-world data
- **Interconnection**
  - Uncertain, complicated, long processes
- **Rate Signals**
  - Low electricity costs/demand charges for customers
  - Lack of incentives to optimize T&D systems
- **Evaluation Methods**
  - Models use outdated stats/only quantify some benefits
- **Wind/Solar**
  - Modest capacity to pair with storage

# Background Research – Actions by Other States

There's (still) a lot happening. Illustrative examples to follow...

## Key State Regulatory and Legislative Energy Storage Policies and Actions (As of Q3 2016)



Contact: Coley Girouard, [cgirouard@ae.net](mailto:cgirouard@ae.net), 202.309.0647

# Mandates and Targets



State	Description
CA	IOUs must procure 1.3 GW by 2020.
MA	IOUs assigned "aspirational target" of 200 MWh by 2020.
NV	TBD based on storage cost-effectiveness study due 2018.
NY	IOUs must have 2 projects by 2018; bill to set mandate under review by governor.
OR	IOUs must procure 10 MWh by 2020.



# Grants and Loans



State	Total Funds (\$M)	Eligible Parties	Description
CA	1,296	Individuals, public and private entities	The CEC-administered Electric Program Investment Charge program supports clean energy technologies via: (1) Applied research and development; (2) Technology demonstration and deployment; and (3) Market facilitation.
CT	30	Municipalities	The DEEP-administered Microgrid Program offers grants to support critical facilities. Storage must be paired with RE or CHP. Up to \$4M is available per project. Winners may apply for loans of up to \$2M from CT Green Bank.
NY	16	Businesses (main proposer)	The NYSERDA-administered Demonstrating Energy Storage for Stacking Customer and Grid Values Program funds demo projects that tackle operational, regulatory and business model complexities of value stacking. 50% co-funding required.

# Rebates and Incentives



State	Total Funds (\$M)	Description
CA	566	The CPUC-administered Self-Generation Incentive Program (SGIP) offers rebates for all BTM-distributed energy resources. Storage systems between 10 kW and 5 MW eligible.
MD	3.75	The MEA is to administer 30% income tax credits for storage systems. Credit capped at \$5,000 for residential and \$75,000 for commercial.
NV	5*	The NPUC is establishing energy storage incentives under the Solar Energy Systems Incentives Program.
NJ	1.5**	The Renewable Electric Storage Program offered a \$300/kWh incentive to non-residential, 100+ kWh, BTM, storage + renewable energy projects.

\*Total money allotted to storage \*\*Based on RES Report of funded projects

# Regulatory Updates



Topic	Examples and Notes
Utility Ownership/ Cost Recovery	<ul style="list-style-type: none"><li>• MA and NY have explicitly allowed IOU ownership in the context of a deregulated state</li><li>• CO gave Xcel deferred rate base approval for two customer-sited solar + storage projects</li><li>• CA is working on a framework that would allow IOUs to seek compensation for all storage services under one filing</li></ul>
Interconnection	<ul style="list-style-type: none"><li>• NC and SC have clarified that storage can use same interconnection procedures as other “small generation facilities”</li><li>• CA is working on an expedited review process for non-exporting systems</li></ul>
Net Energy Metering (NEM)	<ul style="list-style-type: none"><li>• CA set size limits for NEM solar + storage units and created an export estimation methodology for small, meterless solar + storage units</li></ul>

# System Planning



Topic	Examples and Notes
Energy Storage Potential	<ul style="list-style-type: none"><li>• OR requires IOUs to conduct energy storage potential evaluations for their systems</li></ul>
Non-Wires Alternatives (NWA)	<ul style="list-style-type: none"><li>• ME requires IOUs to consider NWAs and earn a rate of return on all NWA expenditures (including operating expenses)</li></ul>
Hosting Capacity	<ul style="list-style-type: none"><li>• CA is refining a methodology to identify where DERs can connect to the distribution system</li></ul>
Locational Value	<ul style="list-style-type: none"><li>• NY is moving to replace NEM with rates that reflect the locational and environmental benefits of distributed energy resources</li></ul>
Performance-Based Incentives	<ul style="list-style-type: none"><li>• PA is investigating PBIs that include grid efficiency improvements</li></ul>

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