USAID
FROM THE AMERICAN PEOPLE

National Association of Regulatory Utility Commissioners

Energy Storage Integration: The US Perspective

Colette D. Honorable, Partner
Reed Smith LLP

24 May 2018

A View of the Future

According to the World Energy Council, battery storage could reach 250 GW in capacity worldwide by 2030. Unprecedented global focus on clean energy development, integration and consumption.

While “green” technologies are currently only a small share of the global energy mix, renewables (wind and solar), energy storage and electric vehicles are quickly gaining strength. (IEA)

This presentation will focus on the integration of energy storage technology.

USAID
FROM THE AMERICAN PEOPLE

National Association of Regulatory Utility Commissioners

Convergence of Three Key Factors: Energy Storage

- Due to the convergence of three significant factors, storage technology can be energy sector's next "game changer":
  - Technological development of lithium-ion batteries
  - Development of energy policy
  - Heightened awareness and leadership by regulators
- Regulatory and policy "push-pull"

USAID
FROM THE AMERICAN PEOPLE

National Association of Regulatory Utility Commissioners

Evolution of Energy Storage- The US Experience*

- Prior to 2010, pumped hydro storage was the primary option for grid-scale energy storage
- Since 2010, there were a number of actions which drove greater deployment and integration of energy storage in regional markets.
- At the federal level, DOE funded nearly twenty demonstration projects through ARRA.
- IHS estimated that in 2011, ¼ of all utility scale battery projects received ARRA funding.

*MIT Energy Initiative Working Paper, April 2018

FERC's Role in Energy Storage Integration

- In October 2011, FERC issued Order 755, requiring RTOs and ISOs to evaluate compensation for "fast-responding" frequency regulation resources.
- This policy shift was confirmed by FERC in 2013 (FERC Order 784).
- In 2015, FERC elevated the issue of energy storage integration by hosting a technical conference.
- In 2016, FERC issued a Notice of Proposed Rulemaking to amend rules regarding storage integration, inviting stakeholder input.

- In January 2017, FERC issued a policy statement, *Utilization of Electric Storage Resources* which focused on the attributes that energy storage possesses and how they should be compensated in energy markets.
- In February 2018, a new iteration of FERC signaled continued support of energy storage integration by issuing Order 841, to modify certain market rules that created a barrier to the development and integration of energy storage in wholesale markets.

FERC Order 841

- FERC Order 841 included a number of significant policy hallmarks:
  - Directs RTOs and ISOs to implement new tariff provisions that will incentivize the development of ESRs
  - Amends rules to permit ESRs to participate in energy markets
  - Mandates that RTOs and ISOs establish a minimum size requirement to participate in markets that does not exceed 100kW

USAID
FROM THE AMERICAN PEOPLE

National Association of Regulatory Utility Commissioners

RTOs and ISOs: Where the Rubber Meets the Road

- Regulators recognized the need to address the “chicken and egg” issue
- PJM Interconnection narrative: by 2014, about 84 MW of large-scale battery storage capacity participated in markets; by 2015- doubled
- Midcontinent Independent System Operator: as a result of FERC action, created an Energy Storage Task Force to work with stakeholders to meet policy/order directives

State Leadership on the Energy Storage Front

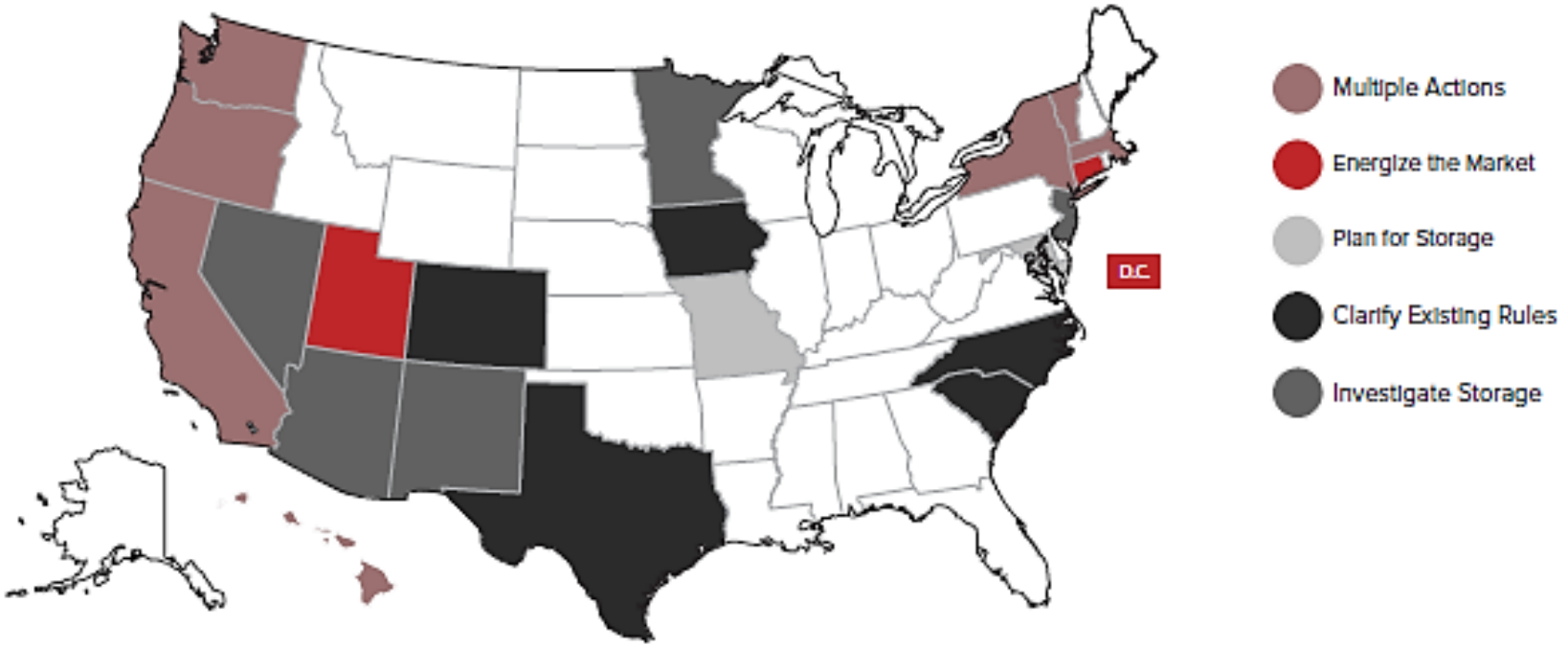
Twenty states have take steps to promptly deploy energy storage:

- California was faced with aggressive climate mandates, dynamic renewables integration, and the failure of a gas storage facility (Aliso Canyon)
  - California AB 2514- required IOUs to procure 1,325 MW of storage by 202
  - Another expedited procurement of 84.5 MW in May 2016

- Massachusetts undertook a comprehensive evaluation of the potential for energy storage and set a target of 200 MWh installed by 2020.

- New York- In January 2018, announced a target of 1500 MW installed capacity by 2025 as part of its broader energy reform effort (REV).

- These actions have occurred in states with vertically-integrated utilities as well as in restructured states.



Note: Map is not reflective of all state activities on energy storage. Certain early stage policy/regulatory efforts, grant programs and/or pilot projects may not be reflected herein.

Map of State Policy Actions on Energy Storage

USAID
FROM THE AMERICAN PEOPLE

National Association of Regulatory Utility Commissioners

Key Takeaways

- Grid scale utility storage can be a key tool to support renewables integration, ensure affordability, reliability and resilience, and market efficiency
- Requires attention and alignment by regulators (policy) and market operators (technical experts)
- Can support deeper decarbonization
- Necessitates understanding that battery storage has unique attributes that must be valued in order for full integration to be successful

Colette D. Honorable, Partner
Reed Smith LLP
1301 K Street NW
East Tower, Suite 1000
Washington, DC 20005
+1 (202) 414-9444
chonorable@reedsmith.com
LinkedIn, Twitter: @CHonorableEsq