

Reflections On State Presentations



*PREPARED FOR THE
NEW ENGLAND CONFERENCE OF
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Reflecting on the presentations we've seen.

- We will be covering the following topics:
 - Questions & Feedback On Workshop Topics
 - As time allows, “Deep Dives” into:
 - Changes to Net Metering Programs
 - Changes to RPS Requirements
 - Interconnection Standards

The Issue: Pairing solar-plus-storage with NEM has received minimal policy attention to-date due to low level deployments. However, the issue is emerging as pairing energy storage with solar energy systems becomes more economical.

PROS

- A strong market signal would be achieved if certifiably solar-powered batteries could get paid through NEM.
- Addresses the issue of states (e.g., California) reducing the value of traditional solar through TOU rates.
- Adding storage may be a prerequisite for a residential solar project to pencil out.

CONS

- Utilities don't want to pay net metering (retail) rates to batteries charged by grid power
- Adding energy storage to a solar project adds a layer of complexity

Changes To Net Metering



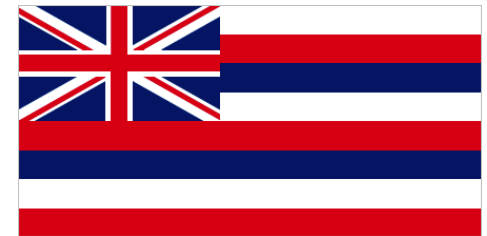
CALIFORNIA:

December 2017:
NEM successor tariff
modified virtual net
metering to facilitate
pairing eligible
generation with
energy storage.



COLORADO:

1st state to adopt a
consumer right to
energy storage,
which is prompting
revision of NEM
policy, among other
policies.



HAWAII:

Successor tariffs to
NEM allow customers
to choose a “smart
export” option for
solar + storage
systems (among
other non-exporting
tariffs)

Key Policy Questions:

- Ensure that the credit given to storage is renewable energy produced and not energy purchased and resold from the grid.
- It is important to keep the bill credit separate from the rate itself.
- Are net metering programs obsolete? Instead of revising NEM, should NEM be replaced with successor tariffs?
- How can utilities and regulators address prices for energy storage that are based on location?

The Issue: Should an RPS require energy storage, or should objectives for ES be addressed separately?

PROS

- Integrate intermittent renewable energy
- Help shift renewable generation to more closely match peak loads
- Provide generation and load balancing services
- Reduce the need for peaking and backup generators on the grid
- Reduce customer demand charges

CONS

- Uncertain if regulators need to encourage storage specifically—encouraging renewables may be enough to stimulate storage
- Once an RPS is reopened, opponents of renewable energy could take the opportunity to revise, weaken or revoke the state's obligations

Changes To RPS Mandates

Six states have each adopted an RPS of 50% or more; four of these states also have separate procurement targets for storage.

	CA	HI	NJ	NY	OR	VT
RPS Mandate	60% by 2030	100% by 2045	50% by 2030	70% by 2030	50% by 2040	75% by 2032
Storage Mandate	1,825 MW by 2020		2,000 MW by 2030	3,000 MW by 2030	5 MW by 2020	

Key Policy Questions:

- If energy storage is to be included in RPS mandates, which ES technologies should be covered? Just batteries...or CAES, flywheels, pumped hydro....others?
- Should eligibility for energy storage be based on performance characteristics, such as:
 - Minimum or maximum capacity?
 - Minimum duration the technology can hold a charge?
 - Whether or not the storage installation can be remotely controlled for dispatchability?
- Must energy storage be co-located or integrated with specific generation, or can it stand alone on the grid?

The Issue: Interconnection standards that preceded renewables and ES technologies are likely in need of revision.

PROS

- Interconnection is a critical step for any resource that operates while connected to a utility's grid
- Interconnection standards can be integrated with other policies covering net metering, distribution planning, integrated resource planning, and energy efficiency to support a comprehensive clean energy plan

CONS

- ES technology is so nascent that interconnection standards can still not envision the full potential of services and benefits that storage can bring to the grid
- Integration of large amounts of DERs can negatively affect the reliability and operational stability of power system

A Tale Of Two States....



- The ACC has recognized that its legacy standards need to be revised to address the unique interconnection requirements of DERs and storage
- Draft rules were published in June 2015 but by late 2019 final statewide rules have not been adopted
- Utilities in Arizona have developed their own rules, but this has caused inconsistent requirements



- Interconnection rules have not been revised since 2004.
- New revisions include energy storage systems in the definition of eligible projects
- Modeled off of 2014 FERC SGIP
- Fast-track approval allowed for some ES projects

Key Policy Questions:

- Does the state utilize the foundation provided by IEEE Standard 1547-2018 to support common design and component use?
- Do the Interconnection Standards ensure applicability to multiple services for storage (at minimum addressing storage as a generation source and load source)?
- Do the Standards provide rules for exporting, non-exporting, and limited exporting storage technologies?

The energy storage policy landscape
continues to evolve.

Sandia National Labs monitors and analyzes activity at
the federal and state levels and publishes information
in the Global Energy Storage Database, available at this
link:

<https://www.sandia.gov/ess-ssl/global-energy-storage-database/>

Thank you!

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