



## Enhancing Grid Stability and Resiliency with Small-Scale Storage

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# Renewable Energy Industries Association-NM

- New Mexico based trade organization representing 60+ companies engaged in the renewable energy business with a focus on Distributed Energy Resources (DER).
- Mission is to support, promote and advance the transition to renewable energy in New Mexico helping to create more jobs, and a strong, healthy economic future for our state.
- Members and customers located throughout urban and rural New Mexico.
- Active in New Mexico regulatory and legislative environments.
- REIA is an affiliate of the Solar Energy Industries Association (SEIA).

## Existing Small Distributed Energy Resources

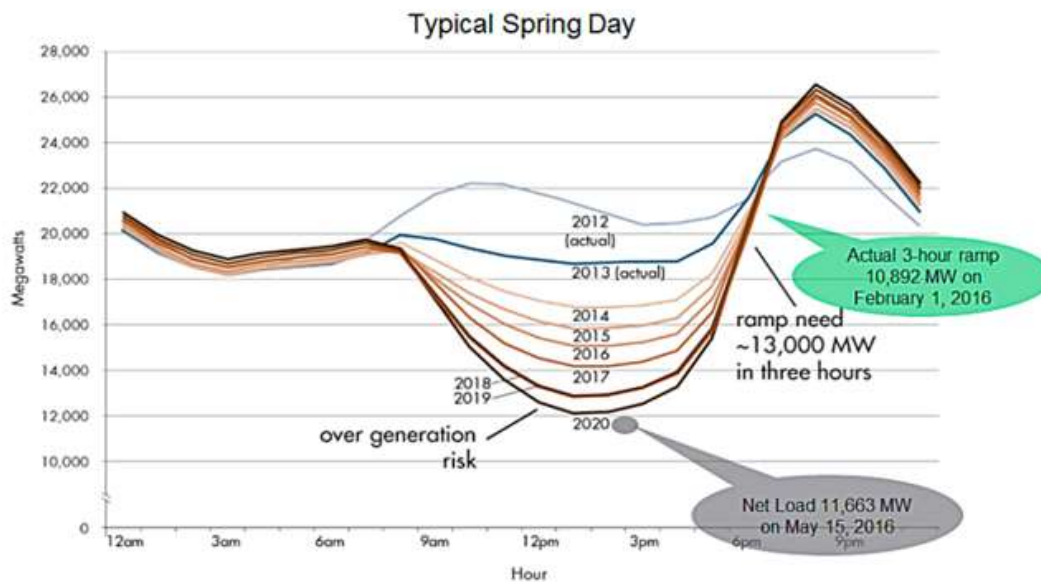
- Distributed Energy Resources – Small scale energy resources, such as rooftop solar, Community Solar and battery storage, usually situated near sites of electricity use.
- More than 40,000 solar systems installed at homes and businesses in New Mexico. Less than 1 % are paired with energy storage.
- Inflation Reduction Act is expected to contribute to very strong growth in the renewable energy sector, solar sales expected to triple in the U.S by 2030.
- Presently 2 GW of Behind the Meter (BTM) energy storage installed in the U.S. This is expected to increase to 27 GW by 2030.
- Electric Vehicles expected to increase from 3 million now to 26 million by 2030.

## What is the Current Situation?

- The transition to renewables is happening while there is increased demand on the grid due to climate change and a transition to electric vehicles (EV) and building electrification.
- Extreme weather is creating a need for increased resiliency in our built environment.
- There is a need and a statute requirement to replace fossil fuel electrical generation with renewables that have variable generation, creating need for significant amount of energy storage.
- Large scale renewables and storage take up significantly more land than the equivalent amount of fossil fuel generation. Not in My Backyard (NIMBY) issue.
- Homes and businesses are now able to generate their own energy. Community Solar is another generation option.
- Less than 1% of solar systems in New Mexico are currently paired with energy storage. California pairing of solar plus storage is at 12%.

# California Duck Curve

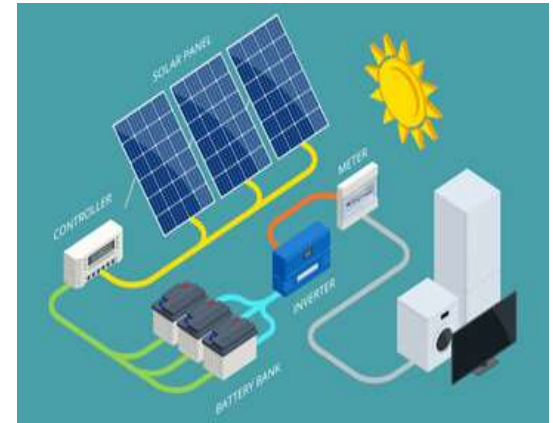
Figure 2: The duck curve shows steep ramping needs and overgeneration risk



- As the amount of electricity generated from solar increases, the disparity from when electricity is generated and when it is needed increases. Over supply around noon time and under supply in early evening. Supply does not sync up with demand. The storage of energy is needed to address this issue.

# What is Small Scale Storage?

- Storage that can capture energy at one time for use at a later time. Often lithium-ion batteries are used in residential and commercial storage.
- Solar plus energy storage system can be on residential and commercial buildings.
- Can also be a larger energy storage system on a utility distribution line.
- Placement is in built environment or smaller land parcels than large scale storage.

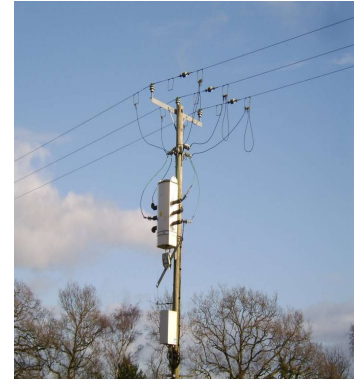


# Why Small-Scale Storage?

- Provides back-up power when there is a power outage.
- Saves utilities and customers money by reducing the need for new infrastructure.
- Provides the potential to balance energy supply and demand as more renewable energy is added to the grid. Energy can be stored for dispatch at times of high demand.
- Can easily be co-located with existing solar energy resources.
- Can be installed more quickly than large scale storage systems.
- Provides greater resiliency through decentralization of energy resources.
- New technologies including advanced inverters and plug & play storage are available now to make these resources dispatchable to the grid.
- Newly updated PRC Interconnection Rule removes regulatory barriers for BTM storage systems with. The new rule has an A rating from Interstate Renewable Energy Council.

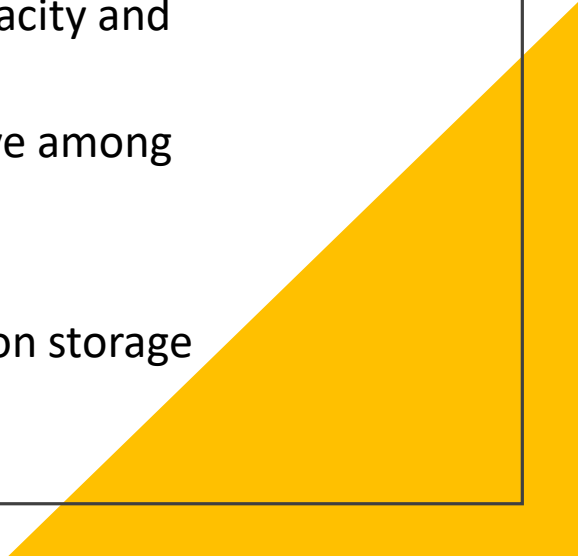
# Small Scale Storage on Distribution Lines

- Installations are smaller, less intrusive (less NIMBY).
- The storage is closer to the electric load and more efficient.
- Dispersed storage locations minimizes the issue of a single point of failure.
- Smaller investments spread out over time minimizes risk.
- Energy storage technology is evolving quickly. Incremental adoption better enables the implementation of the most cost-effective technology,





# PNM BESS Project

- Filing at PRC on May 3, 2023, Docket # 23-00162-UT, pending approval.
  - Battery storage projects will be located at two existing PNM solar facility sites in Bernalillo and Valencia Counties.
  - Designed to assist with voltage support and power quality on two overloaded distribution feeder lines, increase solar hosting capacity and assist in meeting load growth.
  - PNM determined that the BESS project is the most cost effective among the feasible alternatives.
  - Project is intended to be operational in June, 2024.
  - PNM expects to request approvals for similar battery distribution storage in the future.
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# Virtual Power Plants (VPP)

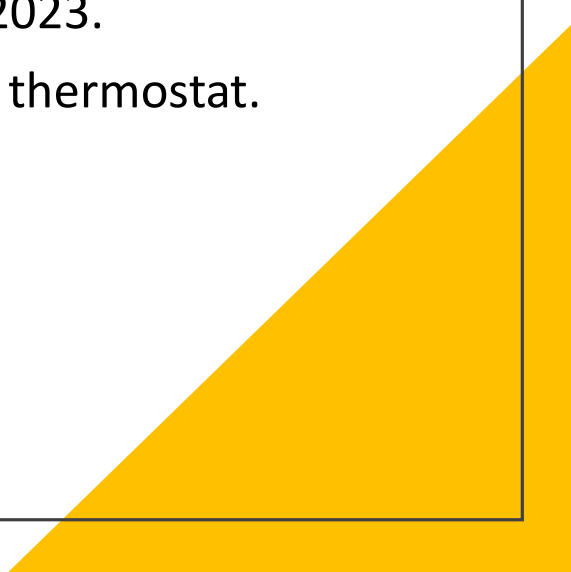


- DERs, including BTM solar systems and EVs, can be grouped and controlled by a utility to support the power system.
- Drivers include declining costs, technological advances, Inflation Reduction Act (IRA) and FERC Order 2222.
- Nationally, by 2030 BTM solar expected to grow from 27 GW to 83 GW. BTM storage from 2 GW to 27 GW and EVs from 3 million to 26 million by 2030.
- This model is considered a Lower Cost Resource Adequacy.
- Pilot Projects by PG&E/Sunrun and others.

# California Programs-PSR & ELRP

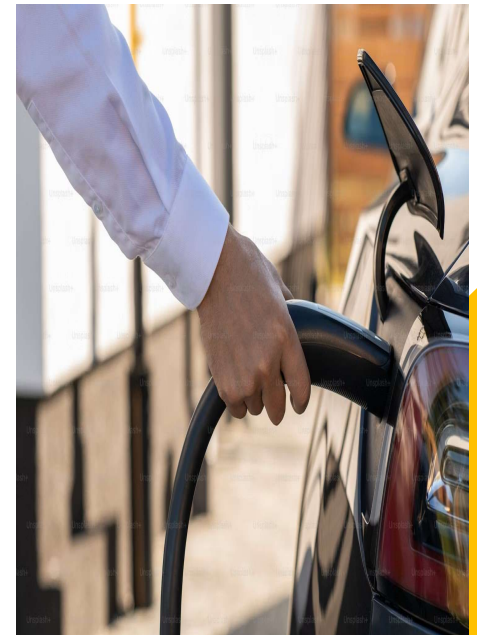
- Power Saver Rewards (PSR) is a residential program offered by the California Public Utilities Commission (CPUC) for customers of Southern California Edison, PG&E and San Diego Gas & Electric.
- Emergency Load Reduction Program (ELRP) is also offered by CPUC for non-residential customers for the same utilities.
- Enrollees receive \$2.00 per kWh for load reduction. Customers with their own batteries can earn larger payments.
- California Independent System Operator (CAISO) issues alert to trigger response by enrollees. Usually day before notice. Events will be between 4-9 pm, May-Oct. Response to alert by enrollees is optional.

# California Programs-Sunrun & PGE Collaboration

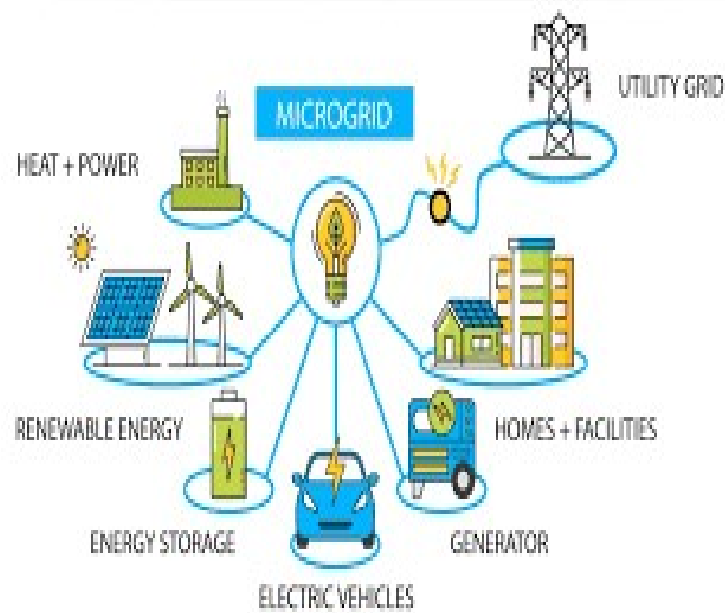
- Peak Power Awards program exclusively for Sunrun customers.
  - Enrollment extended from 7,500 to 8,500 (34 megawatts) for SunRun solar plus storage customers.
  - Designed to provide grid support from 7-9 pm, August –Oct, 2023.
  - Enrollees are provided \$750 one time payment and free Next thermostat.
  - Three-month pilot program.
  - Cannot be enrolled in other demand response programs.
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# New Hampshire Electric Cooperative Program

- Transactive Energy Rate Pilot Program for customers who own eligible battery storage systems that are paired with solar or electric vehicles or chargers.
- Pilot program limited to 50 customers.
- The utility estimates that an eligible 8.6 kW battery enrolled in the program could earn a customer \$1,700.



# Micro Grids



- a small network of electricity users with a local source of supply that is usually attached to a centralized to a national grid but is able to function independently.

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# NM Legislation on Small Scale Energy Storage

- HB32/HB547-Energy Storage System Income Tax Credit in 2023 legislative session was passed, but not chaptered.
- 40% tax credit for energy storage systems with limit of \$5,000 on residential and \$150,000 on commercial properties, \$4 million annual cap, 5-year sunset.
- New Mexico is behind most states in the attachment rate of solar with storage. This legislation would have kickstarted this market.
- Many benefits include helping New Mexico become a leader in this fast growing industry, addresses resiliency concerns, economic growth, job creation.



- Pass legislation similar to HB32/HB547-Energy Storage System Income Tax Credit.
- Request that utilities recognize the value of BTM storage.
- Recognize the value of small-scale storage in future grid modernization proceedings at the PRC.
- Adoption of SolarApp with storage by Authorities Having Jurisdiction (AHJ) starting with Construction & Industries Division for efficient permitting.
- Support utility initiatives to have energy storage projects on distribution lines.
- Pilot programs at the three Investor-Owned Utilities to create VPP programs with incentives for ratepayers.



# Questions?

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