Solar and Storage:
Current landscape, planning & zoning considerations

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1

CNY RPDB

Central New York Regional Planning & Development Board

- **Energy Management**
- Comprehensive Planning and Community Development
- Economic Development
- Environmental Management
- Transportation Planning

2

CNY RPDB Energy Management Team

Goal: maximize the region's energy resources by increasing the efficiency of residential and commercial buildings, curtailing energy demand, increasing the use of renewable energy, and accelerating the deployment of advanced energy technologies.


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3

Clean Energy Advisor: Mike Dunn

- Technical assistance to municipalities across Central NY, Finger Lakes, Western NY, and Southern Tier
- Connect communities to information and resources
- Help identify areas where projects are most likely
- Assist in creating or updating renewable energy zoning codes
- Contact: mike@nywoodlands.com or 716-397-5791

4

Permitting Authority for Renewables & Energy Storage in NYS

Technology Type		State Approval (ORES, CPCN*)	Local Approval (SEQR/local regulations)
Renewable Generator (e.g. solar, wind)		**≥ 25 MW***	**< 25 MW**
Battery Energy Storage System (BESS)	Co-located with Renewable Generator	All sizes if co-located with **≥ 25 MW** renewable generator	All sizes if co-located with **< 25 MW** renewable generator
	Standalone System	*N/A*	**All sizes***

**Under Public Service Law (PSL) §68, electric corporations are required to seek a Certificate of Public Convenience and Necessity (CPCN) for alternate energy production facilities – including renewables and energy storage systems – exceeding 80 MW.*

5

Utility Scale Solar and Wind Permitting

Office of Renewable Energy Siting and Transmission (ORES)

- Issues a **single permit** to develop, construct, operate, maintain, and decommission large-scale renewable energy facilities with a capacity of 25 MW or greater (wind, solar, and co-located storage projects).
- Provides for **public input**, requires developer to fund a local agency account, and mandates **host community benefits** (mandatory utility bill payments to ratepayers w/in the same AHJ as the project for 10 years).
- Streamlines the environmental review and siting of through the application of **uniform standards & conditions within one year** to timely achieve the Climate Act goals
- Prior to issuing a final siting permit, ORES must find that the proposed project complies with all applicable local laws and regulations, except those it determines to be **unreasonably burdensome.**

6

Solar

Residential (up to 25kW+)

Commercial (greater than 25 MW) /Community Solar (~1-5 MW)

2.7 MW Community solar array on Town of Elbridge landfill

Utility (25 MW+)

7

Community Solar

- AKA Community Distributed Generation (CDG)
- Solar energy produced at larger site on behalf of multiple subscribers
- Subscribing is free and offers credits on electric bills
- Capital investment and construction jobs
- Tax/PILOT/lease revenue
- Residential and small business energy cost savings

5.7 MW Community solar array on Town of Manlius landfill

8

Community Solar in CNY

- 77 projects in CNY totaling 413.4 MW
- 540,000 MWh generated each year
- Electric bills reduced by ~$8 million per year through subscriptions
- $535 million investment in CNY
- Roughly $1.5 million generated through PILOTs
- Roughly 400 acres per county in the region
- New source of revenue for farmers and landowners with marginal/underutilized land

3.98 MW Community solar array at Cayuga County Jail Complex

9

Municipal Solar Portfolio

- 13 Projects with 46 MW completed
  - Most community solar projects
- 3 Projects with 15 MW in active development
- 2 major projects with 50 MW in pre-development stage
- $175 million investment

2.7 MW Community solar array on Town of Elbridge landfill

10

Utility Scale Solar, Storage, and Wind in CNY

- 3 projects completed in CNY totaling 84.5 MW
  - Janis Solar - 20 MW - Town of Willet
  - Fenner Wind Energy Facility - 30 MW - Town of Fenner
  - Munnsville - Phase 1 Wind - 34.5 MW - Town of Madison
- 9 projects (18 MW+) in CNY in the NYISO queue totaling 677 MW
  - Homer Solar Energy Center - 90 MW - Towns of Homer, Cortlandville, and Solon
  - Sky High Solar - 20 MW - Town of Tully
  - Dog Corners Solar - 20 MW - Town of Ledyard
  - Scipio Solar - 18 MW - Town of Scipio
  - Oxbow Hill Solar - 140 MW - Town of Fenner
  - Garnet Energy Center - 200 MW - Town of Conquest
  - ELP Granby Solar II (+ Storage) - 20 MW - Town of Granby
  - Hoffman Falls Wind - 72 MW - Town of Fenner
  - Agricola Wind - 97 MW – Towns of Scipio and Venice

11

Solar + Storage in CNY

- National Grid Non-Wires Alternative (NWA) project pairs 15MWdc of solar PV with 10MW/40MWh of battery storage
- Developed by Convergent Energy + Power
- Helps expand grid capacity for Pine Grove substation which serves the Town of Cicero

Image: Convergent Energy + Power

12

Battery Energy Storage Systems (BESS)

13

13

Battery Energy Storage Systems (BESS)

Battery energy storage can comprise a variety of different electrochemical makeups:

- **Lithium Ion**
- Lead Acid
- Nickel-Based
- Flow Batteries

BESS building blocks:

- Cells
- Modules
- Racks

14

Types of BESS

Residential

Commercial

Utility

Behind-the-meter "Customer-side"

Front-of-the-meter "Utility-side"

15

Why are we talking about batteries?

- Energy storage acts like **a giant battery** for the electric grid. It can store extra electricity on sunny days when solar panels are producing more power than we need. Then, it releases that stored energy when we need it most, such as during the evening or on hot days when everyone's using air conditioning.
- **This helps the grid in two significant ways:**
  - **Making it more resilient:** If something goes wrong, like a storm knocking out power lines, energy storage can step in to supply electricity, keeping the lights on and essential services running until the problem is fixed.
  - **Saving money:** Storage helps avoid the need to turn on expensive power plants only used during peak demand times. By smoothing out supply and demand, it reduces costs for everyone.

16

Applications for BESS (Examples by Sector)

Utilities	Grid Operators	Commercial Consumers	Residential Consumers
Increase renewable integration	Balance electricity supply and demand	Keep critical equipment online during power disruptions	Reliable backup power during severe weather and other blackouts
Reduce dependence on fossil-fuel peaker plants	Improve power quality and reliability	Reduce utility bills and generate revenue	Reduce utility bills and generate revenue
Reduce operating expenses	Avoid costly system upgrades		

Energy storage technologies have the capacity to benefit each segment of the power system.

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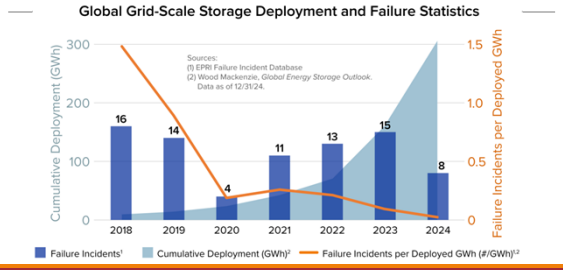
17

BESS and Fire Safety



18

Interagency Fire Safety Working Group

In July 2023, in response to fires at three BESS sites, Governor Hochul convened an Inter-Agency Fire Safety Working Group (Working Group).

Agency Participants

- Division of Homeland Security Emergency Services (DHSES)
- Office of Fire Prevention and Control (OFPC)
- New York State Energy Research and Development Authority (NYSERDA)
- Department of Environmental Conservation (DEC)
- Department of Public Service (DPS)
- Department of State (DOS)

Working Group Partners

Highly specialized Subject Matter Experts (SME)/fire protection engineering firms, national labs, and New York Power Authority

19

Highlights of the Updated Fire Code

- Require **central station monitoring** of all BESS fire detection systems to ensure prompt notification to local fire departments.
- Implement mandatory, **industry-funded independent peer reviews** for BESS installations exceeding lithium-ion capacity thresholds.
- Require all BESS facilities to have an **Emergency Response Plan (ERP)** and provide site- specific training for local fire departments on project hazards and procedures.
- Mandate qualified personnel, familiar with the installation to be available for **dispatch within 15 minutes** and **on-site within 4 hours** to support emergency responders during a BESS fire.
- **Extend safety signage** requirements to perimeter fences or barriers, including a site map showing BESS enclosures and related equipment.
- **Regular, industry-funded special inspections** to verify ongoing safety and code compliance of BESS facilities.

20

Battery Management Systems (BMS)

- Monitors each individual cell within the system
  - Capable of monitoring thousands of data points per second
- Will alarm if there are potential issues
- If required, can isolate affected cells or modules from the total system and activate fire protection systems, preventing further failure

Safety Features

- Cell balancing and monitoring
- Thermal management
- Overcharge and over-discharge protection
- Fault diagnosis and reporting

21

Planning and Zoning Considerations

Understanding Renewable Energy Developers

- Projects Close to Substations
- Upgraded Substations
- High Capacity 3 Phase Lines
- Open Land (if possible)
- Favorable Solar/BESS Code

Prepare Don't React

- Permitting for stand-alone storage is at the local level regardless of project size
- Research and understand where renewable energy development is likely
- Consider what is important to your community in a renewable energy project
  - Setbacks, Buffering, Fencing
  - Protection of soils, timber, viewsheds
  - PILOT, Host Community Agreement
  - Protecting the Environment

22

Tools and Resources

- **New York State Solar Guidebook:** https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources/Solar-Guidebook
  - **Recent updates include NYS RPTL 487 and PILOTs, plus Decommissioning chapters**
- **New York State Battery Energy Storage System Guidebook:** https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources/Battery-Energy-Storage-Guidebook
- **Fire Safety Working Group background and resources:** https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program/New-York-Inter-Agency-Fire-Safety-Working-Group
  - **Includes Deploying Safe Lithium-Ion Energy Storage in Your Community Webinar**
- **NYSERDA Clean Energy Siting resources:** https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Siting-Resources
  - **Includes links to comprehensive planning guide, energy storage trainings, funding information, and more**
- **Clean Energy Advisor, Mike Dunn!**

23

Key Take-Aways

- Financial opportunities for municipalities in relation to solar and storage projects
- Stand-alone storage projects are always permitted at the local level!
- Create/update zoning codes to reflect desires of the community
- Tools and resources are available at no cost
- Consider different use-cases in your local regulations

24

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25

Questions?

26