

# EARTH, WIND & FIRE, "GOT TO GET YOU INTO MY LIFE" – CLEANER AND COST-EFFECTIVE ENERGY

Monday, September 23, 2019  
9:50-11:05 AM (ET)  
Mohonk Mountain House  
New Paltz, NY



NEW YORK STATE BAR ASSOCIATION  
ENVIRONMENTAL & ENERGY LAW SECTION

# Earth, Wind & Fire, “Got to Get You Into My Life” – Cleaner and Cost-Effective Energy

- Panel Chair:
  - Gregory M. Brown, Esq. Brown Duke & Fogel, P.C
- Panelists:
  - Julia Pettit, Esq. Senior Counsel EDF Renewables  
*Large Scale Solar and on-shore Wind*
  - Megan Higgins, Director of Offshore Energy, Tetra Tech, Inc. Sciences  
*Offshore Wind*
  - Marshall Haimson, President, E Capital Development  
*Storage, Transmission and Financing Energy Projects*

## Climate Leadership and Community Protection Act

### Statewide Greenhouse Gas Emission Limits

- Limits (ECL 75-0107) Percentage of 1990 emissions:
  - 2030- 60%
  - 2050 – 15%
  
- Enforceable Regulations no later than 4 years – (ECL 75-0109) shall:
  - Include “*enforceable limits, performance standards, or measures or other requirements*” to control (exception for livestock emissions)
  - Considerations: equitable, minimize cost, maximize total benefits to NY, verifiable, permanent, enforceable
  - Limited use of offset projects as alternative compliance mechanism – electric generation sector not eligible to use offset mechanism.

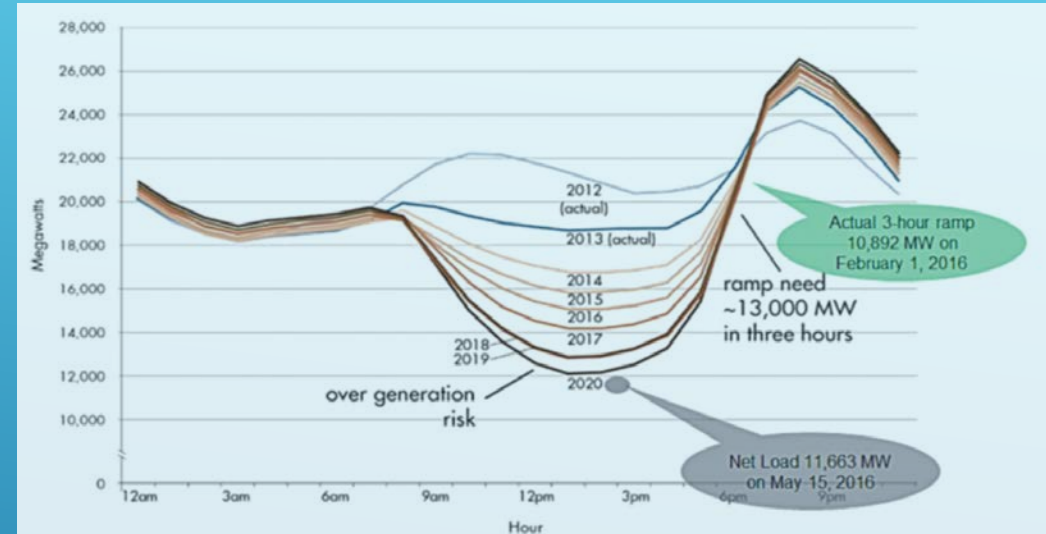
## Climate Leadership and Community Protection Act cont.

Climate Action Council - 22 members – and advisory panels

- Timing:
  - 2021 – draft scoping plan – recommendations for attaining limits and beyond
  - 2022 – final scoping plan – recommendations to be incorporated into state energy plan
  - Updates at least once every five years
- “Just transition Working Group”
- Environmental Justice Advisory Group
- Must include measures to achieve – by 2025:
  - ❖ 6 Gigawatts distributed solar
  - ❖ 9 Gigawatts Offshore Wind
  - ❖ 3 Gigawatts energy storage by 2030
  - ❖ Displace fossil-fuel fired electricity with renewable or energy efficiency

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# ENERGY STORAGE



# Energy Storage

- “[Q]ualified energy storage system’ shall mean commercially available technology that is capable of absorbing energy, storing it for a period of time, and thereafter dispatching the energy using mechanical, chemical, or thermal processes to store energy that was generated at one time for use at a later time” (PSL § 74).
- Electric Storage Resource: “a resource capable of receiving electric energy from the grid and storing it for later injection of electric energy back to the grid” (18 C.F.R. § 35.28; Order No. 841, 162 FERC ¶ 61,127 at P 29).

Public Service Commission to establish an energy storage goal and policy by end of 2018 (PSL § 74.2)

- 3,000 MW of qualified storage energy systems by 2030,
- interim objective of deploying 1,500 MW of energy storage systems by 2025

*Case 18-E-0130 Matter of Energy Storage Deployment Program, Order Establishing Energy Storage Goal and Deployment Policy, Dec. 13, 2018.*

# Energy Storage

Brown Duke & Fogel, P.C.

NYSERDA Announces Completion of Largest Battery Installation in the State – 20MW - September 12, 2019



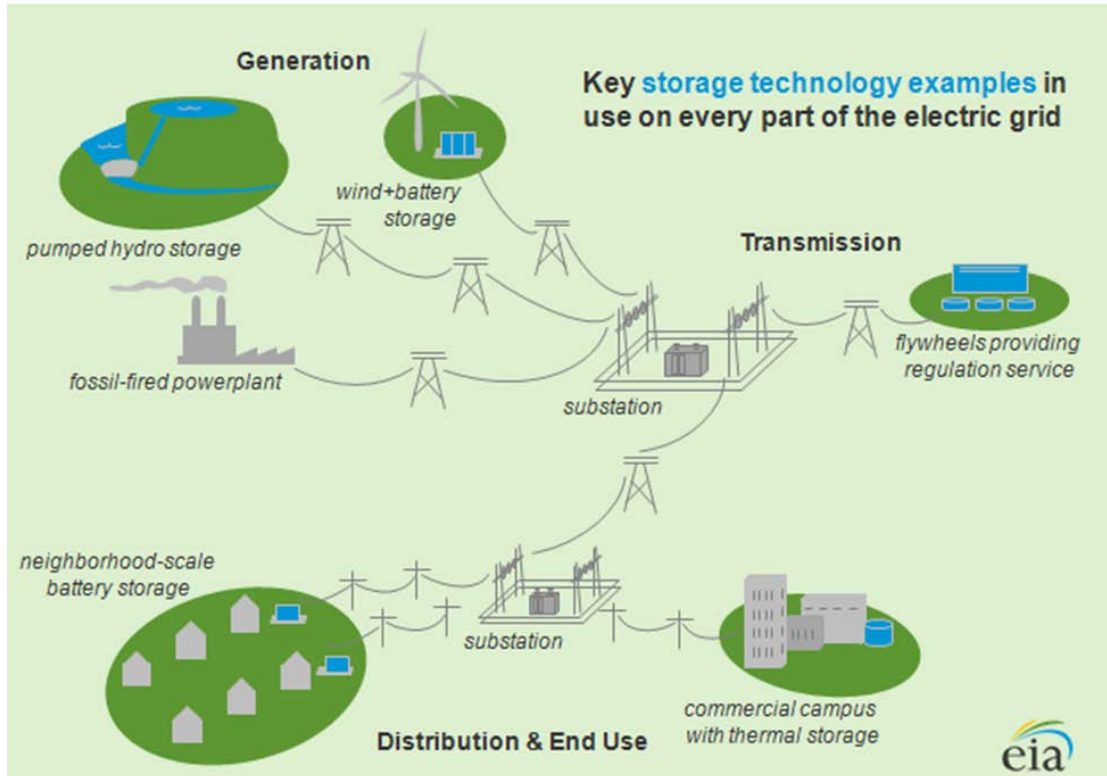
NY Power Authority - Blenheim-Gilboa Pumped Storage Project -1,400MW



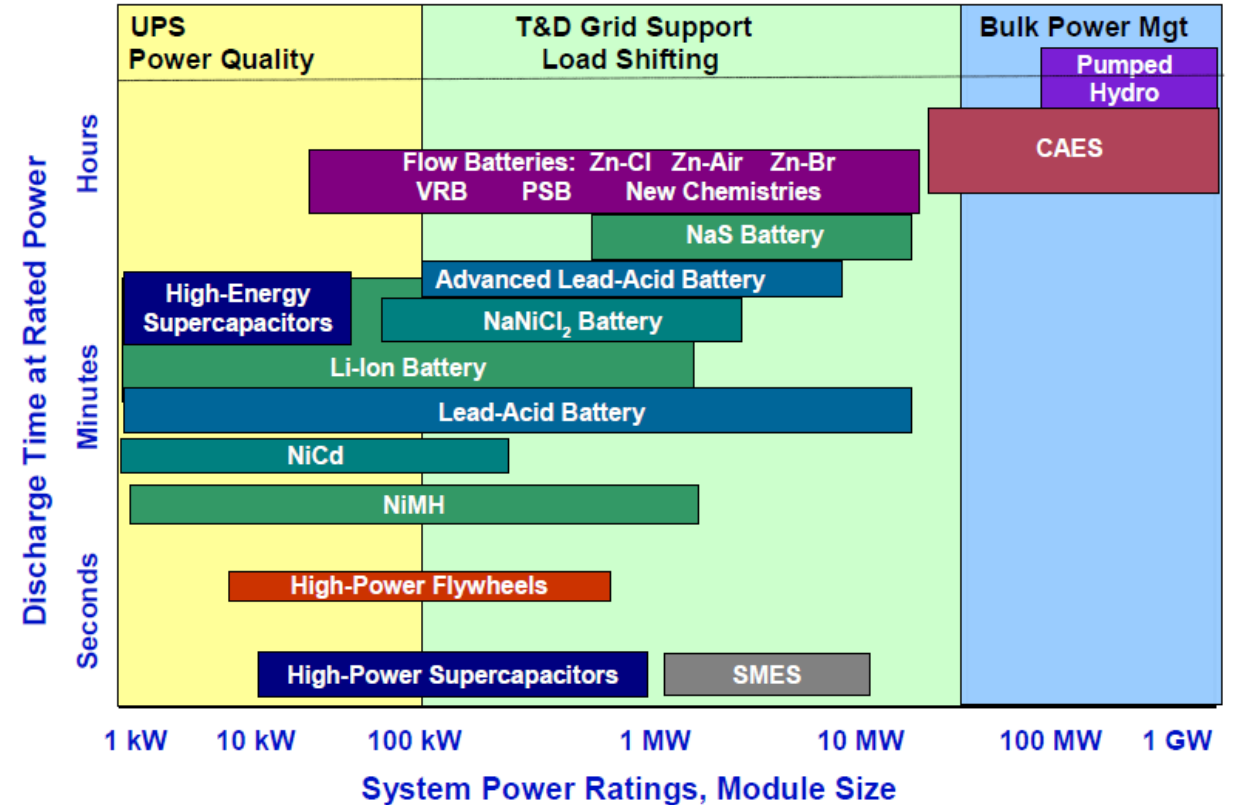


## Technologies

Hypothetical deployment of storage assets across an electric power system



- Characteristics





## Resources:

- U.S. Energy Information Administration  
(<https://www.eia.gov/todayinenergy/detail.php?id=6910>)
- International Energy Agency, Technology Roadmap, Energy Storage  
(<https://www.iea.org/publications/freepublications/publication/TechnologyRoadmapEnergyStorage.pdf>)
- Sandia National Laboratories, DOE/EPRI 2013 Electricity Storage Handbook in Collaboration with NRECA ([https://www.sandia.gov/ess-ssl/lab\\_pubs/doeepri-electricity-storage-handbook/](https://www.sandia.gov/ess-ssl/lab_pubs/doeepri-electricity-storage-handbook/))

# Energy Storage

# Public Service Commission

- Bulk Storage Dispatch Rights Contracts - investor owned utilities required to competitively bid specified quantity to provide fixed revenue stream for up to seven years. (ConEd 300MW, other IOU's 10MW each)
- Market Acceleration Incentives - NYSERDA to develop incentives
- Wholesale and Retail Market Reforms - DPS to study and make proposals (VDER docket)
- Evaluate storage in connection with Peaker Rule

Case No. 18-E-0130 – *In the Matter of Energy Storage Deployment Program*, Order Establishing Energy Storage Goal & Deployment Policy (Dec. 13, 2018)

# Energy Storage Public Service Commission

## Retail Storage Incentive

(bill savings or credits under IOU tariff  
- totaling \$130 million)

Eligibility Up to 5MW – allocated  
blocks of MWh by region

- Retail demand metered  
customers standalone or paired  
with on site-generation (e.g. solar)
- Standalone or paired connected  
directly to distribution system  
compensated under VDER Value  
Stack Tariff
- Resource operated primarily for  
electric load management or  
shifting electric generation to  
more beneficial time periods while  
operating in parallel with the utility  
grid

Energy Storage Market Acceleration Incentives  
Implementation Plan (NYSERDA August 1, 2019)  
(filed in Case 18-E-0130)

Retail Energy Storage Incentive Program Manual  
(August 2019)

Updated amounts available: [www.nysERDA.ny.gov/All-Programs/Programs/Energy-Storage/Developers-Contractors-and-Vendors/Retail-Incentive-Offer/Incentive-Dashboard](http://www.nysERDA.ny.gov/All-Programs/Programs/Energy-Storage/Developers-Contractors-and-Vendors/Retail-Incentive-Offer/Incentive-Dashboard)

Energy  
Storage

Public  
Service  
Commission

## NYSERDA Bulk Storage Block Incentive(\$150 million)

Eligibility Up to 5MW – allocated blocks of MWh by region

- ❑ Above 5 MW providing wholesale energy, ancillary services, and/or capacity services
- ❑ Commercially available chemical, thermal, or mechanical systems physically located within New York State and interconnected into New York's bulk transmission system or an IOU's transmission or distribution system
- ❑ In Stage 9 in the NYISO interconnection queue or later (see NYISO's OATT 22 Attachment P – Transmission Interconnection Procedures) or have begun the equivalent distribution utility study if connecting directly into the distribution system

❑ Executed agreement demonstrating site control for the duration of the project's lifespan

❑ Completed draft Environmental Impact Study with a negative declaration as evidenced by meeting minutes of the local government or written approval

❑ If applicable (*i.e.*, project includes new or expanded generation =>25MW), proof that the required Article 10 Application has been deemed compliant

ConEd RFP with NYSERDA Incentive Agreement and Storage Services Agreement at <https://www.coned.com/en/business-partners/business-opportunities/bulk-energy-storage-request-for-proposals>

# Energy Storage

# NYSDEC/ Public Service Commission

## PEAKER RULE

- Renewable energy/storage output averaging as compliance alternative:

Effective Rate=  $\text{Mass NO}_x / \sum \text{MWh}(\text{turbine, renewables, storage})$

- DPS Evaluated Storage as Substitute for Peaking Units

Proposed Subpart 227-3, Ozone Season Oxides of Nitrogen (NO<sub>x</sub>) Emission Limits for Simple Cycle and Regenerative Combustion Turbines (comment period extended to Oct. 7, 2019)

The Potential for Energy Storage to Repower or Replace Peaking Units in New York State, filed in Case No. 18-E-0130 Matter of Energy Storage Deployment Program (July 2, 2019)

# Energy Storage

## FERC Order 841

- FERC held Regional Transmission Organization and Independent System Operator market rules are unjust and unreasonable in erecting barriers to the participation of electric storage resources.
- Directed RTO/ISO to revise tariffs establish a participation model consisting of market rules that, recognizing the physical and operational characteristics of electric storage resources, facilitates their participation in the RTO/ISO markets.

Order 841, 162 FERC ¶ 61,127 (2018) & Order 842, 167 FERC ¶ 61,154 (2019)

Electric storage resources tariff provision requirements at 18 C.F.R. § 35.28(9)

➤ NYISO Compliance Filing and Intervention and Protests by PSC, NYC, industry, NGOs

# Energy Storage

## FERC Order 841

- NYISO Request compliance no earlier than May 1, 2020
- Issues Raised by Intervenors
  - ❑ Buyer-Side Mitigation (BSM)
  - ❑ Dual Participation in Wholesale and Retail

### ➤ Considerations

- ❑ BSM assessment done with interconnection class year process – substantially delay entry in NYC
- ❑ IOU 300MW procurement of dispatch rights and \$310 million market acceleration bridge – disputed impact on capacity prices



# Energy Storage

# Public Service Commission

- Ravenswood 316 MW Energy Storage Project
- ❑ Petition for Certificate of Public Convenience and Necessity
- ❑ Article 10 Not Applicable Per Prior Declaratory Ruling

- Expanded EAF
  - Existing Generation Site
  - Noise Study
  - Coastal Consistency

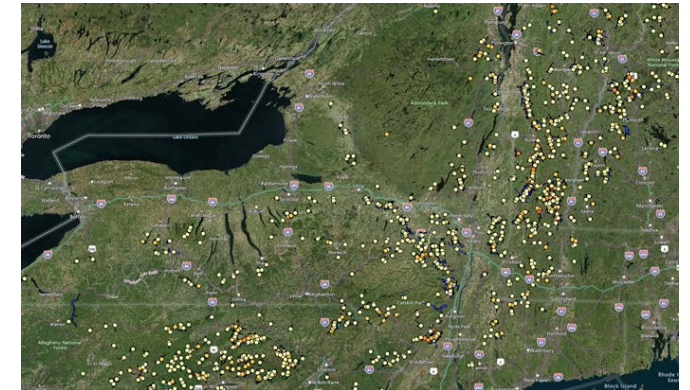
Case No. 19-E-0122, Petition of Ravenswood Development, LLC for Original Certificate of Public Convenience and Necessity (filed Feb. 21, 2019)

# Energy Storage

# Pumped Storage

## Potential

- 530,000 potential pumped hydro storage sites globally(1)
- 100 x more than required for 100% global renewable electricity system(1)
- DOE forecasted new domestic 36 GW of pumped storage(2)



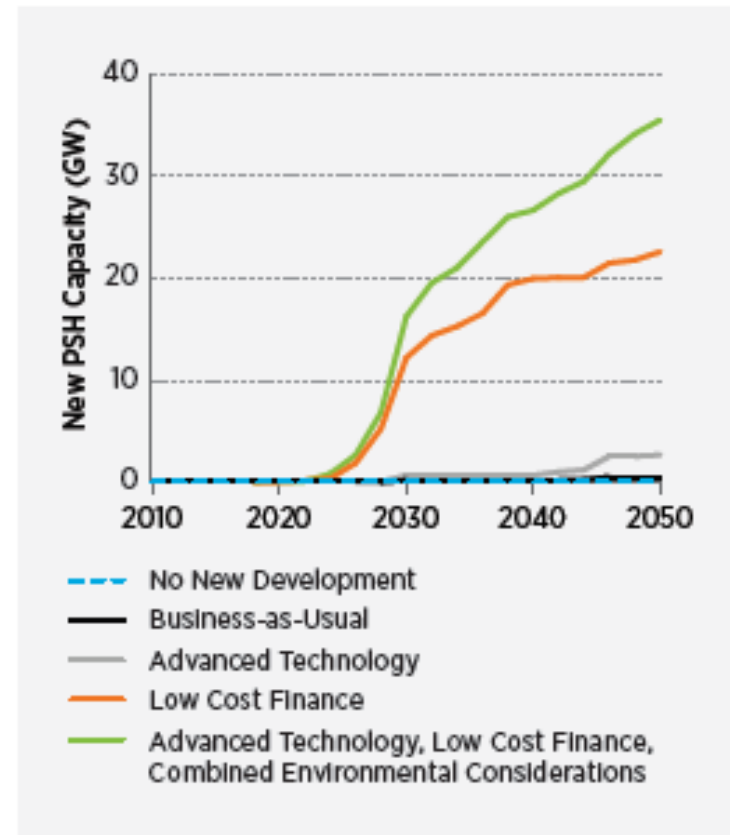
Australia Renewable Energy  
Mapping Infrastructure Project  
[/https://www.nationalmap.gov.au/renewables/](https://www.nationalmap.gov.au/renewables/)

1 Australia National University

2. Hydropower Vision (DOE 2016)

# Forecasted Pumped Storage

- DOE Energy Vision 2016



**Figure ES-7.** ReEDS modeled deployment of new pumped storage hydropower capacity, selected scenarios, 2017-2050 (GW)

# Energy Storage

# Pumped Storage

## ➤ Status<sup>1</sup>

- Licensed pumped storage – 19,769MW
- Preliminary Permitted – 20,041MW
- Pending preliminary permit applications – 19,020MW

(1) <https://www.ferc.gov/industries/hydropower/gen-info/licensing/pump-storage.asp>

<sup>1</sup> Australia National University

<sup>2</sup> Hydropower Vision (DOE 2016)

## ➤ America's Water Infrastructure Act of 2018

- ❑ FERC to issue rules establishing expedited processes for closed-loop pumped storage projects
- ❑ Goal- final decision no later than two years after receipt of a completed application

*16 U.S.C. § 823f Closed-loop pumped storage projects*

# Energy Storage

# Pumped Storage

- Jurisdiction
  - ❑ “[T]he term waterway as used in the FPA is sufficiently broad to include groundwater.” Eagle Crest Energy Co., 153 FERC ¶ 61058 (2015)
  - ❑ Commission may issue and amend licenses, as appropriate, for closed-loop pumped storage projects. 16 USCA § 823f(a)(1)

- Statutory Criteria for Expedited Treatment<sup>1</sup>
  - ❑ cause little to no change to existing surface and ground water flows and uses; and
  - ❑ is unlikely to adversely affect species listed as a threatened species or endangered species under the Endangered Species Act of 1973

*16 U.S.C. § 823f(g)*

Energy  
Storage

Pumped  
Storage

Rulemaking/  
Guidance

- **Pumped Storage Eligible for Expedited Treatment Defined:**  
 “pumped storage projects that: (1) cause little to no change to existing surface and groundwater flows and uses; (2) are unlikely to adversely affect species listed as a threatened species or endangered species, or designated critical habitat of such species, under the Endangered Species Act of 1973; (3) utilize only reservoirs situated at locations other than natural waterways, lakes, wetlands, and other natural surface water features; and (4) rely only on temporary withdrawals from surface waters or groundwater for the sole purposes of initial fill and periodic recharge needed for project operation.”

- **Procedures**
  - Application for expedited treatment
  - If accepted, order issued establishing schedule

18 C.F.R. § 7.6

- **Abandoned Mine Sites –**  
 Commission directed to issue guidance to assist applicants for licenses or preliminary permits for closed-loop pumped storage projects at abandoned mine sites

16 USCA § 823f(f)