



# ENERGY STORAGE UPDATE

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May 22, 2019

Oversight and REV Committee of the Board of Trustees

# Agenda

- Storage roadmap and Long Island
- Potential opportunities
- Current initiatives
  - Utility scale
  - Behind-the-meter



# Storage Roadmap Approach

- Stimulate value-added third-party investment
- Spur industry cost reduction
- Remove impediments to financing
- Improve data access and granularity
- Uncover and reward locational and time values
- Streamline permitting and siting, lower soft costs
- Authorize bridge incentives of \$350 million  
((\$53 million planned for Long Island))



# Storage Roadmap Potential

Estimated cost-beneficial **bulk** system  
deployment in Long Island per Acelerex model  
(based on prior CES goal of 50% X 2030)



**150** MW by 2025  
**500** MW by 2030

Estimated cost-beneficial **customer-sited**  
deployment in Long Island per ERS and E3



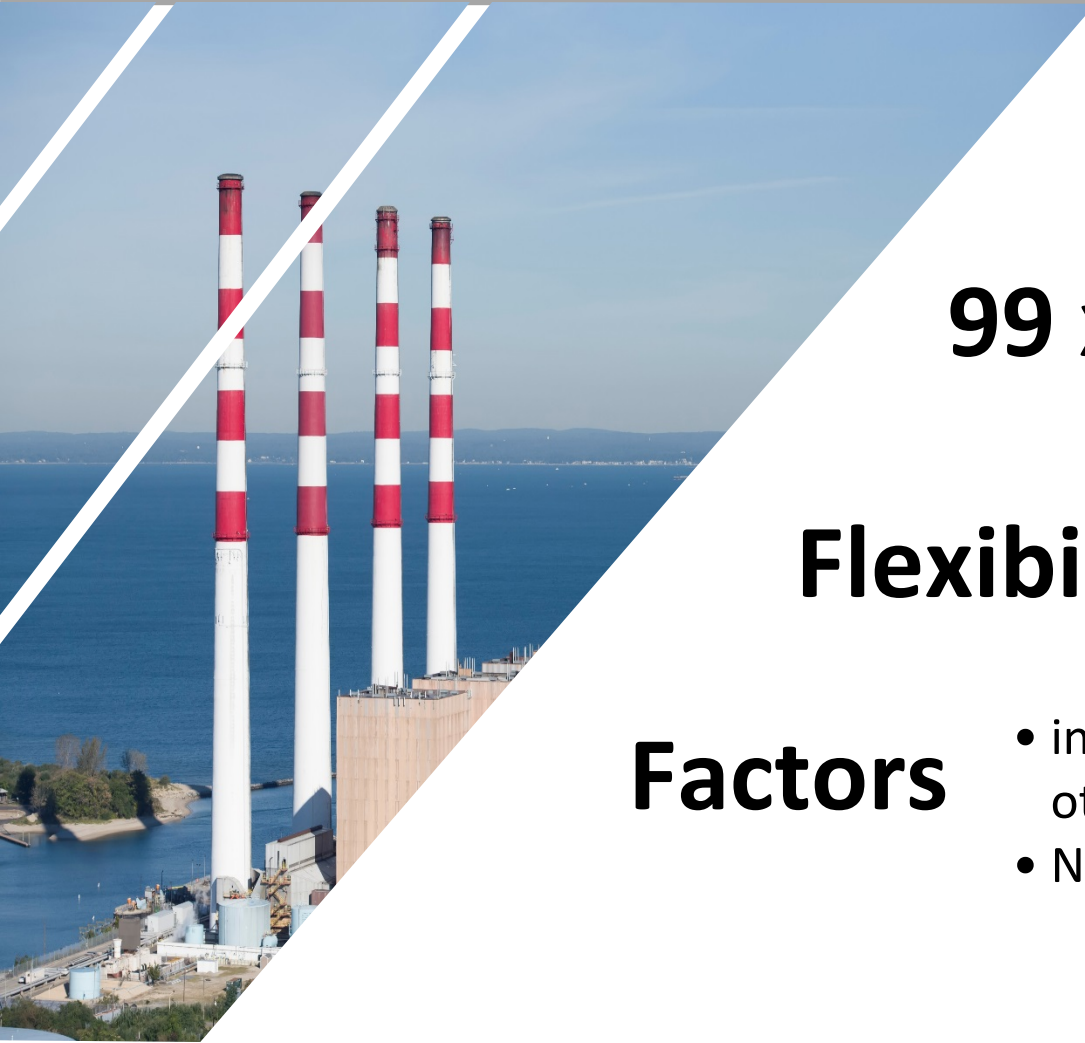
**75** MW by 2025

# Potential Opportunities in Long Island

- Peaker replacement and hybridization
- Complementing offshore wind and other renewables
- Deferring T&D reinforcements
- Behind-the-meter benefits



# Peaker replacement and hybridization



**99 x 2030**

% of LIPA's  
combustion fossil  
generation contracts  
up for renewal

**Flexibility**

to reposition LIPA's  
generation fleet

**Factors**

- injection of offshore wind and other renewables
- NOx emissions rules

# Complementing Renewables



South Fork Wind Farm, operational in 2022, will power nearly 70,000 homes



New York's three largest utility-scale solar farms and leading residential rooftop solar installations



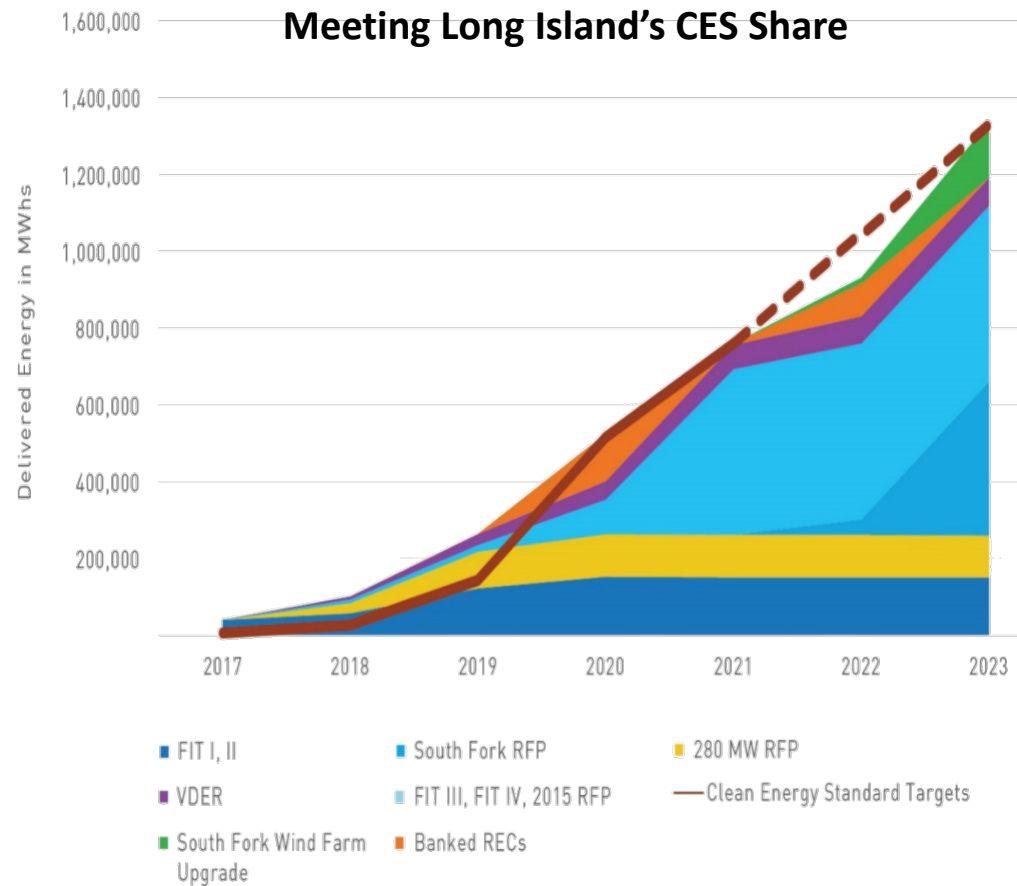
New York's largest utility-scale battery storage system is now operational



Long Island leads in clean fuel cell commitments

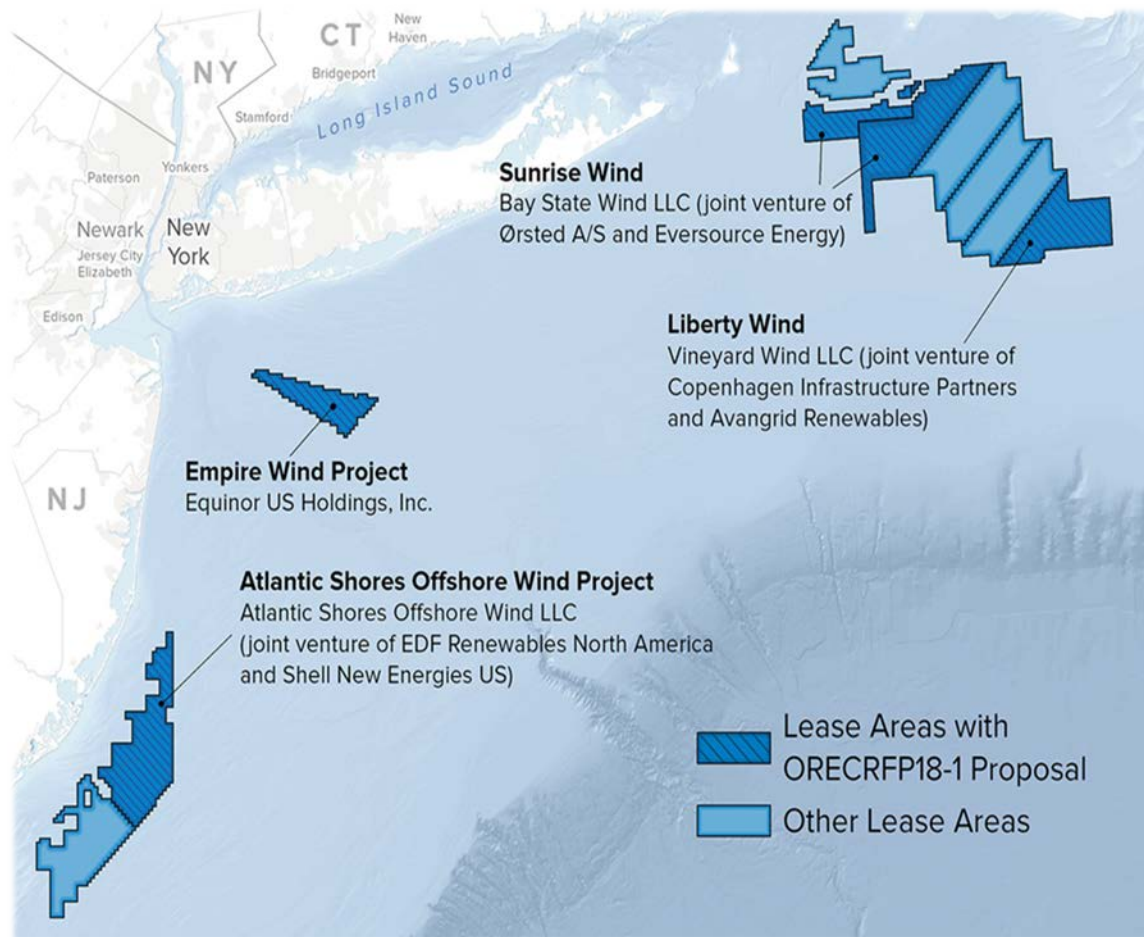


Long Island's energy efficiency program reduces energy sales by 1.7% per year





# Complementing Renewables



**9,000**

MW of offshore wind to be interconnected in Long Island and NYC

Flexible resources can complement renewables

- Ramp-down when renewables generate
- Ramp-up when renewables don't generate
- Provide voltage support



# Deferring T&D Reinforcements



## Key parameters

- Duration
- Cost
- Location on the T&D system

## Successful Example

- South Fork NWA defers transmission
- Two 5 MW, 8-hour batteries
- New York's largest utility-scale energy storage system

# Current Initiatives in Utility 2.0

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## Utility 2.0 storage value stacking

- 2.5 MW, 12.5 MWh battery project approved
- Avoids new substation / distribution bank upgrades
- Frequency regulation planned as secondary use case
- Load growth may require additional battery by 2027

## Behind-the-meter incentives

- Paid through existing dynamic load management programs
- Storage may participate as standalone or paired with solar
- \$40/kW-year or \$60/kW-year in a constrained area
- Net cost to customer less than conventional generator

# Incentive design considerations

## Solar + storage vs. standalone

- Eligibility for federal tax credit improves customer economics
- Allowing standalone opens program to more customers
- Leaving the choice to customers is a good option when values are difficult to quantify

## How to measure performance

- Baseline vs. direct meter



A person wearing a blue hard hat, safety glasses, and a blue safety vest is kneeling on a large array of solar panels. They are holding a tablet or clipboard and looking down at it. The background is a vast field of solar panels stretching towards the horizon under a clear sky.

# Questions?