

# NYISO Carbon Pricing

Integrating Markets and Public Policy in New York

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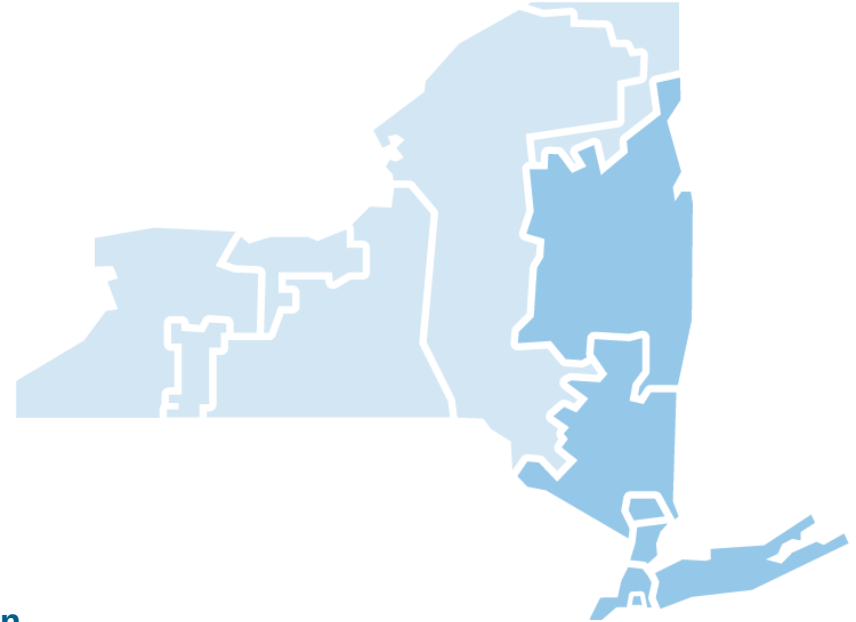
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**ESIG 2019 Spring Technical Workshop**



# NYISO by the numbers

- New York population: **19.75 million**
- 2017 Energy Demand: **156,370 GWh**
- 2018 Required Installed Capacity: **42,839 MW**
- 2017 Peak: **29,699 MW**
- Record peak: **33,956 MW (July 19, 2013)**
- Transmission: **11,173 circuit miles**
- Power Generation: **700+ units**
- Wholesale Market Participants: **434**
- Average Annual Market Transactions: **\$5.3 billion**

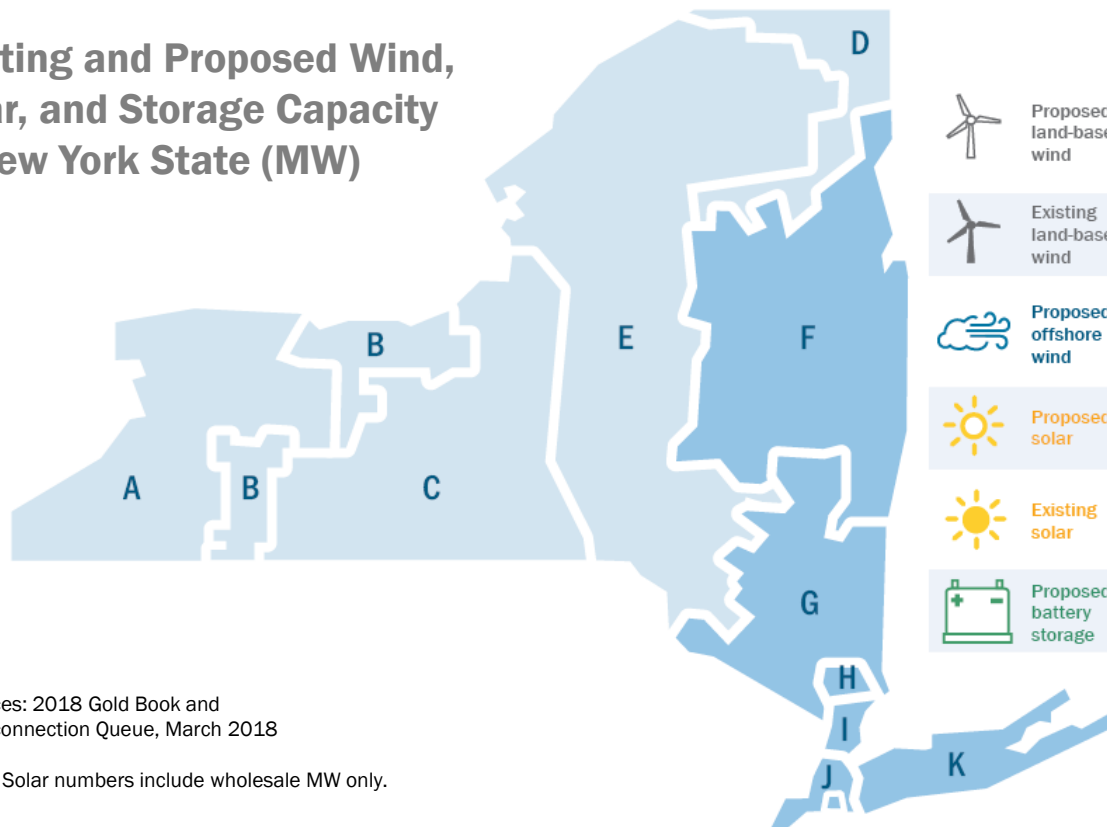








# Integrating Markets and Public Policy in New York



# Wind, Solar & Storage

## Existing and Proposed Wind, Solar, and Storage Capacity in New York State (MW)



	UPSTATE (Zones A-E)	DOWNSTATE (Zones F-K)
 Proposed land-based wind	4,264	120
 Existing land-based wind	1,828	0
 Proposed offshore wind	0	96
 Proposed solar	1,058	904
 Existing solar	0	32
 Proposed battery storage	195	240

Sources: 2018 Gold Book and Interconnection Queue, March 2018

Note: Solar numbers include wholesale MW only.



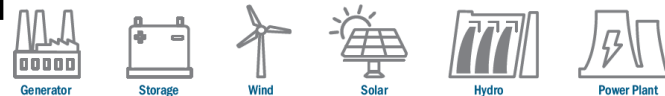
# Markets for a Grid in Transition

## Resource Flexibility

- Is the quality of **bending** easily without **breaking**.
- Today, markets incent flexibility through Products, Pricing, and Settlements.
- Focusing on the integration DERs and Energy Storage, More Frequent Interchange Scheduling, and Price Formation.

## Grid Resilience

- Includes: (1) the capacity to recover quickly from difficulties, and (2) the ability to anticipate, absorb, and adapt to the impacts of disruptive events.
- Focusing on ways that markets can incent investments that will support grid resilience.



# Carbon Pricing

Link to Carbon Pricing key topic page: [https://www.nyiso.com/search?time=last-year&sortField=\\_score&resultsLayout=list&keytopics=Integrating%20Public%20Policy](https://www.nyiso.com/search?time=last-year&sortField=_score&resultsLayout=list&keytopics=Integrating%20Public%20Policy)



# Carbon Pricing Proposal

- On December 7, 2018, the NYISO released the IPPTF Carbon Pricing Proposal outlining a potential design for incorporating the cost of carbon emissions into the wholesale electricity markets.
  - In 2019, the NYISO and its stakeholders will be finalizing the design, and determining whether the proposal should be implemented.
- The proposal aims to incorporate the cost of carbon, as established by the New York Public Service Commission, in a manner that:
  - Is economically efficient,
  - Avoids major cost shifts among New York customers,
  - Is transparent, and
  - Provides market/ regulatory stability

Link to the IPPTF Carbon Pricing Proposal: <https://www.nyiso.com/documents/20142/3911819/Carbon-Pricing-Proposal%20December%202018.pdf/72fe5180-ef24-f700-87e5-fb6f300fb82c>



# Motivation for Carbon Pricing

## Provide a market-oriented approach to bridge state policies and the NYISO markets

- Lessens the impact of negative energy pricing from renewables as penetration increases
- Lessens pressure for out-of-market incentives for non-renewable resources

## Provide transparent price signals reflecting carbon externality

- Helps achieve New York State (NYS) decarbonization goals efficiently
- Aligns commitment and dispatch with state policy goals
- Signals investment for reducing carbon, including innovative solutions beyond the NYS Clean Energy Standard
- Fine-tunes solutions with granular prices (e.g., siting of new renewables, storage operation)



# Energy Market Operations with Carbon Charges

Participants Submit  
Supply Offers

NYISO Commitment &  
Dispatch

NYISO Settles  
Transactions

- **Market participants** submit supply offers inclusive of their estimated carbon charges.
- **NYISO** minimizes production costs subject to system constraints using commitment and dispatch software.
- **NYISO** charges loads and credits suppliers for energy.
- **NYISO** accounts for carbon charges to suppliers and residuals to load (subject to true-ups).

# Carbon Charges

- **Carbon charges would be applied to each emitting supplier**
  - Emissions from Clean Energy Standard eligible wholesale suppliers would not be subject to the carbon charge.<sup>1</sup>
  - Emissions associated with participation in the SCR, EDRP, and DSASP programs would not subject to the carbon charge.
  - Suppliers would submit emissions data after-the-fact at an hourly granularity.
- **Non-emitting suppliers would not have a carbon charge.**

<sup>1</sup>See Clean Energy Standard Order, Appendix A, at the following link:

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7bB3777382-228F-4268-A674-6B5B93B8614B%7d>

# External Transactions

- **Apply carbon charges or credits to external transactions such that they compete with internal resources (and each other) as if the NYISO was not applying a carbon charge to internal suppliers (i.e., on a status quo basis)\***
  - Imports would be paid the LBMP and get a carbon charge equal to the real time carbon impact (LBMPc), at the relevant border
  - Exports would pay the LBMP and receive a carbon credit equal to the real time LBMPc at the relevant border
  - Wheel-through transactions have a two part carbon charge; they would pay the LBMPc at the import interface and would be paid the LBMPc at the export interface
  - Carbon charges only apply to transactions that flow in real-time

# What comes next?

- The proposal is currently proceeding through in the NYISO stakeholder process.
- If supported by New York State and ultimately approved by stakeholders, the NYISO Board of Directors and FERC, Carbon Pricing in the wholesale markets would be implemented.
  - Will not be implemented before Q2 2021.

# The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the bulk power system



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