

Offshore Wind in Neighboring Systems

Bianca Prinsloo

ISC Meeting #311

November 24, 2025

Background

- **In 2024, the NYSRC Extreme Weather Working Group’s analysis found a correlation in the potential occurrence of “wind lull” events for offshore wind facilities in NYISO, ISO-NE and PJM. This prompted requests to consider the potential impacts of these correlated outages on the 2026-2027 Installed Reserve Margin (IRM) study**
 - The 2026-2027 IRM study includes modeling for three offshore wind units: South Fork Wind (138 MW) in NYCA (Load Zone K), Vineyard Wind (855 MW) in ISO-NE, and Revolution Wind (715MW) in ISO-NE
 - The two offshore wind units in ISO-NE (Vineyard Wind and Revolution Wind) are modeled using shape-based data.
 - In the 2025-2026 IRM study, the data provided by ISO-NE for Vineyard Wind modeled the unit as a thermal resource. Revolution Wind was not included in the modeling for the 2025-2026 IRM study
- **The NYISO conducted an analysis to assess the potential impact of regional wind profile correlation by modeling the production of the Vineyard Wind and Revolution Wind facilities based on wind shape profiles used for South Fork Wind in the 2026-2027 IRM study**

Correlation between ISO-NE & NYISO Offshore Wind Shapes

- Correlation coefficients between ISO-NE and NYISO offshore wind profiles remain consistently strong (above 0.83) from 2020 to 2024.
- The correlation coefficient for Vineyard Wind averages 0.880 over the past five years, compared to Revolution Wind’s correlation coefficient value of 0.865.
- The potential for correlated outages increases the risk of coincident capacity shortfalls during peak demand periods or extreme weather events.
 - When wind profiles are highly correlated, periods of low wind in one region are likely very similar in neighboring regions.
 - High regional correlation means that if offshore wind output drops in NYISO, ISO-NE would likely experience a similar drop, potentially reducing the ability to rely on neighboring regions for support.
- The offshore wind profiles currently indicate that New York offshore wind is likely to produce less overall than ISO-NE offshore wind units
 - The average capacity factor for South Fork Wind (NY) is approximately 10% less than the average capacity factors for the ISO-NE units (Vineyard Wind and Revolution Wind)

Correlation Coefficients Between NY Offshore Wind Profiles and ISO-NE

	2020	2021	2022	2023	2024	5-Year Average
Vineyard Wind	0.851	0.861	0.861	0.857	0.850	0.880
Revolution Wind	0.831	0.839	0.841	0.851	0.835	0.865

ISO

Impact Analysis

- A parametric test case (Offshore Wind Sensitivity) was run on the 2026-2027 IRM Final Base Case (FBC) Special Sensitivity Case.
- Updating the ISO-NE offshore wind profiles to use the NYISO wind profiles increased the IRM by 0.025%
 - Locational capacity requirements (LCRs) for Load Zones J and K and the G-J Locality showed similar impacts
- The external loss of load expectation (LOLE) for ISO-NE increased by 0.002 event days per year
 - This change in LOLE for ISO-NE can be attributed to a decrease in yearly production of the Vineyard Wind and Revolution Wind facilities when modeled with the NYISO wind profiles

	2026-2027 IRM FBC Special Sensitivity	Offshore Wind Sensitivity	Delta
NYCA (IRM)	25.600%	25.625%	0.025%
Zone J (LCR)	79.845%	79.864%	0.019%
Zone K (LCR)	107.502%	107.525%	0.023%
G-J Locality (LCR)	89.221%	89.241%	0.020%
	2026-2027 IRM FBC Special Sensitivity LOLE	Offshore Wind Sensitivity LOLE	Delta
NYCA	0.100	0.100	0.000
PJM	0.116	0.117	0.001
ISO-NE	0.163	0.165	0.002
IESO	0.119	0.120	0.001
HQ	0.136	0.136	0.000

Impact on Emergency Assistance (EA)

- The decreased energy production of the Vineyard Wind and Revolution Wind facilities observed in the sensitivity analysis using the New York offshore wind profiles, resulted in an increased reliance on the other external areas
 - For the offshore wind sensitivity analysis, the average quantity emergency assistance from ISO-NE and PJM to the NYCA decreased. A corresponding increase in the level of emergency assistance from Hydro Quebec and Ontario was also observed.

Average EA from Zone to NYCA			
Zone	2026-2027 IRM FBC Special Sensitivity (MW)	Offshore Wind Sensitivity (MW)	Delta (MW)
PJM	569.5	568.7	(0.8)
ISO-NE	486.5	486.2	(0.3)
IESO	307.1	307.3	0.2
HQ	199.6	200.6	1.0

Observations

- The analysis conducted by the NYISO indicates that the potential impacts of correlated, regional offshore wind unavailability is not material for the 2026-2027 IRM study
- Offshore wind units in ISO-NE and the NYCA are currently small compared to the total system capacity in each area, minimizing the impact of correlated offshore wind outage events on reliability and the IRM in the near-term
- The NYISO will continue to collaborate with the NYSRC and the Extreme Weather Working Group to share findings and identify next steps

Our Mission and Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation



Questions?