



**NYISO Review
of the FERC-NERC-Regional Entity Staff Report
on the
February 2021 Cold Weather Outages in Texas and
South-Central States**

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New York State Reliability Council – Executive Committee
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Background

- On November 16, the FERC-NERC-Regional Entity Staffs released the final 316-page report on the February 2021 Cold Weather Outages.
- The NYISO has reviewed the final report and recommendations in consideration of the current practices employed by the NYSRC and the NYISO (“New York Practices”).
- The NYISO review details how current New York Practices are responsive to the report recommendations and identifies opportunities for improvement in current New York practices.

Background

- The final report identifies a total of 28 recommendations with 16 identified as Key Recommendations. Key Recommendations are those that focus on revisions to mandatory reliability standards, actions to prevent generator and natural gas infrastructure freezing issues, grid operations and gas-electric coordination issues.
- There are 18 recommendations applicable to NYISO acting as NERC Reliability Coordinator, Balancing Area, Transmission Operator and Planning Coordinator, and 13 applicable to Generator Owners.
- A summary of the full set of 28 recommendations applicable to the NYISO is attached as an appendix of this presentation.

Background

- The final report assigned recommended implementation timeframes for when new or revised Reliability Standards should be proposed to the Federal Energy Regulatory Commission (FERC).
- In November 2021, the NERC Board of Trustees issued a resolution for the development of Reliability Standards, to be submitted for FERC approval before Winter 2022/2023 and Winter 2023/2024, consistent with the proposed implementation timelines recommended in the final report.
- NERC explained that the Board's action to set deadlines for the development of new Reliability Standards will provide the NERC Standards Committee with procedural flexibility to authorize waivers, allowing for the completion of the necessary development work in a timely manner.

Key Recommendations 1a, 1b - Cold Weather Critical Components

- **Action: New NERC Reliability Standard**
- **Purpose: Identify and Protect Generator Cold Weather Critical Components**
- **Timeframe: Winter 2022/2023**
- **Applicable: Generator Operators, NYISO**
- **Current NY Practice: NYISO has informally inquired about generator winter readiness as part of its Annual Fuel Survey process, Generator Readiness Audits and site visits.**
- **NYISO supports the key recommendations for the NYISO to establish a mandatory requirement for Generator Operators to review and protect cold weather critical components.**

Key Recommendation 1g - Generator Capacity to Rely Upon during Cold Weather

- **Action: New NERC Reliability Standard**
- **Purpose: Develop greater understanding of Generator Capacity during Cold Weather for Reliability Evaluations**
- **Timeframe: Winter 2023/2024**
- **Applicable: Generator Operators, NYISO**
- **Current NY Practice: NYISO has to date accounted for generator capacity derates and outages by observing historical generator performance.**
- **NYISO supports the key recommendation for Generator Operators to provide the NYISO with information as related to expected generator capacity that the NYISO can rely upon during “local forecasted cold weather”.**

Key Recommendation 2- Generator Compensation Opportunities for Investments

- **Action:** Consider whether market design changes are needed
- **Purpose:** Provide opportunity for Generator Cost Recovery for Cold Weather Protection
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO has historically considered the need for local area operating requirements, including for cold weather operation, through design considerations of the NYISO's Installed Capacity Market Proxy Unit.
- NYISO supports the key recommendation and believes no additional action is necessary.

Recommendation 8- Understanding Generator Natural Gas Contract Risks

- **Action:** Consider whether market design changes are needed
- **Purpose:** Improve Understanding of Generator Natural Gas Fuel Supply Risks for Reliability Evaluations
- **Timeframe:** Winter 2021/2022
- **Applicable:** NYISO
- **Current NY Practice:** NYISO has evaluated certain elements of Natural Gas Fuel Supply risk through the Fuel and Energy Security work in 2019.
- **NYISO supports the key recommendation to consider whether additional market design changes are needed to address fuel supply risks.**

Key Recommendation 1h- Use of Demand Response - Natural Gas Infrastructure

- **Action: New Reliability Standard**
- **Purpose: Prohibit Use of Natural Gas Infrastructure Loads for Demand Response**
- **Timeframe: Winter 2023/2024**
- **Applicable: NYISO**
- **Current NY Practice: NYISO has recently surveyed its Demand Response Participants and identified a small number of resources associated with critical natural gas infrastructure loads and is now engaging stakeholders to prohibit such participation in its demand response programs.**
- **NYISO supports the key recommendation.**

Key Recommendation 1i- Protect Critical Natural Gas Infrastructure

- **Action: New Reliability Standard**
- **Purpose: Identify and Protect Critical Natural Gas Infrastructure from Manual and Automatic Load Shed Programs**
- **Timeframe: Winter 2023/2024**
- **Applicable: NYISO**
- **Current NY Practice: NYISO is currently working with the Natural Gas industry and New York Transmission Owners to implement this recommendation.**
- **NYISO supports the key recommendation.**

Key Recommendation 1j- Overlap of Manual and Automatic Load Shed / UFLS

- **Action: New Reliability Standard**
- **Purpose: Minimalize the Overlap of Manual and Automatic Load Shed Programs**
- **Timeframe: Winter 2022/2023**
- **Applicable: NYISO**
- **Current NY Practice: There is an existing requirement defined in NYISO Emergency Operations Manual (Section 7.3) that states “Load Shedding of at least 50 percent of its load in 10 minutes or less. Insofar as practical, the first half of the Load shed manually should not include any load that is part of any automatic Load Shedding plan. “**
- **NYISO supports and currently meets the key recommendation.**

Recommendation 9- Peak Load Forecast and Reserve Margin Calculations

- **Action:** Consider whether planning assumption changes are needed
- **Purpose:** Revisit Planning Reserve Margin Calculation Assumptions for Natural Gas and Wind Generation
- **Timeframe:** Winter 2023/2024
- **Applicable:** NYISO
- **Current NY Practice:** The NYISO is currently reviewing assumptions related to the availability of different generation types for reliability evaluations.
- NYISO supports the recommendation.

Recommendation 10- Improve Rotational Load Shed Plans

- **Action:** Consider whether operational changes are needed
- **Purpose:** Evaluate Ability to Improve Rotational Load Shed Plans
- **Timeframe:** Winter 2023/2024
- **Applicable:** NYISO / NY Transmission Owners
- **Current NY Practice:** NYISO and the NY Transmission Owners believe the current requirement to shed 50 percent of load within 10 minutes should allow for sufficient capability to rotate load shed outages.
- **NYISO and the NY Transmission Owners support and currently meet this recommendation.**

Recommendation 15- Develop or Enhance Emergency

Response Centers

- **Action:** Consider whether emergency coordination changes are needed
- **Purpose:** Develop or Enhance Emergency Response Center Coordination with Federal, State, and/or Local Authorities
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO has notification requirements in place with NYS Department of Public Service staff, as well as BES event reporting requirements for NERC and DOE.
- NYISO supports the recommendation.

Recommendation 16- Improve Near Term Forecasting

- **Action:** Consider whether operational changes are needed
- **Purpose:** Improve Understanding of Weather Impacts on Near-term Load Forecasts
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO performs and reviews weather impacts on its performance of near-term load forecasting processes.
- **NYISO supports and currently meets the recommendation.**

Recommendation 17- Analyze Intermittent Generation to improve Load Forecast

- **Action:** Consider whether operational changes are needed
- **Purpose:** Analyze Intermittent Generation to improve Load Forecast
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO performs and reviews Behind the Meter (BTM) Solar generation on its performance of load forecasting processes.
- **NYISO supports and currently meets the recommendation.**

Recommendation 18- Additional Rapidly Deployable Demand Response

- **Action:** Consider whether operational or market design changes are needed
- **Purpose:** Provide incentives for Additional Rapidly Deployable Demand Response Resources
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO is planning to implement its Distributed Energy Resource (DER) model by year end 2022.
- **NYISO supports and expects to meet the objective of the recommendation.**

Recommendation 20- Perform Bi-Directional Seasonal Transfer Studies

- **Action:** Consider whether operational changes are needed
- **Purpose:** Perform Bi-Directional Seasonal Transfer Studies with Adjacent Reliability Coordinators
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** NYISO conducts Bi-Directional seasonal transfer studies with its adjacent Reliability Coordinators; PJM, IESO, ISO-NE, Hydro Quebec.
- **NYISO supports and currently meets the recommendation.**

Recommendation 21- Operator Training Rotational Firm Load Shed Simulations

- **Action: Consider whether operational changes are needed**
- **Purpose: Perform Annual Operator Training Rotational Firm Load Shed Simulations**
- **Timeframe: Winter 2022/2023**
- **Applicable: NYISO**
- **Current NY Practice: The NYISO and the NY TO Operators conduct load shedding training annually and perform drills twice per capability period as specified in the Emergency Operations Manual (section 9.1.1).**
- **NYISO supports the recommendation and expects to add operator training simulator (OTS) sessions that involve load shed events in 2022.**

Recommendation 23- Report Times for Generation and Transmission Outages

- **Action:** Consider whether operational changes are needed
- **Purpose:** Reduce Time for Reporting Derates and Forced Outages of Generation and Transmission during Emergencies
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** There are existing requirements in the NYISO Outage Scheduling Manual that require that the NYISO be notified immediately for Generator derates or forced outages of generators and transmission.
- **NYISO supports and currently meets the recommendation.**

Recommendation 28- Guidelines for Critical Natural Gas Facility Loads

- **Action:** Consider whether operational changes are needed
- **Purpose:** Establish Guidelines for Natural Gas Facility Entities to Identify and Protect Critical Natural Gas Facility Loads
- **Timeframe:** Winter 2022/2023
- **Applicable:** NYISO
- **Current NY Practice:** This recommendation is in support of recommendation 1i – Protect Critical Natural Gas Infrastructure that is currently underway.
- NYISO supports the recommendation with related efforts underway.

Appendix – Recommendation Summary

KEY RECOMMENDATION NONMENCLATURE	KEY RECOMMENDATION ACTION	Applicable Entity	Implementation Timframe
Key Recommendations 1a, 1b - Cold Weather Critical Components	Identify and Protect Generator Cold Weather Critical Components	GO, BA	Winter 2023/2024
Key Recommendation 1c - Account for Effects of Precipitation and Wind	Account for Effects of Precipitation and Wind on Generator Performance	GO	Winter 2022/2023
Key Recommendation 1d - Corrective Action Plans for Generator Freeze-Related Causes	Implement Corrective Action Plans for Generator Freeze-Related Causes	GO	Winter 2022/2023
Key Recommendation 1e - Annual Training on Cold Weather Plans	Conduct Generator Annual Training on Cold Weather Plans	GO	Winter 2022/2023
Key Recommendation 1f - Operate to Specified Ambient Temperature Weather	Retrofit and/or Build Generators to Operate to Specified Ambient Temperature and Weather Coniditions	GO	Winter 2023/2024
Key Recommendation 1g - Generator Capacity to Rely Upon during Cold Weather	Develop greater understanding of Generator Capacity during Cold Weather for Reliability Evaluations	GO, BA, RC	Winter 2023/2024
Key Recommendation 2- Generator Compensation Opportunities for Investments	Provide opportunity for Generator Cost Recovery for Cold Weather Protection	ISO	Winter 2022/2023
Key Recommendation 3- Generator Winter Readiness Technical Conference	Host FERC/NERC Technical Conference on Improving Generator Winter Readiness	FERC, NERC	Winter 2022/2023
Key Recommendation 4- Freeze Protection Inspection and Maintenance Timing	Develop Generator Freeze Protection Inspection and Maintenance Timing Requirements	GO	Winter 2022/2023
Key Recommendation 5- Natural Gas Facility Cold Weather Preparedness Plans	Develop and Implement Natural Gas Facility Cold Weather Preparedness Plans	NGF Regulators	Winter 2022/2023
Key Recommendation 6- Natural Gas Facility Freeze Protection Measures	Implement Natural Gas Facility Freeze Protection Measures	NGF	Winter 2022/2023
Key Recommendation 7 - Establish Natural Gas-Electric Reliability Forum	Establish Natural Gas-Electric Reliability Forum	FERC	Winter 2022/2023
Recommendation 8- Understanding Generator Natural Gas Contract Risks	Improve Understanding of Generator Natural Gas Fuel Supply Risks for Reliability Evaluations	GO, BA	Winter 2021/2022
Key Recommendation 1h- Use of Demand Response - Natural Gas Infrastructure	Prohibit Use of Natural Gas Infrastructure Loads for Demand Response	BA	Winter 2023/2024
Key Recommendation 1i- Protect Critical Natural Gas Infrastructure	Identify and Protect Critical Natural Gas Infrastructure from Manual and Automatic Load Shed Programs	BA, TOP, PC, TP, TO, NGF Operators	Winter 2023/2024
Key Recommendation 1j- Overlap of Manual and Automatic Load Shed /UFLS	Minimize the Overlap of Manual and Automatic Load Shed Programs	TOP	Winter 2022/2023
Recommendation 9- Peak Load Forecast and Reserve Margin Calculations	Revisit Plannig Reserve Margin Calculation Assumptions for Natural Gas and Wind Generation	PC	Winter 2023/2024

Recommendation 10- Improve Rotational Load Shed Plans	Evaluate Ability to Improve Rotational Load Shed Plans	RC, TOP, TO	Winter 2023/2024
Recommendation 11- Cold Weather Effects -- Mechanical, Electrical Systems	Analyze Indirect Cold Weather Effects on Generator Mechanical and Electrical Systems	GO	Winter 2023/2024
Recommendation 12- Generator Use of Weather Forecasts for Operating Plans	Use of Weather Forecasts by Generators to Improve Cold Weather Performance	GO	Winter 2021/2022
Recommendation 13- ERCOT Generators to Review Low Frequency Effects	Review of ERCOT Generator Under-Frequency Protective Relay Coordination	ERCOT GO	Winter 2022/2023
Recommendation 14- Natural Gas Production Facilities SCADA Controls	Consider Upgrades of SCADA Controls for Natural Gas Production Facilities	NGF Operators	Winter 2023/2024
Recommendation 15- Develop or Enhance Emergency Response Centers	Develop or Enhance Emergency Response Center Coordination with Federal, State, and/or Local Authorities	RC, BA, TOP, GO	Winter 2022/2023
Recommendation 16- Improve Near Term Forecasting	Improve Understanding of Weather Impacts on Near-term Load Forecasts	BA	Winter 2022/2023
Recommendation 17- Analyze Intermittent Generation to improve Load Forecast	Analyze Intermittent Generation to improve Load Forecast	BA	Winter 2022/2023
Recommendation 18- Additional Rapidly Deployable Demand Response	Provide incentives for Additional Rapidly Deployable Demand Response Resources	ISO	Beyond Winter 2023/2024
Recommendation 19- Retail Incentives for Energy Efficiency Improvements	Provide Incentives for Retail-level Energy Efficiency Improvements	PSC	Beyond Winter 2023/2024
Recommendation 20- Perform Bi-Directional Seasonal Transfer Studies	Perform Bi-Directional Seasonal Transfer Studies with Adjacent Reliability Coordinators	RC, BA, TOP	Winter 2022/2023
Recommendation 21- Operator Training Rotational Firm Load Shed Simulations	Perform Annual Operator Training Rotational Firm Load Shed Simulations	RC, TOP	Winter 2022/2023
Recommendation 22- Generator Protection Settings / UFLS Coordination	Coordinate Generator Protection Settings with Automatic Under Frequency Load Shed Coordination	TOP, PC, GO	Winter 2023/2024
Recommendation 23- Report Times for Generation and Transmission Outages	Reduce Time for Reporting Derates and Forced Outages of Generation and Transmission during Emergencies	RC, BA, TOP	Winter 2022/2023
Recommendation 24- Measures to Address Cold Weather Natural Gas Supply Shortfalls	Study and Enact Measures to Address Cold Weather Natural Gas Supply Shortfalls by Natural Gas Facility Regulators	FERC, PSC	Winter 2023/2024
Recommendation 25- AAdditional Interconnection Links with ERCOT	Study benefits of Additional Interconnection Links with ERCOT	ERCOT	Winter 2023/2024
Recommendation 26- ERCOT Black Start Unit Reliability	Study ERCOT's Black Start Unit Reliability during Cold Weather Conditions	FERC, NERC	Winter 2023/2024
Recommendation 27- Low Frequency Effects in Eastern, Western Interconnects	Review of Eastern and Western Interconnection Generator Under-Frequency Protective Relay Coordination	FERC, NERC	Winter 2023/2024
Recommendation 28- Guidelines for Critical Natural Gas Facility Loads	Establish Guidelines for Natural Gas Facility Entities to Identify and Protect Critical Natural Gas Facility Loads	RC, BA, TOP	Winter 2022/2023

Our Mission & 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