New York ISO
Independent System Operator

Gas Constraints Whitepaper : Scope

Revised Posting

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Background

- **During the winter season, some thermal units may encounter fuel availability issues, especially during cold snaps.**
  - Due to the nature in which most of the natural gas fired generators procure fuel (most gas generators in NY utilize interruptible/non-firm gas).
  - This has been identified through the past fuel availability studies
- **Late 2022, the MMU also indicated winter gas availability issues in the southeast of New York and recommended that the resource adequacy model reflect gas limitations in the winter.**
- **The NYSRC and the stakeholders supported NYISO conducting research on the gas availability constraint(s) to electric power generators during the winter period**
  - At the November 2, 2022, ICS meeting [1], the Resource Adequacy (RA) team discussed the RA Strategic Plan for 2023
    - This plan included working on a whitepaper in 2023 which aims at enhancing the Resource Adequacy model to reflect winter gas constraints

[1] Link to Nov 2, 2022, ICS meeting material: https://www.nysrc.org/PDF/MeetingMaterial/ECMeetingMaterial/EC%20Agenda%20283/4.1.3%20RA_Strategic_Plan%20-%20Attachment%204.1.3.pdf

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Objective

- **The white paper will ultimately answer three main questions:**
  - What are the characteristics of the winter gas constraints as reflected on availability of electric generators?
    - Including timeline, location, condition and magnitude
  - What are the reasonable levels of such gas constraints to be reflected in the IRM study?
    - Assuming multiple level of gas constraints are identified based on the level of severity of weather conditions
    - Double counting identified winter gas constraints with existing outage assumptions in the current IRM model needs to be avoided (e.g., EFORd and other weather-related unit derates/outages)
    - Initial assumptions for dual fuel units need to be determined
  - What is the best modeling approach to represent these characteristics in the resource adequacy models?
    - Align model with market design objectives

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Scope of work

- **The whitepaper will leverage existing and planned initiatives to arrive at comprehensive and defensible modeling recommendations that are supported by the NYISO**
  - A non exhaustive list of resources can be found in the Appendix
- **The work will be divided into 2 phases:**
- **Research Phase:**
  - Jurisdictional scan and summarize findings with the winter gas constraints applicable to NYCA
  - Conduct additional analysis with inputs from experts and NYISO data to focus on the characteristics of winter gas constraints
  - Identify factors for considering reasonable gas constraint levels to be reflected in the IRM study
- **Modeling Phase:**
  - Aim to establish reasonableness of constraint levels/locations with associated conditions
  - Determine and test modeling approaches to reflect the desired gas constraint characteristics
- **Considering additional characteristics of dual fuel units as a future phase research topic**
  - Such as - storage, weatherization, feasibility of fuel switching, fuel replenishment

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Capacity Accreditation Coordination

- **Under the Modeling Improvements for Capacity Accreditation project, the NYISO is also conducting research that may lead to potential modeling improvements in the Resource Adequacy model**
  - The 2023 initiatives include gas constraints, start-up times, SCR modeling and correlated derates[1]
- **The NYISO will coordinate its work on the Gas Constraints and EOP Review whitepapers with the efforts under the Modeling Improvements for Capacity Accreditation project**

[1] Link to Jan 26, 2023, ICAPWG presentation: https://www.nyiso.com/documents/20142/35880057/2023-01-26%20ICAPWG%20Modeling%20Improvements%20-%20Kick%20Off.pdf/c7ac6b6e-c90b-54b4-832d-ec6ecfc8f7ff

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Timeline

Milestone	Date
Present Scope to NYSRC	2/1/2023
Finalize Scope	2/15/2023 (Following NYSRC approval)
Monthly NYSRC Updates	Ongoing
Identify Factors for Reasonable Gas Constraint Modeling Consideration	Q1 2023
Additional Analysis and Gas Constraint Characterization	Q2 2023
Research Completed	End of Q2 2023
Present findings of research at ICS	Q2 2023
MARS Modeling Development and Testing	Q3 – Q4 2023
Present Findings/Modeling enhancements recommendations to NYSRC	December ICS Meeting
Implement NYSRC Approved Changes to IRM Model *-- sensitivity in the PBC and potential base case adoption in 2025/26 IRM*	Following NYSRC Review

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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

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Questions?

Appendix

Jurisdictional Scan Resources

- Analysis Group: Fuel and Energy Security in New York State Report (Nov. 2019):
  - https://www.nyiso.com/documents/20142/9312827/Analysis%20Group%20Fuel%20Security%20Final%20Report%20191111%20Text.pdf
- Potomac Economics: MMU Analysis of Gas Availability in Eastern New York Report (Oct. 2022)
  - https://www.nyiso.com/documents/20142/33916814/MMU%20Gas%20Availability%20Presentation__20221020.pdf/bf599ef4-eb0f-a436-8b1c-33eb129319fc
- NYISO Winter Operations Study (Apr. 2022)
  - https://www.nyiso.com/documents/20142/30154429/05%202021%20-%202022%20MC%20Cold%20Weather%20Operating%20Conditions.pdf/e8b0d2d7-16d6-d019-173a-dda468b616df
- Coordination with Potomac Economics

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