

Clean Hydrogen

Kickoff Discussion – MDCP

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February 29, 2024

Agenda

- Background
- 2024 Project Approach
- Next Steps

Project Background

- **The NYISO does not have market rules clearly addressing participation of an emissions-free Generator co-located with load, such as an electrolyzer producing clean hydrogen.**
 - The Behind-the-Meter Net Generation model does not permit co-location of load and Intermittent Power Resources, like wind and solar, but does not specifically address other emissions-free technologies
 - The NYISO desires to develop clear market rules that will apply to co-location of Load with emissions-free generation that will help achieve New York's decarbonization goals
- **This project is investigating use cases proposed by Market Participants for loads co-located with non-emitting generation, including an electrolyzer producing clean hydrogen using energy from a co-located emissions-free generator.***
 - The NYISO is considering whether a new participation model or modifications to an existing participation model (including but not limited to Co-located Storage Resource, Hybrid Storage Resource, Distributed Energy Resource, or Behind-the-Meter Net Generation), can be modified to accommodate the proposed generation and load combinations.

[*2024 Project Prioritization Market Project Descriptions \(refer to page 6\)](#)

2024 Project Approach

2024 Market Design Concept Proposed

- **The 2024 commitment for this project will be a Market Design Concept Proposal (MDCP) presentation to the ICAPWG.**
 - The NYISO aims to investigate both currently functioning clean hydrogen facilities and proposed future use cases to document the potential range of operational considerations
- **The NYISO recognizes the nascence of clean hydrogen production in the NYCA – a participation model should not be based entirely on a single use case and should afford flexibility for innovation in clean hydrogen production configurations.**

2024 Market Design Concept Proposed

- **The NYISO’s tariffs do not permit co-location of existing commercial emissions-free generation (e.g., wind, solar, run-of-river hydro) and a load in the NYISO markets.**
 - The Behind-the-Meter Net Generation model does not permit an Intermittent Power Resource to serve onsite load
 - The Co-located Storage Resource and Hybrid Storage Resource models do not permit inclusion of load
 - The NYISO’s four demand response programs do not permit uncontrollable generation to be a “Local Generator” (see Services Tariff Sec. 2.12) for the purpose of effectuating Demand Reductions
- **The NYISO’s demand response programs permit controllable generation to co-locate with load for the purposes of reducing demand.**

2024 Market Design Concept Proposed

- **The NYISO recognizes that there may be a range of potential configurations for electrolysis load and emissions-free generator co-location – the NYISO aims to outline a participation option that is reliable and flexible.**
- **There are characteristics of electrolysis load that may influence the NYISO’s determination of an appropriate participation model:**
 - Electrolysis load may be co-located with commercial or industrial processes (e.g., aviation fuel) with certain operational requirements
 - Electrolytic hydrogen production may require advanced notice of start-up/shut-down, minimum down time, etc. -- in some cases may be able to respond more dynamically
 - Fuel cell co-location may enable reuse of produced hydrogen fuel for electrical grid injections
 - Due to average capacity factor of some emissions-free generator types, electrolysis load may require the ability to consume grid power in addition to the applicable co-located generation to maintain functionality

2024 Market Design Concept Proposed

- **This year's MDCP will feature a proposed solution based on considerations including, but not limited to:**
 - Evaluation of current participation models for potential enhancement opportunities
 - Use case proposals and technical review of electrolysis load characteristics and interactions with co-located, emissions-free generation
 - Market service eligibilities (Energy, Ancillary Services, Capacity), metering configurations, settlement implications, mitigation considerations, and dispatchability.
- **The proposed market concept solution(s) must be operationally reliable, accessible, and scalable.**
 - The NYISO will continue to assess expected level of resourcing and software functionality to support solution(s)
 - [2023 Market Vision Report](#) currently estimates clean hydrogen model deployment in 2027

Next Steps

Next Steps

- **The NYISO currently targets returning to ICAPWG to review findings and draft design concepts in Q2.**
- **Current target for final MDCP presentation: End of Q3.**

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