

# Improved Duct Firing Modeling: 2024 Proposed Project Scope

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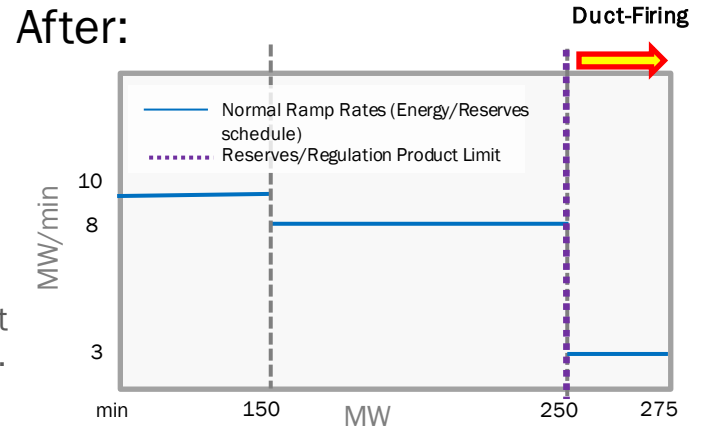
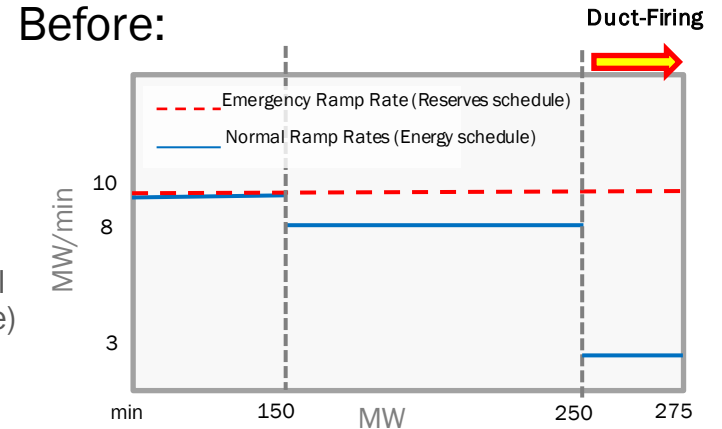
# 2022 Proposed Market Design

## ■ Use multiple ramp rates for scheduling reserves

- Consistent with scheduling of energy today, leverage normal ramp rate “segments” (instead of the single emergency rate) to schedule reserves.
- The ramp rates utilized for operating reserve shall be the same as energy ramp rates which are registration parameters.

## ■ Allow limited participation for reserve and regulation products

- If necessary due to limitations of the plant’s configuration, the MP may set a participation limit for reserves and regulation that is lower than the unit’s operating capacity.
- The existing ramp rate breakpoint for duct-firing range shall be used for setting the threshold limit when MP opts to limit participation in the 10-min reserves and regulation product.



\*example values

# Proposal for 2024 Project Scope

- The NYISO proposes to limit this year's Market Design Complete (MDC) and Functional Requirements Specifications (FRS) to only include the Limiting Participation and RTD-CAM Enhancements proposal.
- Limiting Participation and RTD-CAM Enhancements implementation will provide operational benefits immediately and can be supported in 2025.
- The previous prototype testing of Multiple Ramp Rates (MRR) yielded positive outcomes
- However, due to the complexity (next slide) involved, further time is required to vet it in a production like environment.

# MRR Complexity

- Ramp rate dependent operating reserve modeling utilizes multiple response rates to account for the reserves a generating unit can provide in DAM and RTM.
- Addressing the non-convex nature of ramp rates is essential to finding the optimal solution.
  - NYISO's optimization software has been designed to solve convex functions and cannot handle non-convex functions.
  - The increased computational complexity is expected to present challenges in a production environment and would need to be addressed before proceeding.

# Action Plan for MRR

- **In 2025, after the implementation of Limiting Participation and RTD-CAM Enhancements, we will further investigate the feasibility of a production level MRR model built upon the prototype.**
  - If this proves fruitful, the NYISO would propose a new project to implement MRR after Dynamic Reserves.

# Next Steps

## ■ June-July

- CIA Results.
- Finalize tariff revisions.

## ■ August

- BIC/MC Vote

# 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