



NYISO Hybrid Storage Resource (HSR) Model Overview & High Level Proposal

New York Independent System Operator

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Agenda

- **NYISO Participation Models Overview**
- **2021 Hybrid Aggregation Model Scope Review**
- **Hybrid Aggregation (HSR) Problem Statements**
- **Proposals for Problem Statements**
- **Additional Updates**

NYISO Participation Models Overview

Participation Models

	Energy	Reserves	Regulation	Capacity	Min. Size
“Conventional” Generator (Gen)	X	X	X	X	1MW
Run of River Hydro (RoR)	X	X	X	X	1MW
Intermittent Power Resource (IPR)	X			X	1MW
Limited Energy Storage Resource (LESR)			X		1MW
Energy Limited Resource (ELR)	X	X	X	X	1MW
Energy Storage Resource (ESR)	X	X	X	X	100kW
^Co-located Storage Resources (CSR)	X	X	X	X	1MW
Behind the Meter-Net-Generation (BTM:NG) Resource	X	X	X	X	1MW
Emergency Demand Response Program (EDRP)	X				100kW
Special Case Resource (SCR)	X			X	100kW
*Day Ahead Demand Response Program (DADRP)	X				1MW
*Demand Side Ancillary Services Program (DSASP)		X	X		1MW
**Distributed Energy Resource (DER)	X	X	X	X	100kW
^^Hybrid Storage Resource (HSR)	X	X	X	X	20MW

*Will be replaced by DER Model
 **Planned to go live in Q4 2022

^Planned to go live in Q4 2021
 ^^Market Design Concept Proposal for Q4 2021
 Currently has no participation

2021 Hybrid Aggregation Model Scope Review

Hybrid Aggregation Model 2021 Scope

- **Deliverable: Q4 Market Design Complete**
 - The NYISO will propose a complete participation model and related tariff revisions for approval by BIC or MC
 - Tariff revisions to be filed with FERC in 2022
- **Project Description:**
 - This project is distinct from the DER and ESR Integration initiatives, but it will build on work completed as part of those initiatives. This project is a continuation of the 2020 Hybrid Storage model effort and will develop market rules that allow at least one ESR and other Generator(s) to be co-located behind the same point of interconnection, share a single PTID, and act as a single market resource.

Hybrid Aggregation (HSR) Problem Statements Based on Stakeholder Requests/Feedback

Hybrid Aggregation (HSR) Model Problem Statements from Stakeholders Requests/Feedback

- 1) Identify market rules that support a single resource composed of IPR(s) + ESR (in scope)
- 2) Identify market rules that support a single resource composed of “non-IPR” Gen(s) + ESR (in scope)
- 3) Identify market rules that support a single resource composed of IPR + “Little” ESR that is treated as an IPR (out of scope)

Proposal for Problem Statement #1 & #2

Gen(s) + ESR = HSR

- **A facility with at least one Gen (including IPRs) and at least one ESR behind a single POI (with no POI limit) having a combined instantaneous injection capability of more than 20MW will be modeled at its own generator bus and can not aggregate with facilities at other locations (no DER aggregations)**
 - If less than 20MW then it can aggregate with facilities at other locations and will be modeled at a transmission node using the DER aggregation model
- **HSR is dispatch only**
- **An HSR is not permitted to be co-located with Load (other than station service)**
- **HSR must provide updated limits (same as last proposed) to reflect its RT and forecasted aggregated energy capabilities**
 - Failure to provide accurate limits may result in a penalty
- **It can qualify for reserves/regulation based on composition of the generation types in the HSR that are eligible for ancillary services today**
 - Example: a facility consisting of a GT, Wind, Solar and ESR
 - Resource can elect 10min spin reserves and regulation matching the capability of the ESR
 - OR, Resource can elect 10/30min non-sync reserves for the combined capability of the GT and ESR
- **For each Gen type (GT, ROR, Wind, Solar, etc) behind the POI, a telemetry signal indicating the current output of that gen type will be required to ensure the energy schedule is feasible, and to permit NYISO to calculate regulation and reserves capability**
 - 1 telemetry signal for GT output
 - 1 telemetry signal for Wind output
 - 1 telemetry signal for Solar output
 - 1 telemetry signal for ESR output
 - 1 telemetry signal for ESR SOC

Additional Proposals for Problem Statement #2

Currently Available Participation Option

- **POI can accommodate full output of all Gen(s) + ESR = Individual Gen and ESR**
- **Model the Gen(s) and the ESR each individually:**
 - With no POI limit that NYISO manages the non-ESR Gens can participate in the market as traditional “Generators,” including commitment, ancillary services and ICAP
 - ESR participates using the ESR model for energy, ancillary services and ICAP

Proposal for Problem Statement #3 (out of scope)

“Big” IPR + “Little” ESR = IPR (out of scope)

- **A facility located behind a single POI composed of an ESR with an instantaneous injection capability 3% or less of the IPR nameplate is treated as an IPR**
- **IPR is not eligible to provide ancillary services**
- **IPR ICAP is based on actual IPR production factors**
- **Only 1 IPR Gen type allowed**
- **IPR Gen output telemetry required**

Next Steps

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- Q3-Q4
 - Return with draft proposal
 - Begin draft tariff review
 - Present proposal for vote at BIC or MC

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- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system

