

Hybrid Storage Model: MST Attachment H Tariff Changes

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Capacity Market Design

ICAPWG/MIWG

October 06, 2020

WebEx

Agenda

- **Background**
- **Proposed MST Attachment H Tariff Revisions Summary**
- **Next Steps**

Background

Previous Presentations

Date	Working Group	Discussion Points and Links to Materials
01-13-20	ICAPWG/MIWG	Hybrid Storage Model Project Kick-Off https://www.nyiso.com/documents/20142/10252714/Hybrid%20Storage%20Model_MIWG_Jan%2013%202019.pdf/caf29abe-a431-a2d1-358d-43326153824a
04-14-20	ICAPWG/MIWG	Hybrid Storage Model – Initial Market Design Concept Overview https://www.nyiso.com/documents/20142/11904936/Hybrid%20Storage%20Model%20MIWG%2004142020%20Final.pdf/08841944-5251-4497-c52b-105151f150ad
05-11-20	ICAPWG/MIWG	Hybrid Storage Interconnection Proposal https://www.nyiso.com/documents/20142/12465245/Hybrid%20Storage%20Interconnection_0511%20MIWG_ICAPWG_FINAL.pdf/0740db02-ac07-e7f4-42b4-0b17da0e82eb
06-30-20	ICAPWG/MIWG	Hybrid Storage: Proposal for participation options https://www.nyiso.com/documents/20142/13434223/Hybrid%20Storage%2006.30.2020%20ICAPWG_MIWG%20draft%20v5_final.pdf/176a272a-cc21-08ef-749a-c4a157fe2bc3
07-22-20	ICAPWG/MIWG	Hybrid Storage: Energy Market Participation rules for Co-located Storage Resources https://www.nyiso.com/documents/20142/13960166/Hybrid%20Storage%20ICAPWG%20MIWG%2007.22.20%20Energy%20Market%20Rules%20%20final.pdf/89700275-108e-8002-1e44-aaffe1712f0e
07-22-20	ICAPWG/MIWG	Hybrid Storage Model: Interconnection and Capacity https://www.nyiso.com/documents/20142/13960166/Hybrid%20Storage%20Interconnection%20and%20Capacity_07222020%20MIWG_FINAL.pdf/e3ba434d-a7ac-21d2-855d-c9cb249da614

Previous Presentations (cont'd)

Date	Working Group	Discussion Points and Links to Materials
08-10-20	ICAPWG/MIWG	Hybrid Storage: Market Design for Co-located Storage Resources https://www.nyiso.com/documents/20142/14404876/Hybrid%20Storage%20ICAPWG%20MIWG%20081020%20final.pdf/f414f66a-eee0-3a3c-393d-6b075fe5a1ba
08-19-20	ICAPWG/MIWG	Hybrid Storage: Proposed Energy market tariff revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/14617012/02_Hybrid%20Storage%20Energy%20tariff%20ICAPWG%20MIWG%2008.19.20%20draft%20final.pdf/a6b81cb1-fe9a-72cd-2a8f-75befefc4afa
08-19-20	ICAPWG/MIWG	Hybrid Storage: Proposed CRIS and Interconnections tariff revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/14617012/03_Hybrid%20Storage%20Interconnection%20tariff%20ICAPWG%20MIWG%2008.19.20_FINAL.pdf/dbae9003-8314-e5c0-d0c3-55a7d6384cec
08-25-20	ICAPWG/MIWG	Hybrid Storage: Proposed Market design updates and energy market tariff revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/14757023/Hybrid%20Storage_Market%20Design%20Updates%20%20Energy%20tariff%20ICAPWG%20MIWG%2008.25.20%20draft%20final.pdf/ffb01347-c4bd-24a1-6549-91cda42d8cb3
08-25-20	ICAPWG/MIWG	Hybrid Storage: Proposed Tariff Revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/14757023/CSR%20ICAP%20Tariff%20Revisions.pdf/01796e6b-d1d8-ba86-9ab8-12c7bdf1d6f6
09-08-20	ICAPWG/MIWG	Hybrid Storage: Proposed Market design updates and energy market tariff revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/15078529/Hybrid%20Storage_Market%20Design%20Updates%20%20Energy%20tariff%20ICAPWG%20MIWG%2009.08.20%20final.pdf/fccb65d6-71d1-c1ac-52e9-8ecb6efb20f7
09-22-20	ICAPWG/MIWG	Hybrid Storage: Participation Examples and Energy Market Tariff Revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/15473217/Hybrid%20Storage_CSR%20examples_%20%20Energy%20tariff%20ICAPWG%20MIWG%2009.22.20%20draft%20final.pdf/944fc9aa-edfb-a77a-3d77-b94c82e74b2c
10-02-20	ICAPWG/MIWG	Hybrid Storage: Proposed Market design updates and energy market tariff revisions for Co-located Storage Resources (CSR) https://www.nyiso.com/documents/20142/15773723/4%20Hybrid%20Storage_Energy%20tariff%20ICAPWG%20MIWG%2010.02.20%20final.pdf/856b5bb8-175c-cd27-e972-b72c34e58a19

A Grid in Transition – The Plan

- Carbon Pricing
- Comprehensive Mitigation Review
- DER Participation Model
- Energy Storage Participation Model
- Hybrid Storage Model

Aligning Competitive Markets and New York State Clean Energy Objectives



- Enhancing Energy & Shortage Pricing
 - Ancillary Services Shortage Pricing
 - Constraint Specific Transmission Shortage Pricing
 - Enhanced Fast Start Pricing
- Review Energy & Ancillary Services Product Design
 - More Granular Operating Reserves
 - Reserve Enhancements for Constrained Areas
 - Reserves for Resource Flexibility

Valuing Resource & Grid Flexibility



- Enhancements to Resource Adequacy Models
- Revise Resource Capacity Ratings to Reflect Reliability Contribution
 - Expanding Capacity Eligibility
 - Tailored Availability Metric
- Capacity Demand Curve Adjustments

Improving Capacity Market Valuation

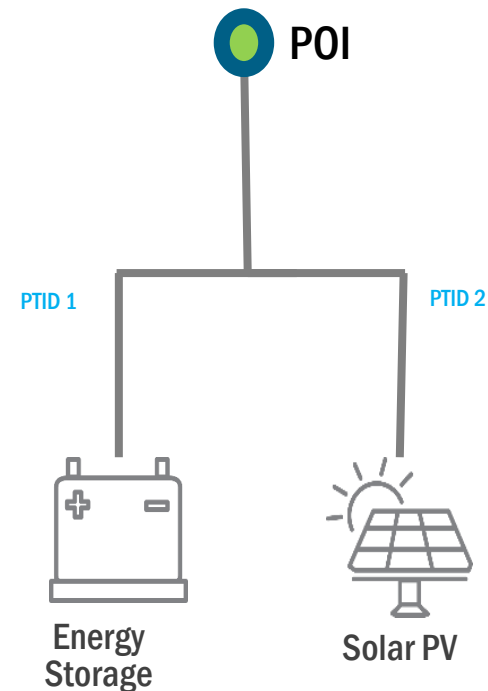


Project Background

- **This project seeks to explore market participation option(s) for co-located front-of-the-meter generators and energy storage resources**
 - Incentives along with improvements in flexibility and availability are motivating developers to couple generation resources with storage resources
- **Modifications to existing market rules will be developed to accommodate Co-Located Storage Resources (CSR) by the end of 2020**

CSR: Market Design Overview

- Each unit within a CSR will have a distinct PTID/bid/schedule/settlement
- The NYISO proposes to require a CSR to be represented by a single Billing Organization and to have a single bidding agent
- Units will participate under their own participation model. In the illustrative example shown here, Solar PV will participate as an Intermittent Power Resource(IPR) and Energy Storage will participate under Energy Storage Resource (ESR) model
 - Only the ESR unit will be eligible to provide Reserves and Regulation
- The NYISO plans to utilize a CSR scheduling constraint to determine feasible energy and reserve schedule for units within the CSR
- All units within a CSR will be settled at the same LBMP at the Point of Injection (POI)



Proposed MST Attachment H Tariff Revisions Summary

Proposed MST Attachment H Tariff Revisions

- **The NYISO is not proposing substantive changes regarding mitigation rules for CSRs**
 - The NYISO is proposing Tariff clarifications relevant to the CSR proposal in the following sections:
 - 23.2 (Definitions) and 23.4.5.7 (Buyer-Side Market Power Mitigation Measures for Installed Capacity)
- **Proposed revisions summary:**
 - Addition of language to indicate that the intermittent unit within a CSR may be a Renewable Exemption Applicant and Qualified Renewable Exemption Applicant (23.2)
 - Revisions to address the CSR physical withholding considerations related to the CSR Scheduling Limit (23.2.4.1.1)
 - Specification that Co-Located Storage Resources may include up to two separate allocations for System Deliverability Upgrades, one for each Examined Facility that comprises the Co-located Storage Resource (23.4.5.7.2)
 - Utilize the proposed definition of “Project,” where applicable
 - Conforming edits for data and information submission requirements (23.4.5.7.3)

Proposed MST Attachment H Tariff Revisions (cont'd)

■ Proposed revisions summary (cont'd):

- Clarification that an intermittent unit within a CSR is required to be solely powered by Exempt Renewable Technology to be eligible for a Renewable Exemption (23.4.5.7.13)
- Clarification that an Intermittent Power Resource within a CSR may request a Renewable Exemption at the same time the co-located Energy Storage Resource may request a Competitive Entry Exemption (23.4.5.7.13)
- Clarification that a Project that is Co-Located Storage Resource may request a Self Supply Exemption for one of its Examined Facilities and at the same time request a Competitive Entry Exemption for its other Examined Facility (23.4.5.7.14)
 - Currently the NYISO does not have a Self Supply Exemption that has been fully accepted by FERC

Next Steps

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- **NYISO will return to future working groups to discuss Tariff revisions to other sections as necessary**
- **BIC vote**
 - Target date is November 11, 2020
- **MC vote**
 - Target date is November 18, 2020

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- 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

