

Manual Updates for implementation of Co-located Storage Resources (CSR) Participation model

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Agenda

- **Background on Co-located Storage Resources (CSR) participation model**
- **Manual revisions to address implementation of CSR participation model**
 - Ancillary Services Manual
 - Day-Ahead Scheduling Manual
 - Transmission & Dispatch Operations Manual
- **Next Steps**

CSR Participation Model: Project Background

Background

- **In 2020, NYISO developed modifications to the market rules that are necessary to accommodate Co-located Storage Resources (CSR)¹**
 - A CSR comprises of a wind or solar Intermittent Power Resource and an Energy Storage resource that are co-located behind a single Point of Injection and share a set of common Injection/Withdrawal limits.
 - The two generators that constitute the CSR will participate in the NYISO markets as distinct generators. The market software will take into account the common Injection/Withdrawal limits when determining energy and ancillary services schedules for these generators.
- **The NYISO plans to deploy the CSR participation model in Q4 2021**
- **This presentation will review the updates to manuals that are necessary for the implementation of CSR participation model**
 - Ancillary Services Manual
 - Day-Ahead Scheduling Manual
 - Transmission & Dispatch Operations Manual
- **The manual revisions presented to the BIC incorporate stakeholder comments provided at the August 3 ICAPWG/MIWG**

1. Comprehensive CSR Market Design Proposal.

https://www.nyiso.com/documents/20142/16364783/Hybrid%20Storage_CSR%20proposal%20overview%20ICAPWG%20MIWG%2010.27.20%20final.pdf

Ancillary Services Manual Updates

Ancillary Services Manual

- **Minor clean up edits in Section 4.10 and 4.11.1**
- **Section 6.2.3 Other Supplier Requirements**
 - Included a footnote on eligibility of Intermittent Power Resources (IPRs) to provide Operating Reserve products
- **Section 6.3.1 General Day-Ahead Market Rules and Section 6.4.1 General Real-Time Market Rules**
 - Included discussion on the consideration of CSR Scheduling Limits when scheduling Energy, Operating Reserves, and Regulation Capacity on CSR Generators in Day-Ahead and Real-Time Scheduling

Day-Ahead Scheduling Manual Updates

Day-Ahead Scheduling Manual

- **Section 2.3.1 Day-Ahead Functional Components**
 - Added language to include additional factors considered by SCUC for CSR Generators
 - SCUC will consider CSR Scheduling Limits when producing schedules for the CSR Generators

Day-Ahead Scheduling Manual (cont'd)

- **Section 4.2.5 Multiple Response Rates for Generating Units**
 - Corrected the minimum capacity response rate allowed for regulation to 0.1 MW/minute
 - Added language to specify the response rate requirement for ESR that is a part of CSR
 - An ESR that is a part of CSR shall supply a per-minute response rate of energy that is at least 6.7% of its nameplate capacity/minute.
 - The proposed requirement allows the NYISO's dispatch software to provide feasible schedules to the Solar/Wind and ESR at a CSR facility that respects the CSR Scheduling Limits at the facility.
 - Currently NYISO doesn't have any operational experience with the ramp rate associated with ESRs
 - During prototyping phase, the NYISO discovered that with slow ramp rates, the solution can become infeasible when the ESR cannot react fast enough to respect the CSR Scheduling Limits at the facility
 - A similar ramp requirement exists for standalone Solar/Wind resources.

Day-Ahead Scheduling Manual (cont'd)

■ Section 4.3.2 SCUC Components

- Added language to include additional constraints considered by UC for CSR Generators
 - The set of constraints for Unit commitment will include the CSR Scheduling limits for IPR and ESR Generators that participate in a CSR

■ Section 4.3.3 SCUC Inputs

- Added language to include CSR Scheduling constraints in SCUC inputs
 - SCUC will consider CSR Scheduling Limits when determining Energy, Reserves and Regulation schedule for the constituent units.

Transmission & Dispatch Operations Manual Updates

Transmission and Dispatch Manual

■ Section 6.1.1

- Added language referencing CSR Scheduling Limits
- Added discussion of the application of a Wind or Solar Output Limit to an IPR that participates in a CSR

■ Section 6.7.4

- Noted that NYISO can use OOM to reduce CSR Scheduling Limits

■ Section 7.3

- MW telemetry for CSR generators should reflect their output at POI

■ Section 7.3.1

- NYISO can use OOM to reduce CSR Scheduling Limits

Transmission and Dispatch Manual

- **Other changes (not pertaining to CSR Participation model)**
 - Section 2.2.7.1
 - Modification to the language of LESR's participation in reserve pickups. The proposed revisions more accurately describes both the Tariff requirement and the NYISO's implementation
 - Section 2.6.1
 - The NYISO proposes to delete the outdated information describing telecommunications systems

Next Steps

Next Steps

- ✓ **SOAS & ICAPWG/MIWG meeting: August 3, 2021**
 - Present proposed manual revisions
- **BIC: September 15, 2021**
 - Seek approval of the proposed manual revisions
- **OC: September 17, 2021**
 - Seek approval of the proposed manual revisions

Questions?

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- Providing factual information to policymakers, stakeholders and investors in the power system

