New York ISO
Independent System Operator

Hybrid Aggregated Storage (HSR) Model – Tariff Modifications, Interconnection, ERIS, CRIS

Francesco Biancardi and Katherine Zoellmer

New Resource Integration

MIWG/ICAPWG

September 20, 2022

Agenda

- Project Background
- Overview of Tariff Changes
- Proposed Tariff Changes
  - OATT Section 25 (Attachment S)
  - OATT Section 30 (Attachment X)
- Next Steps

New York ISO

Previous HSR Presentations (2022)

Date	Working Group	Topic/Links to Materials
March 25th, 2022	MIWG/ICAPWG	Hybrid Storage Model – Energy and Capacity Market Design Proposal
May 11th, 2022	MIWG/ICAPWG	NYISO Hybrid Aggregated Storage Resource (HSR) Model Use Case and Proposal Update
July 15th, 2022	MIWG/ICAPWG	Hybrid Aggregated Storage (HSR) Model – Energy and Ancillary Services Market Design Proposal Update
August 9th, 2022	MIWG/ICAPWG	Hybrid Aggregated Storage (HSR) Model – Energy and Capacity Market Design Proposal
August 24th, 2022	MIWG/ICAPWG	Hybrid Storage Model – CSR Market Design Proposal Updates
September 12th, 2022	MIWG/ICAPWG	Hybrid Aggregated Storage (HSR) Model – CSR Market Design Proposal Updates (Settlements/Metering and Telemetry)
September 12th, 2022	MIWG/ICAPWG	Hybrid Aggregated Storage (HSR) Model – Tariff Modifications, Energy and Settlements

Project Background

New York ISO

Project Background

- **An HSR consists of an Energy Storage Resource (ESR) and at least one Intermittent Power Resource (IPR) and/or Run-of-River (RoR) Hydro Resource**
  - This model will support several Wind, Solar, Landfill Gas, RoR Hydro, and ESR(s)resources that aggregate, and share a POI, and operate as a single dispatchable resource
- **As part of the HSR project, the Co-located Storage Resource (CSR) model will be updated to allow for:**
  - An ESR + a Landfill Gas Generator
  - An ESR + a RoR Hydro Generator
  - An ESR + a Fast-Start Resource

New York ISO

Overview of Tariff Changes

New York ISO

Overview of Tariff Changes

- The following proposed modifications to the Open Access Transmission Tariff (OATT) address updates needed for Hybrid Storage Resource participation model and the Co-located Storage model regarding Interconnection, ERIS, and CRIS

New York ISO

OATT Section 25 (Attachment S)

New York ISO

OATT Section 25

- **NYISO proposes to append Hybrid Storage Resource when listing types of multi-Generator/co-located resources in the following sections:**
  - OATT Section 25.3.1
  - OATT Section 25.8.1

New York ISO

OATT Section 25.8.1

- **NYISO proposes to add clarifying language to Section 25.8.1 regarding submission of Interconnection Requests for co-located facilities**
  - For existing facilities proposing a modification to add a Generator of the same or different technology co-located at the same Point of Interconnection for which the Developer requests CRIS, the collective CRIS of the resources within what will be the modified facility (e.g., the resulting Co-located Storage Resource, Hybrid Storage Resource or Distributed Energy Resource) cannot exceed the injection limit of the co-located facilities. For a Project that requests CRIS for part of a multi-unit facility, after combining with another existing or proposed co-located facility pursuant to Section 30.4.4.2 of Attachment X to the OATT, the requested MW level of CRIS for the combined facility cannot exceed the permissible levels of CRIS that may have been requested pursuant to this Section 25.8.1(iv) if the entire co-located facility had submitted a single Interconnection Request.

New York ISO

OATT Section 30 (Attachment X)

New York ISO

OATT Section 30

- **NYISO proposes to append Hybrid Storage Resource when listing types of multi-Generator/co-located resources in Section 30.3.2.6:**
  - A Project that receives a CRIS increase pursuant to this Section 30.3.2.6, to the extent it later combines with another facility or Project to become a co-located resource (e.g., Co-located Storage Resource, Hybrid Storage Resource or a Distributed Energy Resource), is not eligible for any additional CRIS increase above a single increase up to 2 MW, without proceeding through a deliverability evaluation in a Class Year Study or Expedited Deliverability Study.

New York ISO

OATT Section 30.3.1

- **The NYISO proposes new language to clarify that Developers must submit a single Interconnection Request for each co-located resource that it wishes to interconnect**
  - The Developer shall submit a separate Interconnection Request for each site unless the Large Facility is a proposed Large Facility comprised of multiple Generators behind a single Point of Injection, in which case the Developer must submit a single Interconnection Request. The Interconnection Request for a Large Facility comprised of multiple Generators behind a single Point of Injection must be submitted by a single Developer. A Developer may submit multiple Interconnection Requests for a single site only if the proposed Large Facilities are proposed as alternatives to each other.

New York ISO

OATT Section 30.3.2.2

- **The NYISO proposes to incorporate Hybrid Storage Resources into the language discussing ERIS rules for Projects comprised of multiple Generators**
  - For Projects comprised of multiple Generators, a Developer must request a single ERIS value for the Large Facility, and also specify the ERIS of the multiple Generators comprising the Large Facility as requested by Developer in its Interconnection Request. For projects comprised of multiple Generators, the total ERIS for the Large Facility may be less than the sum of the ERIS for the individual Generators. The requested ERIS of the individual Generators is subject to the following limitations: (1) the requested ERIS for the Energy Storage Resource in a Co-located Storage Resource or Hybrid Storage Resource cannot exceed the lesser of the Point of Injection limit or its nameplate; and (2) the requested ERIS for each Resource in a Co-located Storage Resource or Hybrid Storage Resource other than the Energy Storage Resource cannot exceed the lesser of the Point of Injection limit plus the full withdrawal capability of the Energy Storage Resource or the relevant Resources's nameplate.

New York ISO

OATT Section 30.3.2.2 (cont.)

- **The NYISO proposes to include new language in section 30.3.2.2 that discusses the allocation of ERIS and CRIS amongst Generators in a co-located resource**
  - The Developer may modify its interconnection service evaluation election (whether the Large Facility requests ERIS or ERIS and CRIS) and, for Large Facilities comprised of multiple Generators, the requested allocation of ERIS and or CRIS among its multiple units, to the extent the modification is not a Material Modification, when it executes the Class Year Study Agreement for its project in accordance with Section 30.8.1 of these Large Facility Interconnection Procedures. Permissible modifications include modifying the allocation of ERIS and CRIS among multiple Generators being evaluated in the same Interconnection Request; provided however, an increase to the total requested ERIS or CRIS would be a Material Modification. The Developer can reduce the number of MW it initially requested to be evaluated for ERIS or CRIS, and such a reduction shall not constitute a Material Modification.

New York ISO

OATT Section 30.4.4.2

- **The NYISO proposes to add language to 30.4.4.2 to provide for a transition rule applicable to both HSRs and CSRs:**
  - For a Project in the Interconnection Queue with a validated Interconnection Request on or before [effected date of HSR tariff revisions], the Developer may, prior to the return of the executed Interconnection Facility Study Agreement to the ISO, modify the Project by combining it with one or more Projects with validated Interconnection Requests in the Interconnection Queue on or before [effective date], regardless of whether the Projects are different technologies and regardless of whether the combined Project's requested ERIS or CRIS increases as a result of combining the queue positions; provided however, the Projects must (i) be co-located behind the same Point of Interconnection; (ii) submit a revised Interconnection Request reflecting the modification to become a Project comprised of multiple Generators as well as identifying the Developer of record for purposes of the interconnection process; and (iii) demonstrate the manner in which such Developer of record retains Site Control for the combined Project

New York ISO

OATT Appendices

- **The NYISO proposes changes to the following sections to incorporate HSR interconnection rules into Large Generating Facility interconnection documents:**
  - Appendix 1 LFIP-Interconnection Request
  - Appendix 1 LFIP-Large Generating Facility Preliminary Data
  - Attachment B to Appendix 2
  - Appendix 3 to LFIP-Large Facility Modification Request

New York ISO

OATT Appendix 1 to LFIP – Interconnection Request

- **The NYISO proposes to add two new identifiable sub-types of Large Generating Facilities to section 2 of the Interconnection Request:**
  - The Interconnection request is for [Project Name], which is: (check one of the following):
    - A proposed new Large Generating Facility
      - A proposed Co-Located Storage Resource
      - A proposed Hybrid Storage Resource
      - A proposed new BTM:NG Resource
- **The NYISO proposes to add clarifying language to section 6 of the Interconnection Request regarding MW of requested ERIS:**
  - MW of requested ERIS at the POI (maximum summer or winter net MW, whichever is greater)

New York ISO

OATT Appendix 1 LFIP – Large Generating Facility Preliminary Data

- The NYISO proposes to add "Energy Storage" as an identifiable Resource/Fuel Type in Section 4 of the Large Facility Preliminary Data form
- The NYISO proposes to add the following clarifying language to Section 4 of the Large Generating Facility Preliminary Data form:
  - Maximum Reactive Power at Rated Power Leading (MVAR):__
    Minimum Reactive Power at Rated Power Lagging (MVAR): __
- The NYISO proposes to clarify the modeling data required pursuant to Section 4 the Large Generating Facility Preliminary Data form:
  - Provide the following information for each unit within the Large Generating Facility:

    Note: A completed Siemens PTI PSSE power-flow and dynamics models or other compatible formats, such as IEEE and PTIPSLF power flow models, and Aspen short circuit model must be supplied at a later stage of the interconnection study process.

New York ISO

OATT Appendix 1 LFIP – Large Generating Facility Preliminary Data (cont.)

- The NYISO proposes to combine the Energy Storage Resource and Resource w/ an EDL parameter subsections into a single subsection
- The NYISO proposes to add the following language to Section 4 the Large Generating Facility Preliminary Data form regarding Solar units:
  - If solar, total number of solar panels in solar farm to be interconnected pursuant to this Interconnection Request:

    Inverter manufacturer, model name, number, and version:

New York ISO

OATT Attachment B to Appendix 2 – Interconnection Facilities Study Agreement

- NYISO proposes to clarify that ERIS should be specified at the POI of a given Resource
- NYISO proposes to add language regarding CRIS transfers for multi-unit Large Generating Facilities:
  - If requesting a CRIS transfer, indicate the transferor PTID(s), MW amount and, for a multi-unit Large Generating Facility, the specific Resources from which and to which the transfer is proposed:

New York ISO

OATT Appendix 3 to LFIP– Large Facility Modification Request

- NYISO proposes to clarify that ERIS should be specified at the POI of a given Resource
- NYISO proposes to add language regarding CRIS transfers for multi-unit Large Generating Facilities:
  - If requesting a CRIS transfer, indicate the transferor PTID(s), MW amount and, for a multi-unit Large Generating Facility, the specific Resources from which and to which the transfer is proposed:

New York ISO

Next Steps

- HSR Metering and Telemetry
- Additional tariff updates

New York ISO

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

New York ISO

Questions?

New York ISO