

DERs: Interconnection and CRIS Requirements

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ICAP WG/MIWG

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Agenda

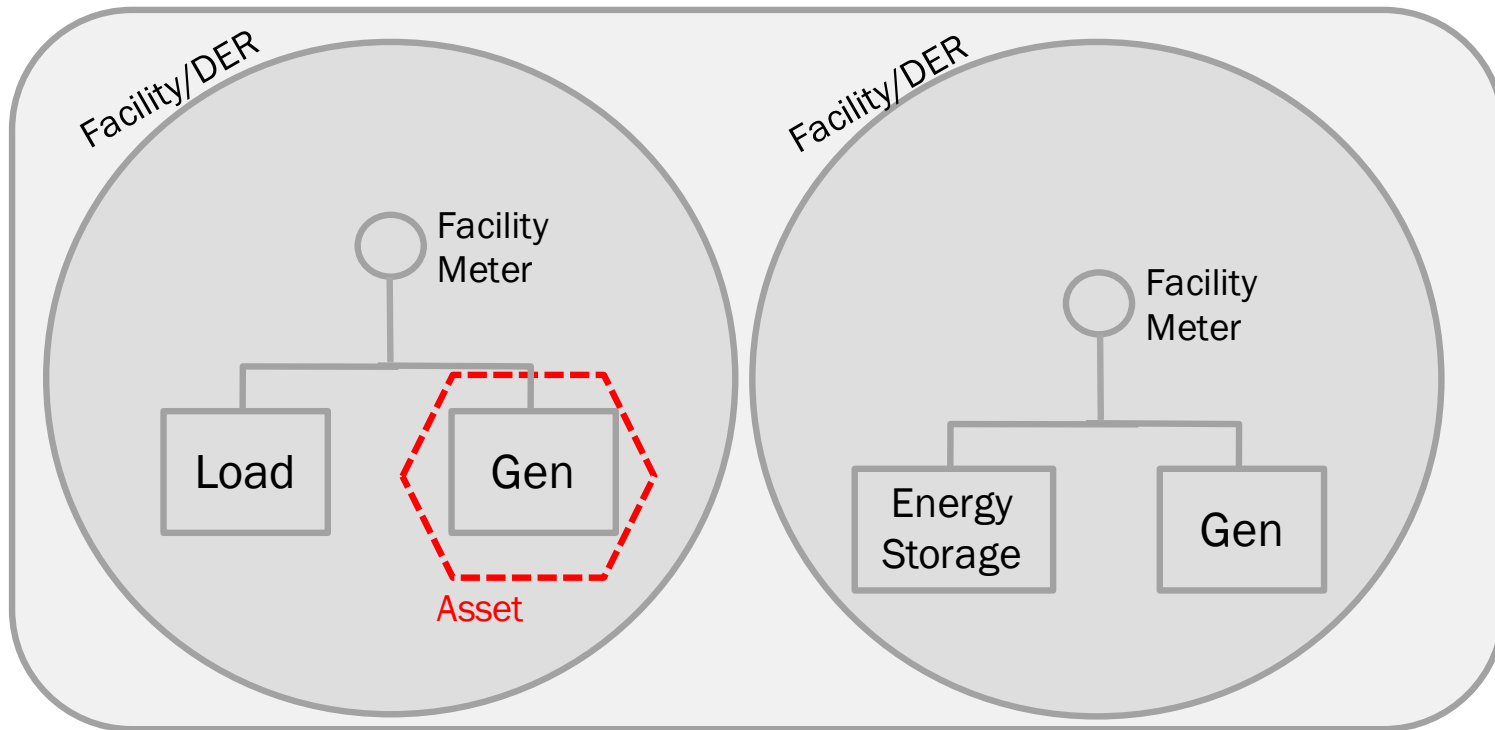
- **Background**
- **Interconnection Process for DERs**
 - Proposed Revisions to Small Generator Interconnection Procedures
 - DERs Not Subject to NYISO Interconnection Procedures
- **Process for DERs to Obtain CRIS**
 - Proposed Revisions to Maximum Permissible CRIS Request
- **Deliverability Methodology**
 - Methodology for DERs
 - Methodology for DERs with Duration Limitations
 - Methodology for Multiple Technology DERs

Background

Purpose of Today's Proposal

- **As part of the DER project, NYISO proposes to allow energy market and capacity market participation by individual resources 1 MW or less, together with varying duration limitations**
 - To date, resources evaluated in the NYISO's interconnection process for ERIS have been a minimum of 1 MW and have not proposed varying duration limitations
- **Today's presentation will review NYISO's proposed revisions regarding how a DER may obtain interconnection service and/or CRIS**
 - Proposed capacity market revisions as part of the DER project require revisions to the OATT provisions through which a resource obtains CRIS
 - Proposed energy market revisions as part of the DER project require revisions to the NYISO's Small Generator Interconnection Procedures

Interconnection (ERIS) and CRIS Requirements will Focus on the Facility (not the asset or aggregation)



Interconnection Process for DERs

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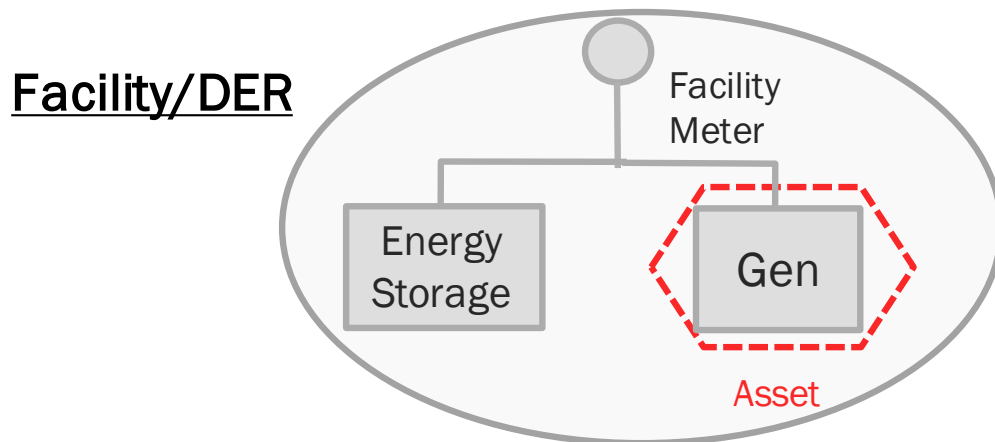


Some DERs Will Not be Subject to NYISO Interconnection Procedures

- **NYISO's interconnection procedures govern the interconnection of the facility if:**
 - Developer intends to make wholesale sales and
 - Developer proposes to interconnect to (i) transmission or (ii) distribution facilities on which there is already a generator making wholesale sales (*i.e.*, “FERC-jurisdictional distribution”)
- **NY Standardized Interconnection Requirements (SIR) govern the interconnection of the facility if:**
 - Developer is interconnecting to portions of the distribution system other than “FERC-jurisdictional distribution” and the resource is less than or equal to 5 MW
- **Utility interconnection procedures govern the interconnection of resources if the interconnection is not subject to the NYISO or SIR processes**
 - Interconnection Service for SIR or Utility-level interconnection is based on the applicable interconnection agreement
 - Facilities that proceed through the SIR or utility interconnection processes must have an interconnection agreement that allows wholesale sales

Proposed Revisions to Small Generator Interconnection Procedures

- NYISO proposes to expand the concept of “facility” to include all assets behind a single facility meter



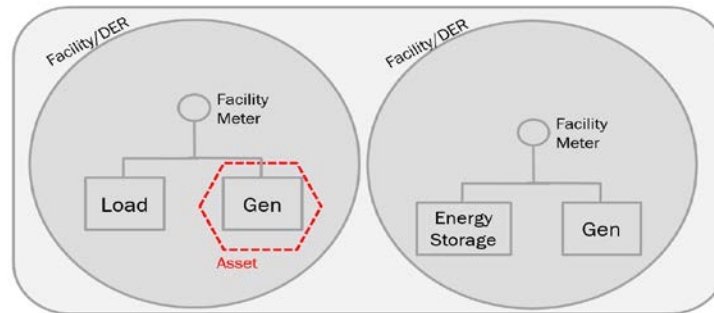
- NYISO proposes to redefine what may be included in one Interconnection Request (IR) (*i.e.*, a single queue position in the interconnection queue)
 - To allow multiple assets behind a single facility meter and POI in the same IR, even if different technologies

Proposed Revisions to Small Generator Interconnection Procedures

- Proposal will require the following information in the IR for DER Developers requesting ERIS, in addition to information already requested:
 - Description of the composition of assets within the Distributed Energy Resource, including load reduction assets
 - If one of the assets in the facility is a load reduction asset, that should be specified in the IR, but will not be evaluated in the interconnection studies (*i.e.*, is for information only)
 - Maximum Injection Capability of entire the Distributed Energy Resource over 1 hour
 - Technical details for the DER facility and each asset within the DER facility
- For a DER Developer requesting CRIS, see slides 13-16

Proposed Revisions to Small Generator Interconnection Procedures

- Proposal revisions regarding modifications to DERs:
 - Permissible Modifications (not material, but may require IA amendments)
 - Facilities can switch between different aggregations
 - Assets within a facility switching to another facility are not material modifications to the original facility,
 - Eliminating an asset or switching asset to load curtailment

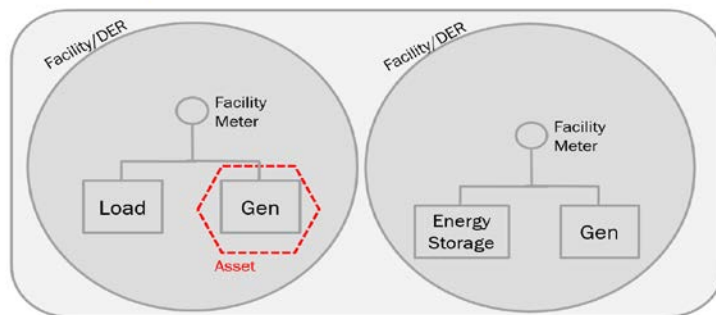


- For a duration limited facility, a change to the selected duration for capacity market participation would not be a material modification, but capacity sales would be limited by CRIS

Proposed Revisions to Small Generator Interconnection Procedures

■ Material Modifications (requiring a new Interconnection Request)

- Adding a new asset to a facility
- Changing technology of an asset within a facility
 - For example, if a DER facility is comprised of a battery and a solar asset and decides to replace the solar asset with a traditional generator, that modification would be material
- Assets within a facility switching to another facility may be a material increase to the new facility if the increase is beyond the permissible *de minimis*



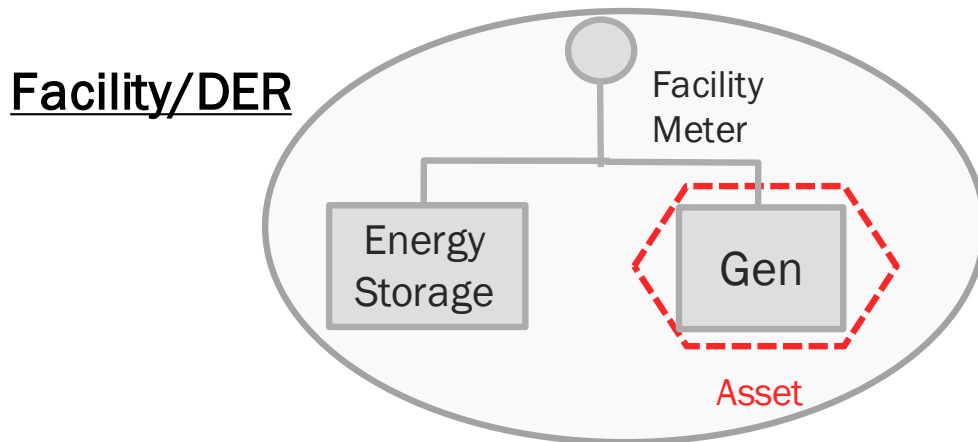
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Process for DERs to Obtain CRIS

Proposed Revisions to Small Generator Interconnection Procedures

- NYISO proposes to award CRIS at the “facility” level



- CRIS is not awarded to individual assets within a facility
- Each facility within an aggregation must separately request and obtain CRIS

Proposed Maximum CRIS

- **CRIS will only be applicable to injection capability of resources (not withdrawal or load reduction portion)**
- **For a Developer requesting CRIS only (*e.g.*, new facility not subject to the NYISO SGIP or existing facility already evaluated in a NYISO, SIR or utility interconnection process), no IR is required for the facility**
 - In other words, the facility does not have to go through the SGIP (unless making a material modification to an existing facility)
- **In order to obtain CRIS, if more than 2 MW, must execute a Facilities Study Agreement for the next open Class Year Study to be evaluated for deliverability**

Proposed Maximum CRIS

- **For DER facilities, NYISO proposes that CRIS request cannot exceed the minimum of the following:**
 - Expected maximum injection capability (in MW hours) for the Developer-selected duration for capacity market participation (e.g., 2, 4, 6 or 8 hour);
 - Nameplate capacity (for DERs, the collective nameplate of assets included in the DER facility); or
 - The the sum of facility's requested and existing ERIS, as applicable
- **DER Developer must include the following information in the IR and Facilities Study Agreement data forms (for the NYISO to determine the maximum permissible CRIS request):**
 - Selected duration (e.g., 2, 4, 6 or 8 hours) for the entire facility, as applicable; and
 - Expected maximum output of the entire facility for its selected duration
- **The duration selection options will be based on the final Expanding Capacity Market Eligibility design which is still in discussions with stakeholders**

CRIS Impacts to Asset and Facility Modifications

- If a facility moves between aggregations, NYISO proposes that the CRIS awarded to the facility stays with the facility and moves with it to the new aggregation
- For a multi-asset facility, if an asset within that facility moves to another facility, NYISO proposes that the original facility retains the full amount of CRIS
 - The asset moving to a new facility would have no CRIS
 - For the facility to which the asset moved to increase its CRIS more than 2 MW to account for the new asset, it must request CRIS through a Class Year Deliverability Study
 - The original facility may not transfer CRIS to the new facility (*i.e.*, same location CRIS transfer rules will not apply to this scenario)

Deliverability Methodology

Deliverability Methodology for DERs

- The Deliverability Study uses derated generator capacity incorporating availability – UCAP Deration Factor (UCDF)
 - Based on the UCAP of each resource (or Net UCAP, for BTM:NG Resources)
 - $UCAP = ICAP * (1 - \text{Derating Factor})$
 - The UCDF is applied to the requested CRIS level
 - CRIS requested by a Developer represents ICAP, and that ICAP is derated for the deliverability analysis by applying the UCDF
 - At the conclusion of the deliverability analysis, the NYISO reconverts the deliverable MW and reports them in terms of MW of ICAP (using the same derating factor utilized at the beginning of the deliverability analysis)
 - Derating Factor
 - For non-intermittent resources (including ESRs), derating factor is based on the average from historic ICAP to UCAP translations on a Capacity Region basis
 - For intermittent resources, derating factor is based on resource type

Deliverability Methodology for DERs

- **Proposed DER Deliverability methodology:**
 - For DERs evaluated in the Deliverability Study, the following ICAP to UCAP translation will still apply:
 - $UCAP = ICAP (i.e., CRIS) * (1 - \text{Derating Factor})$
 - UCAP for DERs will be based upon their maximum ICAP possible, for Developer-selected duration, reduced by the applicable derating factor

Deliverability Methodology for Duration Limited DERs

- Duration Limited DERs

- Duration limited DER, like other DERs, will be studied in the Deliverability Study at their UCAP (*i.e.*, based upon their maximum ICAP possible, for Developer-selected duration, reduced by the applicable derating factor)
- See example on the following slide of Derating Factor and UCAP used for Duration Limited Resource in Deliverability Study

Example of Derating Factor and UCAP used for Duration Limited Resource in Deliverability Study

Example of battery with the following parameters: 80 MWh, 40 MW injection capability, and ERIS of 40 MW

Capacity Supplier Type	Maximum CRIS (MW)	Duration Category (hours)	Derating Factor %	UCAP for Deliverability (MW)
Capacity	10	8	5%	9.5
Duration Limited	13.3	6	5%	12.6
Duration Limited	20	4	5%	19
Duration Limited	40	2	5%	38

Max CRIS request is the expected max output for the developer-selected duration, and UCAP will be that value reduced by derating factor

Deliverability Methodology for Multiple Technology DERs

- NYISO proposes that a multi-technology DER facility may submit one IR in the Small Generator Interconnection Procedures for both ERIS and CRIS
 - CRIS request, however, may be subject to a deliverability evaluation in a Class Year Study if the entire DER facility is larger than 2 MW
 - If not subject to the NYISO's Interconnection Procedures, a multi-technology facility can submit a single CRIS request if the assets within the facility are behind a single facility meter
 - Can request CRIS in a single IR, if also requesting ERIS; or
 - Can request CRIS by requesting and executing a Facilities Study Agreement for the next Open Class Year Study (and providing the required technical data and deposit)

Deliverability Methodology for Multiple Technology DERs

- Proposed deliverability methodology for evaluating a CRIS request for a multi-technology facility:
 - NYISO proposes to use a blended UCAP
 - For example, a 4 hour DER with 10 MW of solar and 5 MW/20 MWH of batteries:
 - Could be studied up to 15 MW of CRIS
 - Corresponding maximum UCAP evaluated in the Deliverability Study would be 9.5 MW:
 $(10 \text{ MW solar} * (1-50\% \text{ Derating Factor for solar}) + (5 \text{ MW battery} * (1-10\% \text{ Derating Factor for batteries}))$
 - If the facility includes a load reduction asset, the amount of load reduction will not impact the blended UCAP

Tariff Revisions

- **OATT Attachment S, Section 25.7.8.2.3 (Deliverability Methodology)**
 - Specify that in the deliverability study, the MW requested by a DER will represent Installed Capacity based on the Developer-selected duration
 - Describe the manner in which DERs will be derated in the deliverability study
 - Describe the manner in which multi-technology DERs will be evaluated in the deliverability study
- **OATT Attachment S, Section 25.8.1 (Limits on CRIS a facility can request)**
 - Clarify existing provisions by breaking out CRIS caps into separate bullets, including a bullet describing the maximum CRIS a DER can request
 - Specify that a DER must request CRIS at the DER level – that individual assets within a DER cannot individually request CRIS, nor can an Aggregation within which a DER participates
- **OATT Attachment S, Section 25.9.3.1 (Retaining CRIS Rights) and Section 25.9.4 (Same Location CRIS Transfers)**
 - Specify that a DER cannot transfer CRIS (1) an asset within the Distributed Energy Resource that transfers from the Distributed Energy Resource to another Distributed Energy Resource or Aggregation; (2) another Distributed Energy Resource or Aggregation to which one of its assets transferred

Tariff Revisions

- **OATT Attachment Z, Section 32.1.1 (SGIP Applicability)**
 - Section 32.1.1.3: Clarify the effective date of SGIP vs. effective date of DER tariff revisions
- **OATT Attachment Z, Section 32.1.2.2.4 and 31.1.2.2.5 (Pre-Application Process)**
 - Revisions to allow a multi-unit “facility” to be evaluated under one Pre-Application Request
- **OATT Attachment Z, Section 32.1.1.7:**
 - Specify that Small Generating Facilities larger than 2 MW that request CRIS are subject to the limits on maximum permissible CRIS specified in Section 25.8.1 of Attachment S

Tariff Revisions

- **OATT Attachment Z, Section 32.1.3 (SGIP Interconnection Request Requirements)**
 - Move details re: facility modifications that require a new Interconnection Request to Section 32.1.4
- **OATT Attachment Z, Section 32.1.4 (Modification of SGIP Interconnection Request)**
 - Divide section into two subsections for existing and proposed facilities, detailing what would be deemed a material modification
- **OATT Attachment Z, Section 32.4.11 (Capacity of the Small Generating Facility)**
 - Section 32.4.11.1: Specify that incremental increases in capacity of a Small Generating Facility that bring the total facility's capacity > 20 MW will be evaluated in the Large Facility Interconnection Procedures and facility will be reclassified as a Large Facility
 - Section 32.4.11.2: Specify that multiple assets behind a single Point of Interconnection must be behind a single facility meter

Tariff Revisions

- **OATT Attachment Z, Section 32.5 and OATT Attachment X, Section 30.14 (appendices)**
 - Section 32.5, Appx. 1 (Glossary of Terms) and Section 32.5, Appx. 7, Attachment 1 (Small Generator Interconnection Agreement – Glossary of Terms)
 - Expand definition of Small Generating Facility
 - Section 32.5, Appx. 2 and Appx. 6 (Small Gen data forms)
Section 30.14, Appx 1 and Appx. 2 (Large Gen data forms)
 - Request details in the SGIP for DERs and their individual assets
 - For DER requesting CRIS, request (1) selected duration (*i.e.*, 2, 4, 6 or 8 hours) for the entire facility, as applicable; and (2) expected maximum output of the entire facility for its selected duration
 - In Facilities Study Agreement data forms, request Developer to indicate its election for CRIS, subject to the limits on maximum permissible CRIS specified in Section 25.8.1 of Attachment SLimitation
 - Request additional details for BTM:NG Resources and Resources with Energy Duration Limitations (to be consistent across the LFIP and SGIP)

Next steps:

Future ICAPWG for continued discussions

Feedback/Questions?

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