

Interconnection Order No. 2023 – Overview and Preliminary Compliance Approach

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Overview

Agenda

- **Background**
- **Summary Overview of Order No. 2023**
- **Summary of Order No. 2023 Reforms and NYISO's Proposed Compliance Approach**

Background

- **July 15, 2021** - FERC issued an Advanced Notice of Proposed Rulemaking (ANOPR) to broadly examine FERC's current electric regional transmission planning, cost allocation, and generator interconnection policies.
- **April 21, 2022** - FERC issued a Transmission Planning NOPR.
- **June 16, 2022** - FERC issued the Interconnection NOPR in Docket No. RM22-14-000.
- **July 28, 2023** - FERC issued Order No. 2023 (184 FERC ¶ 61,054)
- **August 28, 2023** - NYISO filed a Motion for Rehearing/Clarification regarding select issues from Order No. 2023

Overview of Order No. 2023

- FERC Chairman Phillips described Order No. 2023 as a “historic,” “landmark,” and “watershed” order and one of the longest orders in FERC’s history.
- The final rule requires Transmission Providers to adopt revised *pro forma* generator interconnection procedures (LGIP) and agreements “to ensure that interconnection customers can interconnect to the transmission system in a reliable, efficient, transparent, and timely manner, and to prevent undue discrimination.”
 - FERC’s *pro forma* term “Transmission Provider” as applied in the NYISO’s interconnection procedures encompasses both the NYISO and the New York Transmission Owners. The NYISO’s interconnection procedures assign the responsibilities of “Transmission Providers” to the NYISO, as the system operator, and the New York Transmission Owners, as the owners of the impacted transmission and distribution facilities in New York.
- FERC describes its reforms as primarily falling into 3 categories:
 - First-Ready, First-Served Cluster Study Process.
 - Reforms to Increase the Speed of Interconnection Queue Processing.
 - Reforms to Incorporate Technical Advancement to the Interconnection Process.

Overview of Order No. 2023

■ Compliance Deadline

- Compliance filing is due 90 days from the date Order No. 2023 is published in the Federal Register (absent an extension granted by the Commission)
- NYISO anticipates seeking a modest extension of the compliance filing deadline that aligns with the 2023 Queue Reform commitment

■ Independent Entity Variations

- Deviations from the compliance directives are permitted if the transmission provider demonstrates the variations are either “consistent with or superior to” the FERC *pro forma* LGIP or, in the context of RTOs/ISOs merit an independent entity variation
- In Order No. 2003 when the LGIP was initially created, the Commission acknowledged the differing characteristics of each region and provided ISOs and RTOs with the flexibility to seek independent entity variations from the final rule “to customize its interconnection procedures and agreements to fit regional needs.”
- Order No. 2023 gives ISOs/RTOs flexibility to propose independent entity variations for reforms to accommodate regional needs.
- The NYISO’s preliminary thinking on such variations has been flagged throughout the presentation.

Summary of Order No. 2023 and Preliminary Compliance Approach

Information Access – Heatmap

Information Access – Heatmap

Order No. 2023 Requirements

- **Requires access to more publicly available interconnection information prior to projects entering the interconnection queue**
 - Transmission Providers must maintain and publicly post information pertaining to generator interconnections via a heatmap and related, prescribed data metrics.
 - Heatmaps must be updated within 30 days after the completion of each cluster study and cluster re-study.
- **Heatmap will not be required to be made available until after the transition period (which could potentially be at the end of 2024 or in 2025).**

Information Access – Heatmap (Cont.)

Order No. 2023 Requirements

- The heatmap must show the amount of interconnection capacity available to be injected at each point of interconnection.
- The heatmap must show only points of interconnection that are requested in each cluster, rather than each potential point of interconnection on the system.
- **Methodology:**
 - Calculated under N-1 conditions.
 - Studied based on the power flow model of the transmission system (of the cluster study or restudy) with the transfer simulated from each point of interconnection to the whole transmission provider's footprint (to approximate NRIS which will cover both types of interconnection requests; NRIS or ERIS).

Information Access – Heatmap (Cont.)

Order No. 2023 Requirements

- **At a minimum, the following outputs must be provided at each point of interconnection:**
 - Distribution factor;
 - MW impact (based on the proposed project size and the distribution factor);
 - Percentage impact on each impacted transmission facility (based on MW values of the proposed project and the facility rating);
 - Percentage of power flow on each impacted transmission facility before the proposed project; and
 - Percentage of power flow on each impacted transmission facility after the injection of the proposed project.
- **The heatmap need not account for affected system impacts.**

Information Access – Heatmap (Cont.)

NYISO Preliminary Compliance Approach

- **Develop heatmap reflective of Order No. 2023's directives, with independent entity variations with respect to:**
 - Assumptions and outputs not applicable to the NYISO system.
 - Scope of POIs included in the system representation.

First-Ready, First-Served Cluster Study Process

Cluster Study Process

Order No. 2023 Requirements

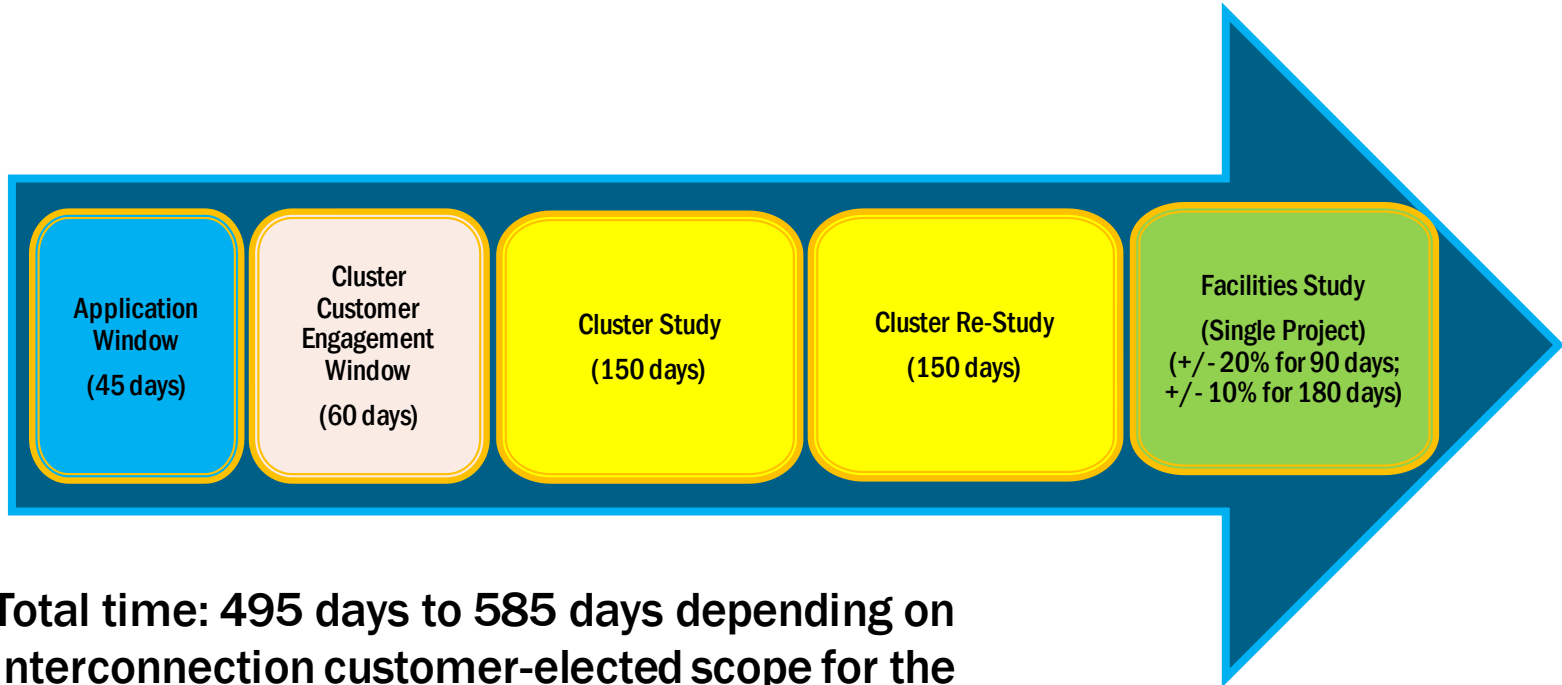
- Requires larger, clustered interconnection studies of numerous proposed generating facilities vs. separate studies for each individual generating facility.
- Establishes firm study deadlines, eliminates the "Reasonable Efforts" standard, and establishes fines for studies that exceed the study deadlines.
- Subjects' interconnection customers to more stringent requirements, including financial deposits and site control conditions, to enter and remain in the interconnection queue.

Cluster Study Process (Cont.)

Order No. 2023 Requirements

- **Adopts a first-ready, first-served cluster study process:**
 - Cluster SRIS study + Cluster SRIS re-study + Individualized facilities study.
- **Firm study deadlines:**
 - 150 calendar days to complete cluster study including the time required to develop system models and base case data (the same deadline for cluster re-study).
 - 90 calendar days or 180 calendar days to complete an individual facilities study (depending on cost estimate margin of accuracy elected by the interconnection customer).
- **The cluster request window will have an annual start date following the transition period.**
- **Clarifies queue position and priority rules and material modification rules associated with the cluster window approach.**
 - All projects in the same queue request window are considered “equally queued.”

Order No. 2023 Cluster Study Timeline



Total time: 495 days to 585 days depending on interconnection customer-elected scope for the Facilities Study

Cluster Study Process – Cluster Request Window

Order No. 2023 Requirements

- **45-day annual cluster request window, with the start date determined by the Transmission Provider.**
- **Transmission Provider has 5 business days to acknowledge receipt of the application request and provide any deficiency notice.**
- **Interconnection Customer must cure any deficiencies within the shorter of 10 business days or the close of the cluster request window.**
 - An Interconnection Customer who submits an Interconnection Request less than 10 business days before the close of the cluster request window will only have the remaining days left in the cluster request window to respond to any deficiencies.
 - Example: Interconnection Customer submits a request with only seven business days left before the close of the annual cluster request window:
 - Transmission Provider still has five business days to respond to the request and provide a deficiency notice.
 - Interconnection Customer may only have two business days to cure deficiencies before the application window closes.

Cluster Study Process – Interconnection Request

Order No. 2023 Requirements

- **Interconnection Customer must submit an Interconnection Request during the specified application window.**
 - Interconnection Customer must select a definitive POI when executing the cluster study agreement.
 - Transmission Provider may propose reasonable changes with the consent of Interconnection Customer when clustering Interconnection Requests.
- **Interconnection Customer must submit a non-refundable \$5000 application fee.**
- **Interconnection customers are required to demonstrate 90% site control**
 - 100% required at the facilities study agreement execution stage.
 - No longer an option to post a deposit in lieu of site control unless the project has a "regulatory limitation" -- a federal, state, Tribal, or local law that makes it practically infeasible to obtain site control within the required time frame.
 - The Transmission Provider is required to publicly post technology-specific acreage requirements.

Cluster Study Process – Customer Engagement Window

Order No. 2023 Requirements

- **Transmission Provider must post the new cluster member list within the first 10 business days of the customer engagement window with the following information for each cluster member:**
 - The requested amount of Interconnection Service;
 - The location by county and state;
 - The station or transmission line or lines where the interconnection will be made;
 - The projected In-Service Date;
 - The type of Interconnection Service requested; and
 - The type of Generating Facility or Facilities to be constructed, including fuel types
- **Project information must be anonymized to not disclose the identity and commercial information of the Interconnection Customers.**

Cluster Study Process – Customer Engagement Window, (Cont.)

Order No. 2023 Requirements

- Transmission Providers must hold a group scoping meeting during the customer engagement window with all interconnection customers whose Interconnection Requests were received in that cluster request window.
- Non-disclosure agreements must be executed to ensure confidentiality amongst the interconnection customers within the cluster
- During this window, the Interconnection Customer can assess the expected costs of potential network upgrades and the impact of those costs on the viability of its proposed generating facility in the context of the size and location of other Interconnection Requests in the cluster. If the Interconnection Customer determines to withdraw during the customer engagement window, they will not incur a penalty.

Cluster Study Process – Study Scope

Order No. 2023 Requirements

- Order permits Transmission Providers to use subgroups in their cluster study process if they so choose.
- The cluster study will consist of power flow, short circuit, and stability analyses.
- Transmission Providers have the discretion to determine the particular methods of study appropriate for their transmission systems.
- 150-calendar day deadline includes the time required to develop system models and base case data for the cluster study.
- If there are no changes to the composition of the cluster, a cluster re-study is not required.

Cluster Study Process – Cost Allocation for Upgrades

Order No. 2023 Requirements

- **Costs of upgrades located at POI substations, including switchyard stations (Substation Network Upgrades) and interconnection facilities are to be allocated on a per capita basis for each project using the facilities.**
- **Costs of other upgrades (System Network Upgrades) are to be allocated using a proportional impact method.**
- **Tariff must describe how the costs for each type of upgrade would be allocated among Interconnection Customers in the cluster.**
 - E.g., tariff must describe allocation for upgrades caused by voltage support, short-circuit analysis, etc.
 - Technical details of methodology can be included in manuals.

Cluster Study Process – Study Costs

Order No. 2023 Requirements

- **Cost of cluster studies to be allocated on a combination pro rata and per capita basis:**
 - 90% of study costs are allocated pro rata on a MW basis
 - 10% of study costs allocated per capita based on the number of interconnection requests in the cluster

Cluster Study Process – Cluster Restudy

Order No. 2023 Requirements

- **Restudies can be triggered by a withdrawal or modification by a higher- or equally queued Interconnection Request.**
 - If there are no changes to the composition of the cluster, a cluster re-study is not required.
- **Transmission Providers have flexibility on how and whether to conduct a re-study and the scope and frequency of any re-study.**
 - Allows Transmission Provider flexibility to assess whether the re-study is necessary.

Individual Facilities Study

Order No. 2023 Requirements

■ Individual Facilities Study

- Consistent with FERC pro forma LGIP, this is an individual (not clustered) study
- NYISO previously obtained independent entity variations to accommodate the clustered Class Year Facilities Study

■ Timeline:

- **90 calendar days** – if interconnection customer elects +/- 20% accuracy margin;
or
- **180 calendar days** - if interconnection customer elects +/- 10% accuracy margin

Interconnection Agreement (LGIA)

Order No. 2023 Requirements

■ Requires 100% site control

- The option to post \$250,000 of non-refundable security in lieu of site control at LGIA execution has been eliminated.

■ LGIA Deposit Requirement

- Deposit that will increase the total commercial readiness deposit paid to be equal to 20% of the estimated network upgrade costs identified in the LGIA.
- Fully refundable once the generating facility achieves commercial operation.
- Deposit will be used as part of the required security Interconnection Customers must provide for the construction of network upgrades and Transmission Provider's interconnection facilities.

Interconnection Agreement (LGIA) Cont.

Order No. 2023 Requirements

- **60-day Interconnection Agreement negotiation time-period**
 - This change aligns two provisions in the FERC *pro forma* LGIA that do not exist in the NYISO version of this provision.
 - The FERC *pro forma* LGIA provides two alternatives for tender and negotiation of the LGIA with different negotiation time periods. Order No. 2023 revisions seek to account for these two different potential negotiation time periods by establishing a 60-day negotiation period.
 - The NYISO's OATT does not include these two alternatives. The NYISO tariff allows for a six-month negotiation period whether the period begins after the Class Year Study is complete or, at the developer's request, after the developer executes the Class Year Study Agreement.

Modifications and Commercial Operation Date Extensions

Order No. 2023 Requirements

■ Modifications

- Order No. 2023 limits permissible modifications, allowing only modifications explicitly permitted in the tariff and modifications that do not trigger a restudy.

■ Commercial Operation Date Extensions

- Once an LGIA is executed or requested that the LGIA be filed unexecuted, the date of execution will be the date from which the fewer than three cumulative years of the generating facility's commercial operation date is calculated.

Cluster Study Process – Compliance

NYISO Requests for Rehearing and Clarification

- Requested rehearing to permit each Transmission Provider to establish firm interconnection study deadlines that are tailored to specific study scopes and circumstances for each region rather than one-sized-fits-all timeframes
- Requested rehearing to eliminate the requirement that Transmission Providers must post an anonymized list of projects eligible to participate in the cluster study.
- Requested clarification that Interconnection Customers only get one opportunity to correct deficiencies in its Interconnection Request and that the Commission did not intend for that cure period to be extended.

NYISO Preliminary Compliance Approach

- Independent entity variation to include, for example:
 - Cluster Study with enhanced scope (including physical feasibility)
 - Clustered facilities study rather than individual facilities studies

More Stringent Financial Commitments and Commercial Readiness Requirements

Increased Study Deposits

Order No. 2023 Requirements

- **Increased study deposits based on the size of the generating facility**
 - Interconnection Customers must provide a one-time study deposit in the amount detailed in the below table. NYISO's current process requires various study deposits across OFES, SIS, and Class Year.
 - Interconnection Customers are not required to be invoiced monthly.
 - Amounts will be trued up and any excess funds will be refunded once the Interconnection Customer executes the LGIA (or unexecuted LGIA).

Project MW Size	Deposit
> 20 MW < 80 MW	\$35,000 + \$1,000/MW
≥ 80 MW < 200 MW	\$150,000
≥ 200 MW	\$250,000

Commercial Readiness Deposits

Order No. 2023 Requirements

- **An Interconnection Customer is required to provide a commercial readiness deposit at the beginning of each study phase (cluster, cluster re-study, facilities study) and upon execution (or request to file unexecuted) of the IA.**
 - To enter cluster study: 2x study deposit amount
 - To enter cluster re-study: bring the total amount of deposit to 5% of the project's upgrade cost determined in cluster study
 - To enter facilities study: bring the total amount of deposit to 10% of the project's upgrade cost determined in, as applicable, cluster or cluster re-study

Commercial Readiness Deposits (Cont.)

Order No. 2023 Requirements

- **To execute (or request unexecuted) LGIA: bring the total amount of deposit to 20% of the project's upgrade cost determined in the LGIA.**
 - The 20% deposit will be used to satisfy part of the security the Interconnection Customer must provide under the LGIA for the construction of upgrades and interconnection facilities, which deposit can be drawn on by the Transmission Provider.
 - The deposit could be refunded subject to withdrawal penalties.
- **These deposits are not additive to the first deposit provided for the cluster study, rather Interconnection Customer must only true up any difference to the applicable 5%, 10%, or 20% amount.**

Withdrawal Penalties

Order No. 2023 Requirements

- **With limited exceptions, Transmission Provider to assess a withdrawal penalty if:**
 - Developer withdraws, is withdrawn, or otherwise does not meet commercial operation and
 - Transmission Provider determines this withdrawal has a material impact on the cost or timing of other equal or lower queue projects.
- **Exemptions from these withdrawal penalties if Interconnection Customer withdraws after receiving:**
 - Cluster study report with 25% increase in upgrade costs from prior cluster report, or
 - Individual facilities study report with more than 100% increase from cluster report.

**Penalty amount will be the greater of:
(i) the study deposit and (ii) the following:**

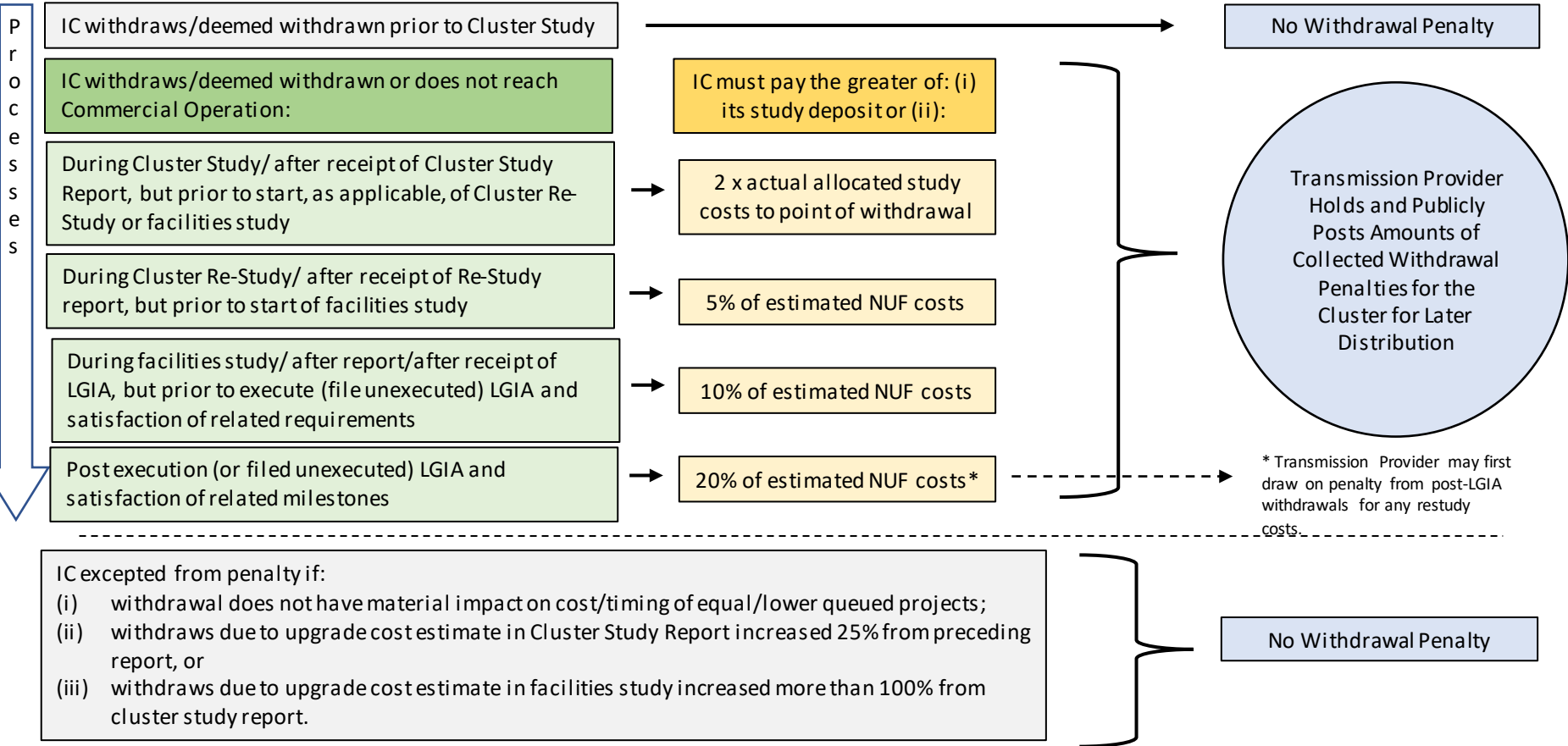
Phase of Withdrawal	Total Withdrawal Penalty (if greater than study deposit)
Initial Cluster Study	2 times study costs
Cluster Restudy	5% of network upgrade costs
Facilities Study	10% of network upgrade costs
After execution of (or request to file unexecuted) LGIA	20% of network upgrade costs

Withdrawal Penalties (Cont.)

Order No. 2023 Requirements

- **Withdrawal penalty funds will be allocated as follows:**
 - First, funds will apply to cluster study/re-study costs conducted for the same cluster;
 - Remaining funds will then offset net increases in network upgrade cost responsibility for Interconnection Customers that shared the obligation to fund an upgrade with the withdrawn project(s.)
 - Any remaining funds thereafter will be refunded to the withdrawing Interconnection Customer (if the Interconnection Customer withdrew before it executed its LGIA or requests to file its LGIA unexecuted).
- **Transmission Provider will distribute penalty amounts after all Interconnection Customers in the cluster have withdrawn/been deemed withdrawn or executed (or requested unexecuted) an interconnection agreement.**
- **Balance of withdrawal penalty funds held by the Transmission Provider but not yet dispersed shall be posted on the Transmission Provider's OASIS site and updated on a quarterly basis.**

Withdrawal Penalties – Order No. 2023 Requirements



Withdrawal Penalties – Compliance

■ NYISO Request for Rehearing and Clarification

- The NYISO raised the following points in its motion for rehearing and clarification on the withdrawal penalty structure :
 - The multi-prong withdrawal penalty structure is overly complicated.
 - It is administratively burdensome to implement to the detriment of timely study work (including the materiality threshold requirement).
 - The penalties should not exceed the amount secured by Transmission Providers.
 - Clarification on the timeframes for specific withdrawal penalty application process steps and which studies the distribution of penalties should be applied to (Cluster Study costs or all interconnection studies – e.g., Cluster re-studies and Interconnection Facilities Study).

Withdrawal Penalties – Compliance (Cont.)

- **NYISO Preliminary Compliance Approach**
 - Contemplating independent entity variations, including, e.g.,:
 - Monthly invoicing for study costs (not drawing down from study deposit).
 - Alternative withdrawal penalty framework.
 - Requirement/timing for regulatory/permitting milestone, if any.

Reforms to Increase the Speed of Interconnection Queue Processing

Reforms to Increase the Speed of Interconnection Queue Processing

Order No. 2023 Requirements

- The final rule imposes firm deadlines and establishes penalties if Transmission Providers fail to complete interconnection studies on time.
- Transmission Providers may appeal their penalties at the Commission.
- The final rule establishes a detailed affected systems study process, including uniform modeling standards and pro forma affected system agreements.

Fines on Transmission Providers for Study Delays

Order No. 2023 Requirements

- Eliminates the Reasonable Efforts standard for the performance of LGIP interconnecting studies and instead imposes firm deadlines for Transmission Providers to complete the studies.
- Imposes fines on Transmission Providers for each business day the study is delayed ranging from \$1,000/day to \$2,500/day.
- Penalty will be imposed on the Transmission Provider or TO that is responsible for conducting the late study.

Fines on Transmission Providers for Study Delays (Cont.)

Order No. 2023 Requirements

Study	Study Period	Penalty for Delay
Cluster Study	150 calendar days	\$1,000 per business day
Cluster Re-Study	150 calendar days	\$2,000 per business day
Affected System Study	150 calendar days	\$2,000 per business day
Individual Facilities Study	(+/- 20% estimate) 90 calendar days (+/- 10% estimate) 180 calendar days	\$2,500 per business day

Fines on Transmission Providers for Study Delays (Cont.)

Order No. 2023 Requirements

- Penalties will not be assessed on Transmission Providers until the third cluster study cycle (including any transitional cluster study cycle but not transitional serial studies) after FERC-approved effective date of Transmission Providers compliance filing.
- 10 business day grace period before penalties begin to accrue. However, the penalty amount is calculated from the first business day past the study deadline.
- Transmission Providers may extend the deadline of a particular study by 30 days with mutual agreement from all Interconnection Customers with Interconnection Requests in the relevant study.

Fines on Transmission Providers for Study Delays (Cont.)

Order No. 2023 Requirements

- Study delay penalties will be capped at 100% of the total study deposit received for the late study (to provide a safeguard against overly large penalties that may be considered punitive).
- Transmission Providers must pay the penalty for each late study on a *pro-rata* basis per Interconnection Request to:
 - All Interconnection Customers or affected system Interconnection Customers included in the relevant study that did not withdraw or were not deemed withdrawn, from the interconnection queue before the missed study deadline.

Fines on Transmission Providers for Study Delays (Cont.)

Order No. 2023 Requirements

- **Transmission Providers can appeal study delay penalties to FERC with FERC determining whether good cause exists to grant the relief requested on appeal.**
- **Non-RTO/ISO Transmission Providers and transmission-owning members of RTOs/ISOs may not recover study delay penalties through transmission rates.**
- **Transmission Provider quarterly reporting requirement to provide:**
 - The total amount of study delay penalties from the previous reporting quarter; and
 - The highest study delay penalty paid to a single Interconnection Customer in the previous reporting quarter.

Fines on Transmission Providers for Study Delays – Compliance

■ Requests for Rehearing/Clarification

- Requested rehearing of the strict liability penalty regime applied to NYISO and other similarly situated RTOs/ISOs that have no ability to recover penalty costs except using funds that come from customers.
- If FERC keeps the strict liability penalty regime, requested clarification that (i) RTOs/ISOs may recover penalty costs from consumers through non-transmission related charges without first seeking the Commission’s permission in accordance with Order 2023; (ii) permit penalty waivers in cases when it is difficult to determine parties to blame for missed study deadlines; and (iii) permit RTOs/ISOs to include default structure proposals for recovering penalty costs in their compliance filing.

■ NYISO Preliminary Compliance Approach

- Independent entity variation to align study deadlines to proposed cluster study scopes.

Revisions to Affected System Study Process

Order No. 2023 Requirements

- Requires a more structured process including:
 - Initial notification,
 - Affected system scoping meeting,
 - Study process,
 - Cost allocation,
 - Study results and assessment, and
 - Financial penalties assessment.
- Requires a *pro forma* affected system study agreement and a *pro forma* affected systems facilities construction agreement.
- Affected systems study must be completed by the affected system Transmission Provider and provide the results to the affected Interconnection Customer(s) within 150 calendar days upon receipt of the affected system study agreement and deposit.

Revisions to Affected System Study Process (Cont.)

Order No. 2023 Requirements

■ Process Steps:

- Transmission Provider alerts the affected system operator of an identified potential affected system impact at the completion of the cluster study or re-study.
- Transmission Provider must alert the affected system operator within 10 business days of the initial trigger event.
- Affected system operator must respond to Transmission Provider's notification, in writing within 20 business days indicating whether it intends to conduct an affected system study.
- Affected system Transmission Provider must share a non-binding good faith estimate of the cost and schedule with the host Transmission Provider to complete the affected system study within 15 business of its acknowledgment to conduct the affected system study.
- Interconnection Customers impacted by the affected systems study that has not executed an LGIA will have 30 calendar days after receipt of the affected system study report to execute the LGIA (or request it be filed unexecuted).
 - Alternatively, the Interconnection Customer can proceed to execute the LGIA (or file unexecuted) prior to receiving the affected system study results.

Revisions to Affected System Study Process

- **NYISO Preliminary Compliance Approach**
 - The NYISO will first coordinate with PJM, ISO-NE, and potentially IESO and HQ, to develop Affected System Study procedures to then vet with stakeholders.

Alternative Transmission Technologies

Order No. 2023 Requirements

- **Requires Transmission Provider to evaluate alternative transmission technologies in its cluster studies in the LGIP and in the feasibility study and system impact study in the Small Generator Interconnection Procedures (SGIP).**
- **Examples of alternative transmission technologies:**
 - Static synchronous compensators
 - Static VAR compensators
 - Advanced power flow control devices
 - Transmission switching
 - Synchronous condensers
 - Voltage source converters
 - Advanced conductors
 - Tower lifting

Reforms to Incorporate Technical Advancement to the Interconnection Process

Co-located Generating Facilities

Order No. 2023 Requirements

- **Co-located generating facilities**
 - Requires Transmission Providers to allow more than one generating facility to co-locate on a shared site behind a single point of interconnection and share a single Interconnection Request.

- **Addition of generating facility to existing Interconnection Request**
 - Allows Interconnection Customers to add a generating facility to an existing Interconnection Request under certain circumstances without such a request being automatically deemed a material modification.

Energy Storage Operating Assumptions

Order No. 2023 Requirements

- **Requires Transmission Providers to use operating assumptions in interconnection studies that reflect the proposed charging behavior of electric storage resources, unless good utility practice otherwise requires the use of different operating instructions.**
 - That is - whether the interconnecting resource will or will not charge during peak load conditions.
 - The operating requirements, including any control technologies, can be memorialized in the interconnection agreement.

Modeling and Performance Requirements for Non-synchronous Generating Facilities

Order No. 2023 Requirements

■ Modeling Requirements

- Each Interconnection Customer requesting to interconnect a non-synchronous generating facility must submit the following:
 - A validated user-defined RMS positive sequence dynamic model;
 - An appropriately parameterized generic library RMS positive sequence dynamic model, including a model block diagram of the inverter control system and plant control system, that corresponds to a model listed in a new table of acceptable models or a model otherwise approved by WECC; and
 - A validated EMT model, if the Transmission Provider performs an EMT study as part of the interconnection study process.

Modeling and Performance Requirements for Non-synchronous Generating Facilities (Cont.)

Order No. 2023 Requirements

■ Ride-Through Requirements

- During abnormal frequency conditions and voltage conditions, the generator must ensure that within any physical limitations of the generating facility, its control and protection settings are configured or set to:
 - Continue active power production during disturbance and post-disturbance periods at pre-disturbance levels unless providing primary frequency response or fast frequency response;
 - Minimize reductions in active power and remain within dynamic voltage and current limits, if reactive power priority mode is enabled (unless providing primary frequency response or fast frequency response);
 - Not artificially limit dynamic reactive power capability during disturbances; and
 - Return to pre-disturbance active power levels without artificial ramp rate limits if active power is reduced unless providing primary frequency response or fast frequency response.

Reforms to Incorporate Technical Advancements to the Interconnection Processing - Compliance

- **NYISO Request for Rehearing**

- Request to remove the requirement that the Transmission Provider must, at an Interconnection Customer's request, use operating assumptions for the proposed charging behavior of an electric storage resource. This creates conflicts with market rules and adds additional complexity to interconnection studies at odds with the intent of Order No. 2023 to expedite these studies.

- **NYISO Preliminary Compliance Approach**

- Co-located generating facilities: independent entity variation to align with NYISO's CSR/HSR rules.
- Energy storage operating assumptions: independent entity variation to align with interconnection study assumptions consistent with NYISO market rules.
- Alternative transmission technologies: NYISO is already in compliance with this requirement.
- Modeling and performance standards and ride-through requirements for non-synchronous generating facilities: No independent entity variation anticipated.

Transition Process

Transition Process

- **Order No. 2023 provides for three options that can be exercised depending on the progress of the Interconnection Request:**
 - 1) Interconnection Customers that have been tendered facilities study agreements by the Transmission Provider may proceed to a transitional serial study (a facilities study) or may opt to move to the transitional cluster study.
 - 2) Interconnection Customers in the interconnection queue that have not been tendered a facilities study agreement (have not completed the system impact study) will be eligible for the transitional cluster study.
 - 3) All other Interconnection Customers will be subject to the new interconnection procedures.
- **Compliance filing to indicate a number of calendar days after the conclusion of the transition study is that the first standard cluster study will begin.**

Next Steps

Next Steps

- **NYISO anticipates filing a Motion for Extension of the Compliance Deadline after the Order is published in the Federal Register**
 - Compliance deadline is 90 days from the date of publication.
- **Compliance proposals to be discussed in increasing detail at future meetings**
 - NYISO is looking into scheduling dedicated meetings (e.g., Interconnection Issues Task Force) in the afternoons of days on which there are regularly scheduled TPAS meetings.
 - Meetings dedicated only to Queue Reform and Order No. 2023 compliance.

Questions?

Roles of the NYISO

- **Reliable operation of the bulk electricity grid**
 - Managing the flow of power on 11,000 circuit-miles of transmission lines from hundreds of generating units
- **Administration of open and competitive wholesale electricity markets**
 - Bringing together buyers and sellers of energy and related products and services
- **Planning for New York's energy future**
 - Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs
- **Advancing the technological infrastructure of the electric system**
 - Developing and deploying information technology and tools to make the grid smarter

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