

# Order No. 1920 Long-Term Regional Transmission Planning: Preliminary Proposal

---

Yachi Lin

Director, System Planning

**Transmission Planning Advisory Subcommittee/Electric System Planning  
Working Group**

January 21, 2025

# Agenda

- **Order Nos. 1920 and 1920-A Reforms**
- **Preliminary Proposal**
- **Next Step**

# NYISO's Targeted Order No. 1920 Compliance Development Schedule

- **January 2025 – June 2025: Develop and refine compliance straw proposal, as applicable, and prepare tariff**
- **June 12, 2025: Submit compliance filing on regional planning requirements**
- **August 12, 2025: Submit compliance filing on interregional planning requirements**

# Order Nos. 1920 and 1920-A Reforms

# Order Nos. 1920 & 1920-A - Overview

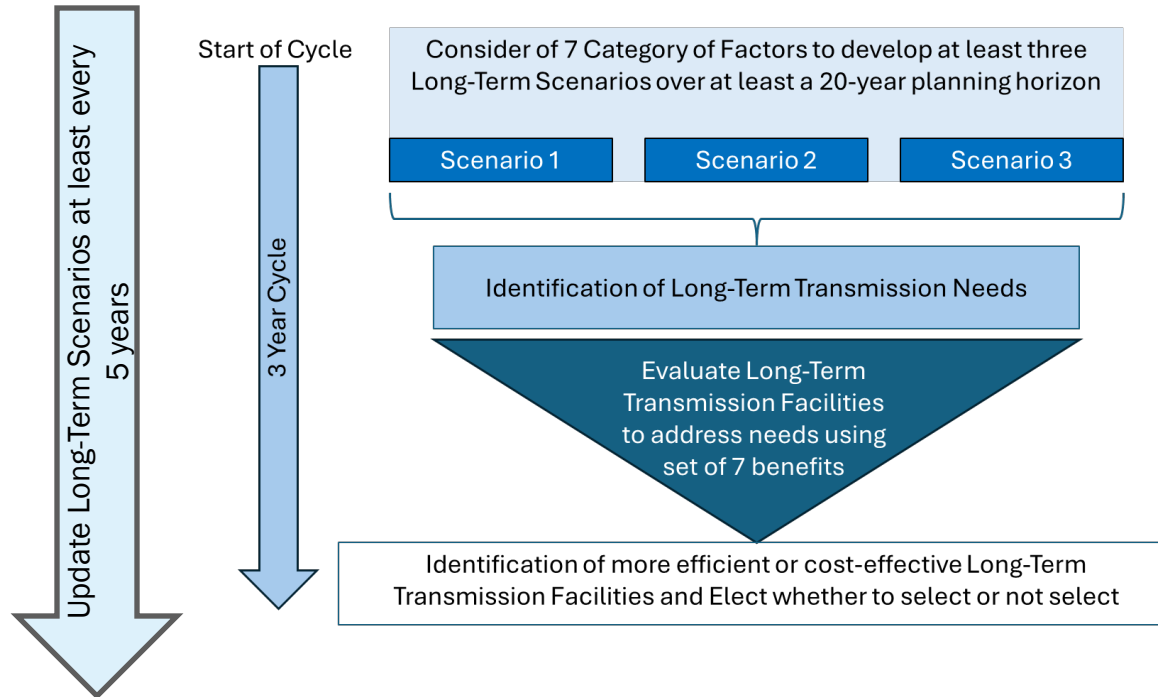
- On May 13, 2024, FERC issued Order No. 1920—a final rule in its Building for the Future Through Electric Regional Transmission Planning and Cost Allocation proceeding (Docket No. RM21-17-000).
- Order No. 1920 builds on FERC’s Order Nos. 890 and 1000 and represents the most significant reform to the FERC’s transmission planning requirements in over a decade.
- The primary focus of the reforms is the adoption of a new Long-Term Regional Transmission Planning process to establish “sufficiently long-term, forward-looking, and comprehensive transmission planning requirements.”
- On November 21, 2024, FERC issued Order No. 1920-A. While the Order No. 1920-A largely leaves the original rule intact, it enhances the role of Relevant State Entities in the Long-Term Regional Transmission through the incorporation of state in put on scenarios and requires the filing of any *ex ante* cost allocation method agreed to by the Relevant State Entities.
- Throughout the presentation, the NYISO’s reference to “Order No. 1920” will refer to Order Nos. 1920 and 1920-A, interchangeably, unless specifically noted.

# Order No. 1920 – Key Reforms

- Development of a Long-Term Regional Transmission Planning process
- Development of *ex ante* cost allocation methodologies to allocate the costs of selected transmission projects for addressing Long-Term Transmission Needs
- Consider use of grid enhancing technologies as transmission solutions in the Long-Term Regional Transmission Planning and existing planning processes
- Consider transmission facilities to address interconnection-related needs identified multiple times in the interconnection process but not built
- Enhance the stakeholder process for reviewing local transmission planning
- Provide for the potential opportunity to “right size” certain transmission facilities that the transmission owner anticipates replacing with an in-kind replacement transmission facility and establish a federal right of first refusal for the transmission owner to develop such right-sized replacement transmission facilities

\*NYISO provided a summary of Order No. 1920 at the TPAS/ESPPG on August 6, 2024, which is available at: [https://www.nyiso.com/documents/20142/46217988/13\\_Order%20No%201920%20ESPPG%20Summary\\_20240806\\_final.pdf/](https://www.nyiso.com/documents/20142/46217988/13_Order%20No%201920%20ESPPG%20Summary_20240806_final.pdf/)

# General Flow of Order No. 1920 Long-Term Regional Transmission Planning Rules



# Cost Allocation Methodologies

- **Order No. 1920 requires a transmission provider to establish in its OATT one or more ex ante cost allocation methodologies for Long-Term Regional Transmission Facilities that it selects for purposes of cost allocation.**
- **The proposed methodologies must generally satisfy FERC’s existing cost allocation principles.**
- **The transmission provider is permitted to include a “State Agreement Process” through which relevant state entities may agree to a cost allocation method either before or not later than six months after the selection of a transmission facility.**
  - Adoption of a “State Agreement Process” methodology does not eliminate the need to include a default cost allocation methodology in the OATT.
- **A transmission provider must establish a six-month engagement period with the Relevant State Entities prior to its compliance filing to provide a forum for negotiating a cost allocation methodology or State Agreement Process for cost allocation.**
  - The transmission provider is, however, ultimately responsible for determining the cost allocation method for inclusion in its OATT.
- **Transmission providers cannot allocate all costs of Long-Term Regional Transmission Facilities on the basis of public policy benefits, if doing so ignores economic and reliability benefits associated with those facilities.**



# Order No. 1920: Categories of Factors

## Key Driving Factors

1 Federal, state and local laws and regulations affecting resource mix and demand

2 Federal, state and local laws and regulations on decarbonization and electrification

3 State-approved integrated resource plans

\* Transmission providers must account for, be consistent with, and not discount, these three categories for factors in each Long-Term Scenario

## Other Driving Factors

4 Trends in fuel costs and in the cost, performance, and availability of generation, electric storage resources, and building and transportation electrification technologies

5 Resource retirements

6 Generator interconnection requests and withdrawals

7 Utility, federal, federally recognized Tribal, state, and local policy goals that affect Long-Term Transmission Needs

\*\* Transmission providers have greater flexibility and can assess the likelihood that the factors will be achieved and can discount or place more weight on certain factors

## Long-Term Scenarios

# Evaluation of Long-Term Regional Transmission Facilities

- The transmission provider must use and measure, at a minimum, the seven specified benefits to evaluate Long-Term Regional Transmission Facilities.
- The benefits must be measured over a time horizon that covers, at a minimum, 20 years starting from the estimated in-service date of the Long-Term Regional Transmission Facilities.

1 Avoided or deferred reliability transmission facilities and aging infrastructure replacement

2 Benefit that can be characterized and measured as either reduced loss of load probability or reduced planning reserve margin

3 Production Cost Savings

4 Reduced transmission energy losses

5 Reduced congestion due to transmission outages

6 Mitigation of extreme weather events and unexpected system conditions

7 Capacity cost benefits from reduced peak energy losses

# Relevant State Entities

- **Definition: any state entity responsible for electric utility regulation or siting electric transmission facilities within the state or portion of a state located in the transmission planning region, including any state entity as may be designated for that purpose by the law of such state**
- **Two Relevant State Entities: New York State Department of Public Services and Long Island Power Authority**
- **The engagement period for the purpose of cost allocation had started on November 25, 2024, and will end May 31, 2025**

# Required Relevant State Entities Involvement in Order No. 1920

Order No. 1920 requires transmission providers to include and consider the perspective of Relevant State Entities in multiple ways, including:

- to consult with and consider the positions of the Relevant State Entities and any other entity authorized by a Relevant State Entity as its representative as to how to account for factors related to the states' laws, policies, and regulations when determining the assumptions that will be used in the development of Long-Term Scenarios;
- to include any Long-Term Regional Transmission Cost Allocation Method and/or State Agreement Process that Relevant State Entities agree to in the transmittal letter or as an attachment to their compliance filings, even if the transmission provider does not agree to adopt it;
- to consult with Relevant State Entities (a) prior to amending the *ex ante* Long-Term Regional Transmission Cost Allocation Method(s) and/or State Agreement Process(es) agreed to by Relevant State Entities or (b) if Relevant State Entities seek for a transmission provider to amend the method on file;
- to develop a reasonable number of additional scenarios, when requested by Relevant State Entities, for the purposes of informing the application of Long-Term Regional Cost Allocation Method(s) or the development of cost allocation methods through the State Agreement Process(es); and
- to make available, on a password-protected portion of OASIS or other password-protected website, a breakdown of the allocated costs, by zone and a quantification of the benefits imputed to each zone, as such benefits can be reasonably estimated, when a cost allocation method is agreed upon under a State Agreement Process or, if no State Agreement Process is used, at the time the transmission provider selects the Long-Term Regional Transmission Facility.

# Preliminary Proposal

# Preliminary Proposal

- **The purpose of this preliminary proposal is to assist the NYISO in developing its initial compliance approach and to initiate discussion and solicitation of feedback from stakeholders.**
- **The NYISO is considering an overall structure that would include a new Long-Term Process that largely repurposes elements of its current Economic Planning Process and Public Policy Transmission Planning Process (“Public Policy Process”), while maintaining the reliability studies as separate processes.**
  - Specifically, the current System & Resource Outlook (“Outlook”) would serve as the core assessment and analysis element of the new Long-Term Process.
  - The repurposed Outlook would address the development and evaluation of scenarios and the identification of potential Long-Term Transmission Needs.
  - NYISO is also considering using many of the elements of the current Public Policy Process, such as soliciting inputs for the development of scenarios from interested parties and for soliciting, evaluating, and selecting transmission solutions to any identified Long-Term Transmission Needs.

# Preliminary Proposal

- **Reliability Planning Process and Short-Term Reliability Planning Process would remain stand-alone processes to address reliability needs in a timely manner.**

# Preliminary Proposal

Major Steps	Process Steps
<b>Prepare and Evaluate Long-Term Scenarios for Transmission Need(s) (“Outlook”)</b>	Develop Long-Term Scenarios based on the 7 categories of factors
	Conduct analysis to identify long-term transmission expansion opportunities
	Develop <b>high-level bulk</b> conceptual transmission approaches
	Finalize the catalog of potential Long-Term Transmission Need(s); seek stakeholder advisory vote and Board approval
<b>Identify Long-Term Transmission Need(s)</b>	PSC and/or NYISO Board of Director act to confirm the identified potential Long-Term Transmission Need(s)
<b>Solution Solicitation, Evaluation &amp; Selection Long-Term Regional Transmission Facility(ies)</b>	Solicit solutions to the identified Long-Term Transmission Need(s)
	Evaluate transmission solutions using the 7 categories of benefits and any additional selection metrics
	Board review and determination of whether or not to select Long-Term Regional Transmission Facility



# Major Challenge: Three-Year Requirement

- Order No. 1920 requires the transmission provider (*i.e.*, NYISO) to complete the Long-Term Process within three years. This three-year period begins with creation of the Long-Term Scenarios and ends with a determination by the transmission provider to select or not select a Long-Term Regional Transmission Facility.
- NYISO is still considering the three-year versus five-year requirements.

# Why is the three-year requirement a major challenge?

- The scope of the Long-Term Regional Transmission Planning required by Order No. 1920 is much broader than the combination of the current Outlook and Public Policy Process—more factors to consider, more scenarios required, and more evaluation metrics.
- Similar to its Public Policy Process, NYISO anticipates that the NYPSC will play a role in the new Long-Term Process in addition to those specified in Order No. 1920, such as the ability to identify transmission needs. However, such involvement adds time to process due to, for example, compliance with the notice/timing rules of the State Administrative Procedure Act (SAPA).

# Proposed Timing Measures for Efficient Long-Term Process

- **Simply combining the Outlook and Public Policy Process would take nearly 4 years, without considering the expanded scope required by the Order No. 1920.**
  - Public Policy Process Average Time = 2 year 8 months
  - Outlook Average Time to Completion = 1 year 2 months
  - This is based on the NYISO-only work scope and does not account for the time currently required for third-party action, such as the NYPSC to issue the Public Policy Transmission Need order.
  - Additional details are appended to this presentation.
- **NYISO is considering the following measures to gain efficiency to shrink the timeframe to fit within 3 years:**
  - Pre-process:
    - solicit information and feedback on the factors prior to the start of the Long-Term Process
    - NYISO prepares the databases and factors
  - During the process:
    - develop conceptual bulk transmission approaches to address potential Long-Term Transmission Needs
    - not include a separate process point for viability & sufficiency assessment
- **Even with these process efficiencies, a 3-year period will be challenging.**

# Step 0: Solicit Factors that may impact Long Term Transmission Need(s)

- **NYISO solicits factors that may affect Long Term Transmission Need(s):**
  - NYISO, in collaboration with stakeholders and Relevant State Entities, would solicit factors that may affect Long Term Transmission Need(s).
  - These factors are likely to be key assumptions in the Long-Term Scenarios analyzed (e.g., load forecast, firm generation/transmission projects, etc.). The factor requirements are described in the following slides.
  - This step would also replace the current Public Policy Transmission Need solicitation every two years.

# Driving Factors

- **Transmission providers have the flexibility to develop different Long-Term Scenarios specific to their transmission planning region and develop assumptions based on the categories of factors but do not have flexibility to choose which of the proposed categories of factors to incorporate into Long-Term Scenarios.**
- **Transmission providers cannot exclude some of the proposed categories of factors from being incorporated in the development of Long-Term Scenarios.**
- **Where factors may have overlapping effects on the planning assumptions, Transmission providers must avoid double counting the effect of those factors on assumptions used to develop Long-Term Scenarios.**

# Key Driving Factors 1, 2 and 3

## Key Driving Factors

1 Federal, state and local laws and regulations affecting resource mix and demand

2 Federal, state and local laws and regulations on decarbonization and electrification

3 State-approved integrated resource plans

\* Transmission providers must account for, be consistent with, and not discount, these three categories for factors in each Long-Term Scenario

- **Factors 1 and 2:**
  - Work with Relevant State Entities to ensure that the identified state laws and regulations are incorporated into Long-Term Scenarios in a way reflect the state’s preferred implementation of those laws and regulations
  - “Laws and regulations” are namely “enacted statutes (i.e., passed by the legislature and signed by the executive) and regulations promulgated by a relevant jurisdiction” at the federal, federally-recognized Tribal, state, and local levels
- **Factor 3: State-approved integrated resource plans broadly include any resource plan developed and reviewed through a retail commission proceeding and submitted to the relevant transmission provider for use in a Long-Term Regional Transmission Planning**

# Factors 4, 5, 6, and 7

4	Trends in fuel costs and in the cost, performance, and availability of generation, electric storage resources, and building and transportation electrification technologies
5	Resource retirements
6	Generator interconnection requests and withdrawals
7	Utility, federal, federally recognized Tribal, state, and local policy goals that affect Long-Term Transmission Needs

\*\* Transmission providers have greater flexibility and can assess the likelihood that the factors will be achieved and can discount or place more weight on certain factors

- **Factor 5: Transmission providers must account for likely resource retirements beyond those that have been publicly announced**
  - Example methods: generating facility’s age, its emissions profile, its projected costs and revenues, and any applicable laws and regulations that may affect a generating facility’s continued operation over the transmission planning horizon
- **Factor 6: Transmission providers have discretion and can also account for uncertainty by discounting or putting more weight on the anticipated effects on Long-Term Transmission Needs**
- **Factor 7: Transmission providers have discretion and can account for the uncertainty associated with the achievement of these commitments and goals**
  - Order No. 1920-A set aside the requirement to incorporate corporate commitments

# Start - Step 1: Develop Long-Term Scenarios Based on the 7 Categories of Factors

- This step starts the 3-year period set by Order No. 1920.
- This would include evaluating different scenarios based on whether a factor is likely to affect Long-Term Transmission Needs and then using the “best available” data/information received and developed in Step 0 when accounting for that factor in the development of Long-Term Scenarios.
- NYISO would solicit and incorporate stakeholder input on both the factors likely to affect Long-Term Transmission Needs and the data used in accounting for such factors.
- The development of Long-Term Scenarios would be based on the identified factors and the best available data inputs.



# Scenario Development

## ■ Scenarios:

- Minimum three, all must follow Order No. 1920 requirements
- Plausible and diverse
- Use “best available data inputs”

## ■ Sensitivities:

- Each Long-Term Scenario would have a sensitivity to account for uncertain operational outcomes that determine the benefits of and/or need for transmission facilities during multiple concurrent and sustained generation and/or transmission outages due to an extreme weather event across a wide area

# Stakeholder Input on Scenario Development

- **Order No. 1920 requires transmission providers to afford a meaningful opportunity to provide timely input on how to account for specific factors, including additional categories of factors, in the Long-Term Scenarios development.**
- **To facilitate such feedback, Order No. 1920 requires transmission providers to publish on the public portion of an OASIS or other public website the following:**
  - the list of the factors in each of the categories of factors that they will account for in their Long-Term Scenarios;
  - a description of each factor that they will account for in their Long-Term Scenarios;
  - a general statement explaining how they will account each of the factors in their Long-Term Scenarios;
  - a description of the extent to which they will discount any factors in Factor Categories 4 through 7 in each Long-Term Scenario or additional category of factors; and
  - a list of the factors that they considered but did not incorporate in each category of factors in their Long-Term Scenarios.

## Step 2: Conduct Analysis to Identify Potential Long-Term Transmission Expansion Opportunities

- To estimate the benefits from each category of factors, methodology for analysis under consideration include, but are not limited to, capacity expansion simulations, resource adequacy, production cost simulations, and transmission security analysis.
- The extent of technical analysis would be similar to NYISO's existing process in the Outlook with the likely addition of power flow analysis (*i.e.*, more akin to Public Policy Process evaluations) to gain additional understanding of system conditions and potential transmission expansion opportunities.
- The simulations and analyses stated above would provide NYISO with a deeper technical understanding of future system conditions for each of the scenarios to enable recommendations on potential transmission investment opportunities.

# Identify the Transmission Expansion Opportunities for Further Investigation

- NYISO is considering to continue the approach utilized in the current Outlook process.
- **Potential approach to identify the transmission expansion opportunities:**
  - Identify the significant and persistent areas that may result in transmission needs across multiple Long-Term Scenarios, generation pockets/interfaces, and the leading cause that forms the pocket/interface
  - If a transmission constraint severely impedes meeting a specific scenario objective
  - Key findings of this step would be similar to today's transmission expansion opportunities in the 2023-2042 System & Resource Outlook report, such as additional dynamic voltage support for Central East and further transmission opportunities in western and northern New York.

# Step 3: Develop High-Level Bulk Conceptual Transmission Approaches

- This step would build upon Step 2 to further develop conceptual transmission approaches.
- For example, if dynamic voltage support is identified as a potential need for Central East interface in Step 2, this step would illustrate a potential approach to meet the need by analyzing how (*i.e.*, STATCOM), how much (*i.e.*, MVAR), and where (*i.e.*, near Edic 345 kV substation) could be to meet the need.
- The conceptual approaches are intended to provide information, such as:
  - Focus on bulk transmission approaches to mitigate the potential needs;
  - Quantify the scope of potential approaches, such as MW/MVAR, technologies, illustrative facilities, and location needed;
  - Understand directional benefits and potentially costs; and
  - Provide transmission developers and stakeholders with guidance to design better transmission solution(s) in later stages.

# Conceptual Transmission Approach

- **The conceptual approaches are NOT intended to:**
  - Develop engineering design of proposed solutions;
  - Investigate siting, permitting, or environmental related issues; or
  - Provide detailed cost estimates.

# Step 4: Finalize the Catalog of Potential Long-Term Transmission Need(s)

- This step would provide for stakeholder engagement (including Relevant State Entities) in advance of NYISO identifying the final list (i.e., catalog) of potential Long-Term Transmission Needs.
- Similar to today's Outlook report, NYISO is considering to:
  - solicit feedback through its stakeholder working groups forum
  - seek NYISO committee input (e.g., advisory votes)
  - seek approval by the Board of Directors

# Step 5: NYPSC and/or NYISO Board of Director to Identify the Long-Term Transmission Need(s)

- This step would provide for the identification of Long-Term Transmission Needs through either the issuance of an order by the NYPSC and/or by a determination of the NYISO Board of Directors.
- This is similar to the existing Public Policy Process with the additional opportunity for the NYISO Board of Directors to identify a need.
- Additionally, NYISO is considering to retain the ability of the NYPSC to identify a PPTN “off cycle” through the Public Policy Process. This would continue to provide the NYPSC with the opportunity to identify a transmission need at any time for which the NYISO will solicit, evaluate, and select the more efficient or cost-effective transmission solutions to an identified PPTN.



# Step 6: Solicit Solutions to the Identified Long-Term Transmission Need(s)

- Following the identification of a Long-Term Transmission Need, NYISO would solicit Long-Term Regional Transmission Solutions.
- Based on the analysis and conceptual approaches considered above, the solicitation would be more targeted than the current practice in the Public Policy Process.

## Step 7: Evaluate Transmission Solutions Using the 7 Categories of Benefits and Any Additional Selection Metrics

- **This step would be similar to the current Public Policy Process with notable difference that there would not be an explicit viability and sufficiency assessment.**
  - NYISO would assess the viability and sufficiency of the proposed solutions as part of the evaluation.
  - Conceptual approaches that NYISO develops during the assessment of Long-Term Transmission Needs (as described above) can be used by transmission developers to inform and potentially guide their development of solutions.
  - The benefits for evaluation and selection are addressed in the following slides.

# Benefits 1 through 5

Benefits	Name	FERC Description
1	Avoided or deferred reliability transmission facilities and aging infrastructure replacement	Reduced costs due to avoided or delayed transmission investment otherwise required to address reliability needs or replace aging transmission facilities.
2	Benefit that can be characterized and measured as either reduced loss of load probability or reduced planning reserve margin	Benefit 2(a) measures reduced loss of load probability for resource adequacy planning
		Benefit 2(b) is the reduction in capital costs of generation needed to meet resource adequacy requirements (i.e., planning reserve margins) while holding loss of load probability constant
3	Production cost savings	Savings in fuel and other variable operating costs of power generation that are realized when transmission facilities allow for displacement of higher-cost supplies through the increased dispatch of suppliers that have lower incremental costs of production, as well as a reduction in market prices as lower-cost suppliers set market clearing prices.
4	Reduced transmission energy losses	Reduced total energy necessary to meet demand stemming from reduced energy losses incurred in transmittal of power from generation to loads.
5	Reduced congestion due to transmission outages	Reduced production costs resulting from avoided congestion during transmission outages

# Benefits: 6, 7 and Others

Benefits	Name	FERC Description
6	Mitigation of extreme weather events and unexpected system conditions	Reduced production costs and reduced loss of load (or emergency procurements necessary to support the system), including due to increased Interregional Transfer Capability, during extreme weather events and unexpected system conditions, such as unusual weather conditions or fuel shortages that result in multiple concurrent and sustained generation and/or transmission outages.
7	capacity cost benefits from reduced peak energy losses	One potential way is to calculate the present value of capital cost savings associated with the reduction in installed generation requirements. To arrive at the value of capital cost savings, the estimated net cost of new entry could be multiplied by the reduction in installed generation capacity requirements. The resulting value would represent the avoided cost of procuring more generation to cover transmission system losses during peak-load conditions, savings that would be passed on to customers via lowered generation capacity costs.
	Other benefits	TPs may measure and use additional benefits beyond those included in the required set of benefits in Long-Term Regional Transmission Planning, including on a transmission facility or plan-specific basis, subject to the requirement that they do so in a manner that is consistent with their obligations under Order No. 890 and Order No. 1000 transmission planning principles to be open and transparent as to their transmission planning processes.

## **Stop - Step 8: Board Review and Determination of Whether or Not to Select Long-Term Regional Transmission Facility**

- **NYISO would recommend a transmission solution as the more efficient or cost-effective solution to a Long-Term Transmission Need to the NYISO Board.**
- **NYISO Board of Directors would determine whether or not to select a Long-Term Regional Transmission Facility.**
  - The Board's action in selecting or not selecting a Long-Term Regional Transmission Facility would conclude the 3-year process.

# Topics for Future Discussions

- Consideration of interconnection-related transmission upgrades
- Reforms to the Local Transmission Planning
- Right sizing replacement infrastructure and associated right of first refusal
- Reevaluation of selected Long-Term Regional Transmission Facilities
- Anticipated timeline for the first cycle
- Coordination with other planning processes
- End-to-end process

# Next Step

- Focus for today's discussion is to review NYISO's preliminary considerations for the core process, and the NYISO, therefore, seeks stakeholder feedback. Please send comments to [ylin@nyiso.com](mailto:ylin@nyiso.com).
- NYISO will consider stakeholder and Relevant State Entities feedback in developing a compliance approach and return in future TPAS/ESPGWG meetings to provide further details and seek further feedback.

# 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



# Questions?

# Appendix

# Analysis of NYISO Public Policy Process Timeline

	PSC Order issued	NYISO solicitation	NYISO VSA completion	NYISO Board selection	In-service Date
WNY PPTN	7/20/2015	11/1/2015	6/1/2016	10/17/2017	11/30/2022
AC Transmission	12/17/2015	2/29/2016	10/27/2016	4/8/2019	12/31/2023
LI OSW Export PPTN	3/19/2021	8/12/2021	4/4/2022	6/13/2023	12/31/2030
NYC OSW PPTN	6/2/2023	4/4/2024	10/30/2024		

Public Policy Transmission Need

PSC Order to NYISO selection

WNY PPTN

2 year 4 months

AC Transmission PPTN

3 year 4 months\*\*\*

LI OSW Export PPTN

2 year 3 months

NYC OSW PPTN

\*\*\* The solicitation, evaluation and selection timeline overlapped with WNY PPTN

Average time to complete NYISO side of the process = 2 year 8 months

# Analysis of NYISO CARIS/System & Resource Outlook Timeline

NYISO Study	Duration
2019 CARIS	1 year 2 month
2021-2040 Outlook	1 year 1 month
2023-2042 Outlook	1 year 2 month

Note that the scope of Outlook does not include quantification of the potential needs, and the design of conceptual transmission solutions.

Average time to completion = 1 year 2 months