New York ISO
Independent System Operator

Public Policy Transmission Planning Process Manual Attachments

Attachment C

Data Submission for Public Policy Transmission Projects

Issued: MM/DD/YYYY

DRAFT – FOR DISCUSSION PURPOSES ONLY

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(Completed proposal should be sent to PublicPolicyPlanningMailbox@nyiso.com)

[Insert Title of Project]

(Title should be short and formatted as follows:)

Submitted in response to NYISO Solicitation for (insert Public Policy Transmission Need being addressed)

Date: [xx/xx/xx] *(date submitted to NYISO)*

Proposal Made By: [name of Developer/company]
[street address of company]
[city, state, zip]

(NOTE: *Developers that are jointly proposing a solution must each be specifically named above and qualified under OATT Section 31.4.4.3.6 or seeking qualification in accordance with OATT Section 31.4.4.3.7*)

Contact Person: [name, title]
[phone #] Office [phone #] Cell
[email address]

Technical Contacts

Project Manager: [name, office phone, cell phone, email]
(person responsible for schedule and budget tracking)

Project Engineer: [name, office phone, cell phone, email]
(person responsible for technical information)

Project Description and Location

[Insert information within bracketed areas and remove brackets]

[X]	HVAC Transmission Project	**[X]**	Substation Project
[X]	HVDC Transmission Project	**[X]**	FACTS
[X]	Underground Transmission Project	**[X]**	Underwater/Sea Project

(Transmission project description format, delete if not applicable)

[xx kV] – [Substation to Substation];[xx miles]*(lineal length of project)***, [Type of project]** *(Overhead, Underground, HVDC, ROW for new Transmission Line, Rebuild, Thermal Up-Rate, Relocation, etc.);* **];**

Describe what will be technically involved in the project such as type of project (OH,UG,UW), conductor type, construction(wood, steel, etc.), technology, substation modifications etc.

(Substation project description format, delete if not applicable)

[xx kV] – [Substation Name];[Project Location]***(Name of closest city, Township, County, State, ZIP)***, [Type of project] ***(New Substation, Transformer Replacement or kV Change, Conversion to Ring Bus, Phase Shifter, FACTS, SVC, Reactive Compensation, etc.)***;

Describe what will be technically involved in the project, such as construction, technology, substation modifications etc.

Project Zone(s): *(NYISO regional area location)*

Project County(ies):

Project State (if connecting outside NY):

One-Line Diagrams:

(Briefly discuss any changes to the existing one-line diagram as a result of this project.

NOTE: In describing the "project," only include new transmission facilities or Public Policy Transmission Upgrades, as defined by Section 31.1 of the OATT, that are necessary to achieve the Public Policy Transmission Need. For the purposes of Attachment Y, a Public Policy Transmission Upgrade includes an improvement to, addition to, or replacement of a part of, an existing facility and shall not mean an entirely new transmission facility.

Edit these sentences below as appropriate)

Pursuant to Section 31.4.5 of the OATT, this project consists of [ ].

- The following facilities have been identified by the Developer as new transmission facilities: [ ].

- The following facilities have been identified by the Developer as a Public Policy Transmission Upgrade: [ ].

Any preliminary identification of interconnection facilities (e.g., Network Upgrade Facilities) that are needed to reliably interconnect the proposed transmission project to the New York State Transmission System, or Distribution System, if applicable, (e.g., addition of breakers or bays in an existing substation) are not considered part of the project and should be separately identified.

Potential interconnection facilities for transmission solutions will generally include Network Upgrade Facilities but could alternatively include Connecting Transmission Owner Attachment Facilities, Developer Attachment Facilities, System Upgrade Facilities, and/or System Deliverability Upgrades if the project qualifies and is being studied under another NYISO interconnection process~~the Large Facility Interconnection~~

~~*Procedures under Attachment X*~~. *In listing them below, clearly indicate whether they are potential interconnection facilities based upon the estimation of the Developer or whether the NYISO identified them through a completed NYISO-conducted interconnection study for the same transmission project (include the specific queue number and study that identified the Interconnection Facilities).*~~-~~

Pursuant to Section 31.4.5 of the OATT, the following facilities have been identified by the Developer as either potential interconnection facilities based upon the estimation of the Developer or NYISO-identified Interconnection Facilities, if already known from a NYISO-conducted interconnection study for the project: [ ].

A simplified system one line diagram, and a system one line diagram with breaker arrangement, depicting the new transmission facilities and Public Policy Transmission Upgrades necessary to address the Public Policy Transmission Need and potential interconnection facilities that may be necessary to reliably interconnect the project to the existing New York State Transmission System, or Distribution System, consistent with the applicable interconnection standard be provided as attachments.

The one-line diagram representation should meet the guidelines and requirements specified by the transmission owner to which the project is proposing to connect.

Attachment C.1A: Existing simplified system one-line diagram of the facilities to which the project is proposing to connect

Attachment C.1B: Existing detailed electrical one line diagram of each facility to which the project is proposing to connect.

Attachment C.1C: Proposed simplified system one-line of final configuration

Attachment C.1D: Proposed detailed electrical one line diagram of each facility to which the project is proposing to connect.

Data Requirements:

Refer to NYISO Manual 24 – Reliability Analysis Data Manual for appropriate modeling data requirements, available from the NYISO Web site at the following URL:

~~http://www.nyiso.com/public/markets_operations/documents/manuals_guides/index.jsp~~

https://www.nyiso.com/documents/20142/2924447/rel-anl-data-mnl.pdf/2d42445e-317d-b7e9-24b8-c983ae6518ec

Attachment C.1E: Provide Project model data in the requested format.

Design Criteria

Proposed project design shall meet the [interconnecting TO(s)]design standards and criteria. If no [interconnecting TO(s)] or applicable local standard exists, then, the applicable industry standard or good utility practice will be used including the New York

Transmission Owners Task Force on Tie Line Ratings Final Report 2019. As a minimum, all new facilities should comply with the current National Electric Safety Code.

Attachment C.1F: List all organizations' design standards applicable to specific projects components, which will be used, and any exceptions to Design Criteria, which are being proposed.

Route and Site Information

(If Developer has not obtained all necessary property rights to implement the solution, insert the transmission routing study. If a routing study has not been completed, include a description of the plan for determining the routing and siting. Identify crossings of existing electrical facilities, pipelines, state and federal highways and any other possible interference. For underwater routes, identify crossings of existing facilities, such as cables, tunnels, and mooring areas.)

Attachment C.2A: Transmission routing study. Provide a summary of the routing study in the requested format.

Attachment C.2B: Map of the line route or corridor for each project component. Identify laydown yard locations. Identify infrastructure crossings for each line route. Provide this information in .pdf and .kmz file formats. Provide a summary of infrastructure crossings for each route in the requested format.

Right-of-Way Requirements

(Information to be provided by Developer)

Multiple ROW width requirements may be necessary depending on the design and construction type and methods.

Attachment C.3A: Details of Right-of-Way calculations including typical cross sections for all proposed lines

Provide a table listing each new and rebuild circuit identifying conductor type and proposed ampacity. Power cable specifications/cutsheets.
Provide Conductor and Cable Ampacity Calcs. Provide an EMF report outlining assumptions and calculations.

Transmission Drawings

Attachment C.3B: The following drawings are generally developed for transmission line projects. Provide drawings, as applicable, ~~and~~ available and any additional drawings as necessary:

- Standard structure drawings that will be included or modified with this project,
- Plan and profile drawings,
- Road crossing plans,
- Underwater and water to land transition installation methods,
- Cable trenching,
- Manhole installation details, trenchless construction details illustrating methodology. Include details illustrating construction work areas required for structures, laydown areas, cable pulling, trench and manhole installation.
- Phasing diagram, and
- Foundation details (concrete, embedded, etc.).

Substation Drawings

A substation Plot Plan for the proposed substations and the existing facilities to which the project is proposing to connect should depict the fenced areas, major structures, equipment, control buildings, property lines and access roads. Provide a geographic map with the substation superimposed. Plot Plans should include the proposed routing of transmission lines into the substation, routing of ties between new and existing substations, and any interties within the substation.

(*The Site Plan should depict the existing and new transmission lines and structures, rights of ways, property lines, regulated wetlands, culverts, ditches, and other existing utilities in the area, to the extent known.*)

Attachments C.3C: Existing Site Plans and Plot Plan drawings

Attachments C.3D: Proposed Site Plans and Plot Plan drawings

Attachments C.3E: The following drawings are generally developed for substation projects. Provide drawings, as applicable and any additional drawings, as necessary

- Foundation Plan and Details,
- Conduit Plan and Details,
- Grading Plan,
- General Arrangement,
- Elevation Plan,
- Stormwater runoff plan,
- Relay One Lines,
- Grounding Plan and Details, and
- Schematic Diagrams.

Work Plan:

A description of the overall work plan from start to finish. List items that will be done by in-house staff and list services that will be performed by third-party consultants or contractors.

Below is a list of probable project development and construction activities. Add other activities that the Developer has considered and included.

- *Siting Activities (e.g., Locating line routing and substation site location options)*
- *Environmental Impact Studies (relative to siting options)*
- *Permitting and Regulatory Activities (e.g., Certificate of Environmental Compatibility and Public Need)*
- *Environmental Management & Construction Plan (for Article VII)*
- *Interconnection Studies*
- *Public Outreach plan*
- *Electrical Studies (e.g., Equipment sizing, protection, ground mat design)*
- *Surveying (relative to line and station layouts)*
- *Real Estate Acquisition*
- *Geotechnical Contractor (soil borings, soil resistivity)*
- *Engineering*
- *Site Work*
- *Below Grade (e.g., foundations, grounding, conduit)*
- *Above Grade (e.g., substation structures)*
- *Electrical Construction (e.g., control house, protection, and controls)*
- *Overhead/Underground/Underwater Electric Construction (e.g., current carrying line and substation equipment)*
- *River crossings and/or directional drilling locations*
- *Telco Construction (e.g., communications for protection and remote telemetry)*
- *Other*

Environmental and Permitting Requirements

(Describe the environmental requirements that shall apply to this project. Describe the permitting requirements that are applicable to the project and determine which permits are necessary. Identify any work completed to date. Note any deviations from standard permitting requirements or timelines, and justification of such. The Developer should identify and assess the permitting and siting requirements, as applicable, ~~for this particular project~~ and why/how they would be met by the applicant, including but not limited to:

Regulatory: (*e.g., NYS Article VII, Part 102, other state's regulations, federal regulations and permits, local regulations and permits, other*)

Environmental: *(e.g., NYSDEC, Adirondack Park Association, USACE, etc.)*

Real Estate: (*e.g., NYS Department of Agriculture and Markets, NYS Historic Preservation, Railroad, FAA, municipalities, etc.)*

Construction: (*e.g., NYSDOT, road closure permits, temporary road crossing permits, waterway, and ocean, etc.))*

Attachment C.4: Project Permitting Plan Summary

Outage Requirements

Description of the anticipated necessary outage requirements for this project and how customers would be supplied or service impacted.

Attachment C.5A: Provide a set of one-line diagrams illustrating the construction sequence and a duration of outage.

Attachment C.5B: Provide a construction schedule in form of Gantt chart that includes the following:

- Length of outages required for each major component (*e.g.*, transformer, transmission line, PAR, main bus, circuit breaker, etc.), and
- Concurrent outages of major components and the duration of their overlap.

Ensure that the information provided in the two attachments is consistent.

Milestone Schedule

Items to be considered (as applicable and available) for milestone schedule include but not limited to:

- *In-service date of the proposed project and specific components of the proposed project,*
- *Outage availability,*
- *Permitting requirements of different federal and state agencies and associated environmental studies and assessment, as applicable,*
- *Construction duration for various activities for each project component,*
- *Deadline for major equipment order, engineering ROW procurement schedule,*
- *Existing facility outage availability,*
- *Cultural resources, or wetland issues.*

Identify the overall In-Service Date of the project, as well as earlier in-service dates for new transmission facilities and Public Policy Transmission Upgrades that must be placed in service in a specific sequence for the construction of the project.

Add commentary under the milestone schedule discussion about the scheduling requirements which need to be completed in order to meet the energization requirement. For example, in the case of wetlands, will the wetlands require winter-only construction or any time of year restrictions? For a reconductoring or rebuild project, can the existing line be taken out of service or will the work need to be done on short outages or live line work? For requirements to sequence the project, what components of the project must be put in-service prior to the construction and/or in-service of other components. A unique schedule is to be submitted for each project being proposed.

Attachment C.6 Insert a milestone schedule in Gantt chart format

Risk Register

List any potential risks to the proposed project and potential mitigations.

Attachment C.7 Detailed Risk Register

Project Overview

From a high level, this section should discuss the needs and requirements for the project, the Public Policy Transmission Need that the project proposes to resolve, and how the proposed project will address the need.

Attachment C.8A: Provide results of studies or analysis completed by the Developer that demonstrates that the project addresses the Public Policy Transmission Need.

Attachment C.8B: Identify and describe how the project can meet the viability and sufficiency criteria, evaluation metrics set forth in the OATT, and metrics specified in the PSC order, as applicable.

Examples include but not limited to

- *Viable Technology: Please provide evidence of a commercially viable technology. For any new technology or equipment and systems not currently used in New York State, provide proposed vendors, construction firms, specification and drawing details, and identify projects/systems where it has been implemented.*
- *Project Expandability: Consider and identify future modifications to proposed facilities to increase equipment ratings, staging or phasing of future transmission development, or otherwise benefiting from the proposed facilities for future reliability or congestion relief purposes. Future line terminal positions and/or space for expansion of proposed substation are to be explicitly identified in the substation drawings. Provide a table identifying each specific terminal proposed for future use.*
- *Operability and Performance Impacts: Consider and identify additional flexibility in operating the system, such as dispatch of generation, access to operating reserves or ancillary services, maintenance impacts.*
- *Resiliency: Identify any extraordinary measures proposed to improve the resiliency of the proposed project.*

(Provide plan to operate and maintain the assets associated with the project. Describe if the assets will be operated from a new control center or if expansion to an existing control center is required. If a controllable device is included as part of the proposal, describe how the device should be operated to optimize the performance.)

Attachment C.9: Operation and Maintenance Plan

Completed By: _____

Engineering Lead/Consultant Printed Name Date

Reviewed By: _____

Project Engineer Printed Name Date

Approved By: _____

[Project Manager or Authorized Rep] Printed Name Date

(If more than one Developer is jointly proposing the Public Policy Transmission Project, each Developer must complete the above signatures. Signatures may be done in multiple counterparts.)

Attachment C.1A: Existing simplified system one-line diagram of facilities to which the project is proposing to connect

Attachment C.1B: Existing detailed electrical one line diagram of each facility to which the project is proposing to connect

Attachment C.1C: Proposed simplified system one-line of final configuration

Attachment C.1D: Proposed detailed electrical one line diagram of each facility to which the project is proposing to connect

Attachment C.1E: Data Matrix (tabularized data) containing detailed electrical description of the project

Attachment C.1F: List all organizations' design standards applicable to specific projects components which will be used and any exceptions to Design Criteria which are being proposed

Attachment C.2A: Transmission Routing Study

Attachment C.2B: Proposed Line Route (presented on a _____ map with minimum scale of _____ and displaying a centerline and corridor width of _____ feet) and other details

Attachment C.3A: Transmission Line Details

Attachment C.3B: Transmission Line Drawings

Attachment C.3C: Existing Site Plan and Plot Plan for each facility to which the project is proposing to connect

Attachment C.3D: Proposed Site Plan and Plot Plan for each facility to which the project is proposing to connect

Attachment C.3E: Substation Drawings

Attachment C.4: Project Permitting Plan Summary

Attachment C.5A: One-line Diagrams for construction sequence

Attachment C.5B: Construction Sequence Schedule in form of Gantt chart

Attachment C.6: Project Milestone Schedule

Attachment C.7: Risk Register

Attachment C.8A: Planning Study Results

Attachment C.8B: Project Overview

Attachment C.9: Operation and Maintenance Plan

Proposed Project Document
Attachment C.1.E
Proposed Project Data Summary

						Impedance (pu)			Summer Ratings (MVA)			Winter Ratings (MVA)			Shunt Line Compensation (pu)			Length (miles)			
Type* [AC, DC, ~~Transformer, PAR, etc.~~]	Name [from Substation] - [to Substation] [kV]	PSSE From Bus #	PSSE To Bus #	kV	~~Description of Change [new, retire, reterminate, reconductor, etc.]~~ Ckt No/Id	R	X	B	Normal	LTE	STE	Normal	LTE	STE	B (From Bus)	B (To Bus)	Conductor Type	Total	~~O/H~~	~~U/G~~	~~Submarine~~

*** Modeling of lines between proposed and existing substations as zero impedance line should be identified, as applicable.**

Transformers and PARs

						Impedance* (pu)		Summer Ratings (MVA)			Winter Ratings (MVA)			PAR Angle limits	
Type [Transformer, PAR]	Name [from Substation] - [to Substation] [kV]	PSSE From Bus #	PSSE To Bus #	kV	Ckt No/Id	R	X	Normal	LTE	STE	Normal	LTE	STE		

*** ~~S~~specify impedance on system MVA base. Identify if using a different MVA base.**

Shunts

Type [shunts]	Name [Substation/Line] [kV]	PSSE Bus #	Blocks

Proposed Project Document
Attachment C.2.A
Proposed Transmission Routing Study Summary

			C			
Project facility	A	B	1	2	3	D
Line A (STATION 1-2)						
Line B						

A	Possesses the rights of way necessary to implement the solution
B	Will rely on existing rights of way owned by other parties (identify owner(s) and location(s))
C	Has completed a transmission routing study which:
C.1	Identifies a specific route routing plan with alternatives, and
C.2	Includes a schedule indicating the timing for obtaining siting and permitting, and
C.3	Provides specific attention to sensitive areas (e.g., wetlands, protected areas, etc.)
D	Has a specified plan or approach for determining the routing and acquiring property rights.

	Miles under							Overhead (Miles under)		UG (Miles under)				Miles of line parallel to				Total Line mileage (miles)
Project facility	A.1	A.2	A.3	A.4	A.5	A.6	A.7	B.1	B.2	C.1	C.2	C.3	C.4	D.1	D.2	D.3	D.4	
Line A (STATION 1-2)																		
Line B																		

A.1	Commercial / Industrial / Urban
A.2	Residential
A.3	Open Field/Fallow Land
A.4	Agricultural District/Crop Land
A.5	Forested Land

A.6	Waterway (e.g., river, ocean)
A.7	Wetland (NYSDEC/USACE)
B.1	Existing ROW
B.2	New ROW
C.1	Roadway or shoulder
C.2	Existing transmission ROW
C.3	New ROW
C.4	Underwater
D.1	Interstate Highways
D.2	Rural state, county, or town roads
D.3	City or village streets
D.4	Utilities & utility corridors

Proposed Project Document
Attachment C.2.B
Proposed Transmission Routing Study or Plan

Submarine Route Crossings List			
Project Facility (Route)	Crossing Description (e.g., submarine cable, cable crossing, cable area crossing, channel crossing, pipeline crossing)	Waterbody (if applicable)	Location (e.g., coordinates)
Terrestrial Route Crossings List			
Project Facility (Route)	Crossing Description	Landmark (if applicable)	Location (e.g., coordinates)

Proposed Project Scope Document
Attachment C.4
Project Permitting Plan Summary

Project Facility	Permit/Clearance Agency Name	Type (Federal/State/Local/County)	Purpose	Requirements	Typical Approval Time	Comments	Is this approval time period included in the milestone schedule (Attachment C.6)?