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Public Policy Transmission Planning Process Manual Attachments

Data Submission for Public Policy Transmission Projects

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Attachment C

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NYISO PUBLIC POLICY TRANSMISSION PLANNING PROCESS MANUAL ATTACHMENT Formatted: Right, Right: -0.5"

Prepared by: System & Resource Planning

New York Independent System Operator 10 Krey Boulevard Rensselaer. NY 12144 (518) 356-6060 www.nyiso.com

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Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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NYISO PUBLIC POLICY TRANSMISSION PLANNING PROCESS MANUAL ATTACHMENT New York ISO

This document was prepared by: System & Resource Planning

New York Independent System Operator 10 Krey Blvd Rensselaer, NY 12144 (518) 356-6060 www.nyiso.com

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ii Public Policy Transmission Planning Process 🖌 i

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

(Instructions)

(Remove any lines or items within parentheses that do not apply)

[Insert information within bracketed areas and remove brackets]

[X]	HV AC Transmission Project	[X]	Substation Project (115 kV or greater)
[X]	HVDC Transmission Project	[X]	FACTS
[X]	Underground Transmission Project	[X]	Underwater/Sea Project
	(C1111	1	

(Check all that apply)

[Insert Title of Project]

(Title should be short and formatted as follows:)

(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)

(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.)

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]

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

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Attachment C Developer's Data Submission for Solutions to Reliability Needs

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NYISO PUBLIC POLICY TRANSMISSION PLANNING PROCESS MANUAl Formatted: Right, Right: -0.5" ATTACHMENTS New York ISO 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) Developer Qualifications Update – as necessary, including updated qualification information for contractors, subcontractors, consultants

Project Location

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

Project County(ies):

Project State (if connecting outside NY):

(Select from the following three sentences, delete the sentences that do not apply)

This project will require that [Project Developer] file an Article VII application with the New York State Public Service Commission (PSC).

This project will require a 16 NYCRR Part 102 application with PSC.

No PSC filing is required for this project. Local Permits will be obtained.

NYISO Queue # [if any]	Date Filed (or planne	ed filing date):
Feasibility Study:	[X] Completed	Date Completed:
	[X] Not Completed	Expected Date:
	[X] Not Applicable	
System Impact Study (SRIS	or SIS):	
	[X] Completed	Date Completed:
	[X] Not Completed	Expected Date:
Facility Study:	[X] Completed	Date Completed:
	[X] Not Completed	Expected Date:

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Attachment C Developer's Data Submission for Solutions to Reliability Needs

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Milestone Schedule

Insert a milestone schedule, preferably in a <u>ganttGantt</u> chart format or, as a minimum, in the sample format shown below. Items to be considered (as applicable and available) for milestone schedule include: In-service date, outage availability, permitting requirements, construction duration, deadline for major equipment order, engineering and ROW procurement schedule, existing facility outage availability, cultural resources, or wetland issues. 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? 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?

Activity	Start Date	Finish Date
Siting Activities	01/1/2015	01/01/XXXX
Engineering	01/01/2015	06/31/XXXX
Licensing and Permitting	01/01/2015	01/01/XXXX
Real Estate Acquisition	01/01/2015	01/01/XXXX
Procure Major Equipment and Materials	01/01/2015	01/01/XXXX
Construction	01/10/2016	10/01/XXXX
In-Service Date	11/01/2016	

Outage Requirements

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

Work Plan Required:

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 consultants or contractors.

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Below is a list of probable project activities. Add other activities which you have 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)
- Interconnection Studies (e.g. feasibility, SIS, SRIS, Facilities Study)
- 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
- Procurement of Major Equipment and Materials
- 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)
- Environmental Management & Construction Plan (for Article VII)
- Other

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Attachment C Developer's Data Submission for Solutions to Reliability Needs

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Project Overview

From a high level, this section should discuss the needs and requirements for the project, what is the Public Policy Transmission Need the project will resolve, how the proposed project will address the need, what will be technically involved in the project such as type of project (OH,UG,UW), conductor type, wood vs. steel construction, required outage schedules, line crossings and impacts, any live line work, substation modifications. Include a description of the expandability of the project for future needs and how it will impact the system's operability and performance.

(Edit these sentences below as appropriate)

This project consists of [].

The driver of this project is [].

(Provide results in Attachment C.8 of any studies or analysis completed by the Developer that demonstrates that the project addresses the Public Policy Transmission Need.)

Voltage(s) [] kV

MW value with respect to the Public Policy Transmission Need: [] MW

Total MW benefit offered by proposed project: [] MW

The in-service date for both the line and substation work is [].

The conductor MVA ratings are: Summer - Normal [], LTE [], STE []

Winter - Normal [], LTE [], STE []

The circuit MVA ratings would be: Summer - Normal [], LTE [], STE []

Winter - Normal [], LTE [], STE []

List and describe the most limiting element(s) in the circuit(s).

Substations directly impacted:

Project Expandability: (consider 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.)

Operability and Performance Impacts: (Consider additional flexibility in operating the system such as dispatch of generation, access to operating reserves or ancillary services, maintenance impacts.)

One-Line Diagrams:

(Briefly discuss any changes to the existing one-line diagram as a result of this project. Provide a simplified system one line diagram, with breaker arrangement, depicting the interconnection of all connecting transmission owner affected facilities (CTOAF), Developer affected facilities (DAF), and any known system upgrade facilities (SUF) for the project. The one line diagram should depict the location of the Point of Interconnection, the Point of change of Ownership (as defined in Attachment X of NYISO Tariff), and the metering point(s). Also provide a detailed one line diagram of the identified interconnecting substation facilities, including the ratings of all proposed

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major equipment, protective device and relays, revenue and other metering, station service and communication schemes for all CTOAF and SUF.

Attachment C.1A: Existing simplified System One-Line Diagram of Integrated Facilities

Attachment C.1B: Existing detailed Electrical One Line Diagram of each Interconnecting substation

Attachment C.1C: Proposed simplified System One-Line of Final Configuration

Attachment C.1D: Proposed detailed Electrical One Line Diagram of each Interconnecting substation

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

Route and Site Information to be Provided

The Developer (check which one (or more) applies and will be provided):

[] possesses the rights of way necessary to implement the solution

[] will rely on existing rights of way owned by other parties (identify owner(s) and location(s))

[] has completed a transmission routing study which:

- Identifies a specific route routing plan with alternatives,
- Includes a schedule indicating the timing for obtaining siting and permitting,
- Provides specific attention to sensitive areas (e.g. wetlands, protected areas, etc.)
- Include a copy of the study in Attachment C.2A

[] has a specified plan or approach for determining the routing and acquiring property rights. Include details of the plan in Attachment C.2A.

Refer to Attachment C.2B to provide a map of the line route or corridor.

The land adjacent to the primary project corridor consists of approximately:

Commercial / Industrial / Urban	[] miles
Residential	[] miles
Open Field/Fallow Land	[] miles
Agricultural District/Crop Land	[] miles
Forested Land	[] miles
Wetland (NYSDEC/USACE)	[] miles

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If Overhead:

- [] miles in existing transmission ROW
- [] miles requiring new ROW

If Underground:

- [] miles in roadway or shoulder
- [] miles in existing transmission ROW (other than roads)
- [] miles in new ROW (other than roads)
- [] miles underwater
- [] miles of the line run parallel to Interstate Highways.
-] miles of the line run parallel to rural state, county, or town roads.
- [] miles of the line run parallel to city or village streets.
- [] miles of the line run parallel to adjacent utilities & utility corridors

Use Attachments C.2C and C.2D for presenting existing and proposed Site Plans and Plot Plan drawings. (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. A substation Plot Plan for the interconnecting substations should depict the fenced areas, major structures, equipment, control buildings, property lines and access roads. Provide a geographic map with the substation superimposed.)

Design Criteria

Design Standards shall meet the [interconnecting TO(s)] standard Transmission Line and Substation Design 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 NYPP Tie Line Ratings Task Force 1995 Tie-Line Ratings Final Report. As a minimum, all new facilities should comply with the current National Electric Safety Code. (*List* all organizations' design standards which will be used and *any exceptions to Design Criteria which are being proposed.*)

Right-of-Way Requirements

(Information to be provided by Project Developer)

Multiple ROW width requirements may be necessary depending on the design and construction type and methods. Details of Right-of-Way calculations including typical cross sections should be included in Attachment C.6.

Transmission Drawings

The following drawings are generally developed for transmission projects. The state of development of the project will generally determine when the drawings are needed: *(delete any of the following that do not apply or which are not currently available)* title sheet, route map, plan and profile, phasing diagram, Structure details (steel, tube, etc.), foundation details (concrete, embedded, etc.), road crossing plans, hardware, plan of work drawings at the endpoints, assembly drawings including connections to substation

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dead-ends. See Attachment C.3 for the standard structure drawings that will be included or modified with this project.

Substation Drawings

The following drawings are generally applicable for substation projects and should be provided if available: (delete any of the following that do not apply) Relay One Lines, Site Plan, Plot Plan Grading Plan, Foundation Plan and Details, Grounding Plan and Details, Conduit Plan and Details, General Arrangement Plan and Elevation Views, Schematic Diagrams, Connection Diagrams.

Environmental Requirements

The following environmental requirements shall apply to this project:

(Information to be provided by Project Developer's Environmental Consultant)

Permitting Requirements

(Consider the permitting requirements that are applicable to the project and determine which permits are necessary. The Project Developer should identify and assess the siting requirements, as applicable, for this particular project and why/how they would be met by the applicant, including but not limited to:

Regulatory: Article VII, Part 102, Local permits, Other

Environmental: (NYSDEC, Adirondack Park, USACE, etc.)

Real Estate: (NYS Dept of Agriculture and Markets, NYS Historic Preservation, Railroad, FAA, Municipalities, etc)

Construction: (NYSDOT, *Road closure permits, temporary road crossing permits*)

Removal of Existing Transmission Line Facilities

(*State the type*(*s*), *voltage*(*s*), *miles of line and number of structures and switches to be removed*)

Risk Register

(List any potential risks to the proposed project and potential mitigations. Detailed Risk Register should be provided in Attachment C.7)

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Attachment C Developer's Data Submission for Solutions to Reliability Needs

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Estimated Project Cost Detail:

(Project Developer is encouraged expected to provide estimates utilizing the basic format and content shown below in the example estimate and add items as necessary to reflect proposed scope. Project Developer is encouraged to provide backup also details and attach their own project estimating forms or tools to offer reference and background as to the Project Developer methodology and logic for cost estimating. At a minimum the form data below should be filled out completely and as accurately as possible with differentiation between the intended accuracy estimate (e.g. + 1/-25%) and the contingency range estimates which you are using for your particular project depending on the type of construction and the unknowns for the type(s) of construction being proposed. All cost categories should be rounded to the nearest \$1,000. If a contingency % adder is included in the estimate, a detailed description of the factors that went into the contingency percentage(s) must be provided. It is recommended that the estimate be performed to industry standards such as a Class 4 estimate or better as defined in the Association for the Advancement of Cost Engineering International Recommended Practice.)

Provide Attachments C.4.1 through C.4.4 for detailed Project Cost estimates and include:

- All assumptions in developing the estimate.
- Facilities required to be added, removed, or replaced by proposed project but not owned by [Project Developer], if any, should be itemized, explained, and shown in the submitted total cost estimate.
- Estimates need to include distribution underbuild costs if applicable.
- State what ROW and site acquisition costs are included in the estimate such as new ROW or site purchases or easements, supplemental easement costs, and whether or not existing available easement or ROW already exists?
- Project cost details should be provided for each of the following categories (as applicable):
 - o Proposed project
 - o Interconnection Facilities (both direct and assigned)
 - o System Upgrade Facilities (if assigned and known)
 - Other upgrades.
 - Cost containment mechanisms that a Developer may voluntarily include as part of a proposed Public Policy Transmission Project. Clearly identify known Excluded Costs not included in any proposed cost cap proposal.
- Example Estimated Transmission Line Project Cost Detail:

	Line kV	General Type of Construction	Line Miles	Ruling Span	Amps/MVA	Comment	
		{mono-pole,H Frame,Steel, Lattice,					
[v	oltage]kV	etc.]	-	{length] [units]	-	-	Formatted: Border: Top: (No border)
	Pre-Construction Costs	Description	Cost	Unit Cost	Sub Totals		Formatted: Right, Right: -0.19", Tab stops: 6.31", Right +
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	I	Cost or xx% of	1	1	1			
Studies		project cost	NA-	-NA	-			
List Studies Separately)	{Environmental, EMF, Cost Benefit, etc}	-	-	-	-			
-egal			NA	NA				
		Cost or xx% of						
Engineering (internal)		project cost	NA	NA	-			
Engineering (Consultant)		Cost or xx% of construction cost	ŧ -	-	-			
+/- Engineering Cost Adder	(+/- % adder for economy of scale)	[+/- %]	-	-	-			
Project management								
Licensing and Permitting costs								
Land Survey Costs	[LiDAR, Boundary, Stake-out]	-	-	-	-			
Geotechnical Costs	[subsurface investigation, borings, etc.]	_	-	-	-			
add additional items]	-	-	-	-	-			
Land Aquistions Cost Item	Description	Quantity	Unit Cost	Sub Totals	Comment			
Commercial/Industrial	Line Mileage +/ Cost Adder	[miles]	[+/-\$ Adder/mile]	-	-			
Residential	Line Mileage +/- Cost Adder	[miles]	[+/- \$ Adder/mile]	-	-			
Fallow Land	Line Mileage +/ Cost Adder	[miles]	[+/-\$ Adder/mile]	-	-			
Farm Crop Land	Line Mileage +/ Cost Adder	[miles]	[+/ \$ Adder/mile]	-	-			
Forested Area	Line Mileage +/- Cost Adder	[miles]	[+/- \$ Adder/mile]	-	-			
Wetlands	Line Mileage +/- Cost Adder	[miles]	[+/- \$ Adder/mile]	-	-			
Crop Damages	Line Mileage +/ Cost Adder	[miles]	[+/-\$ Adder/mile]	-	-			
add additional items]	-	-	-	-	-			
Material Cost Item	Description			Sub Totals				
Type of Conductor	{kcmil,ACSR/ACSS, etc.,1/2/4/5 Bundle}	[total]	-	-	-			
Shield Wire	[1 or 2], [size] EHS, OPGW	[total]	-	-	-			
Number of Deadends	[number] Wood, [number] Steel	[total]	-	-	-			
Number of Running Angle	[number] Wood, [number] Steel	[total]	-	-	-			
Number of Tangents	[number] Wood, [number] Steel	[total]	-	-	-			
Number of Foundations	[number] direct bury, [number] concrete (caisson and/or grillage)	[total]	-	-	-			
Insulators								
Misc. including hardware, guying, etc.								
add additional items]	-		-	-	-			
Construction Cost Item	Description	Quantity	Unit Cost	Sub Totals	Comment			
Avg General Labor Costs/mile	[765kv,500kV,230kV,161kV, etc.]	[miles]	[\$\$\$/mile]	-	-	Formatte	ed: Border: Top: (No bord	er)
Underground/Under Sea	Line Mileage +/- Cost Adder	[miles]	[+/- Adder/mile]	ļ	L	. or matte		

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Live Line Work	Live Line +/- Cost Adder	[miles]	[+/- Adder/mile]	-	-
Matting	Matting for Wetland & Sensitive Areas	[miles]	[\$\$\$/mile]	-	-
Access Roads					
Environmental Controls and Restoration	-	[miles]	{\$\$\$/mile}	-	-
Adjustment for Economy of Scale	Line Mileage +/- Cost Adder	[miles]	[+/- Adder/mile]	-	-
add additional items]	-	-	-	-	-
	-	-	-	[Total]	Total T Line Cost
Contingency (Unknown I ssues)	-	-	-	-	-
[Contingency Item]	[Explanation of Contingency]	[%]	[T line Cost]	[Total]	(with contingency)
Potential Risk Items Adders (Known Issues)	-	-	-	-	-
[add risk items as necessary]	{Description of risk item}	-	-	-	-
	-	-	-	[Total]	(with Risk Items)
	Necessary by Others that Own Facilility				
Make nearly work of work i	teressary by others that own ruchinte.		: rroject		
[add items as necessary]	{Description}	-	-	[Cost]	-
	-	-	-	[Total]	(Total Project Cost)

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Line kV						<u>Comment</u>
[voltage]kV	[mono-pole,H-Frame,Steel, Lattice, etc.]	-	[length] [units]	-	-	-
Pre-Construction Costs						<u>Comment</u>
Studies	[List all studies such as Environmental, EMF, Cost Benefit]		Cost or xx% of project cost		Yes / No	
Legal	-		-	-	_	_
Engineering (internal)	-	-	Cost or xx% of project cost	-	_	-
Engineering (Consultant)	-	-	Cost or xx% of project cost	-	_	-
+/ Engineering Cost Adder	<u> [+/−% adder for economy</u> <u>of scale]</u>	-	[+/- %]	-	_	-
Project management	-	-	-	-	-	-
Licensing and Permitting costs	-	_		_	_	_
Land Survey Costs	[LiDAR, Boundary, Stake- out]	_	_	_	_	_

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	[subsurface investigation,			1			
Geotechnical Costs	borings, etc.]	-	-	-	-	_	
[add additional items]	-	_	-	-		_	
						<u>Comment</u>	
Cost Item					Costs		
Commercial/Industrial	_	[Acres]	[\$Adder/acre]	_	_	_	
Residential	_	[Acres]	[\$ Adder/acre]	_	_	_	
Fallow Land	_	[Acres]	[\$ Adder/acre]	_	_	_	
Farm Crop Land	_	[Acres]	[\$ Adder/acre]	_	_	_	
Forested Area	_	[Acres]	[\$ Adder/acre]	_			
<u>Wetlands</u>	_	[Acres]	[\$ Adder/acre]	_		_	
Crop Damages	_	[Acres]	[\$ Adder/acre]	_		_	
[add additional items]	_	_	_	_		_	
Material Cost Item	Description	Quantity	Unit Cost Material Install	Sub Totals	Included Capital Costs	<u>Comment</u>	
Type of Conductor	[kcmil,ACSR/ACSS, etc.,1/2/4/5 Bundle]				-	_	
Shield Wire	[1 or 2], [size] EHS, OPGW						
Number of Deadends	[number] Wood, [number] Steel	-					
Number of Running Angle	[number] Wood, [number] Steel	-		-	-	-	
Number of Tangents	[number] Wood, [number] Steel	-		-	-	-	
Number of Tangents	[number] direct bury,		-	•	-		
Number of	[number] concrete (caisson						
Foundations	and/or grillage)	-	-	-	-	_	
Insulators	-	-	-	-	-	_	
Misc. including hardware, guying, etc.	-	_	_				
List cable, trench, terminations, etc if							
underground or sea cable							
[add additional items]	-	_	_	-	_	_	
						<u>Comment</u>	
Avg General Labor Gosts/mile	[765kv,500kV,230kV,161kV, etc.]	[miles]	[\$/mile]		<u></u>		Formatted Table
Underground/Under		11111001	<u>197111101</u>	•		-	
<u>Sea</u>	Line Mileage +/ Cost Adder	[miles]	[+/_Adder/mile]	-	-	-	
Live Line Work	Live Line +/- Cost Adder	[miles]	[+/- Adder/mile]		-	-	
Matting	Matting for Wetland & Sensitive Areas	[miles]	[\$/mile]				
Access Roads	-	_	_			_	
Work Pads							Formatted: Border:
Clearing							Formatted: Border:

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 Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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Culverts, bridges,	1	1	1	1	1	1		
gates, etc								
Traffic control, snow removal, etc								
Environmental								
<u>Controls and</u>								
Restoration	-	[miles]	[\$/mile]	-	-	-		
Environmental Mitigation Costs	Description							
Adjustment for								
Economy of Scale	Line Mileage +/ Cost Adder	[miles]	[+/_Adder/mile]		-	_		
[add additional items]	_		_		-	_		
-	-	_	_	[Total]	_	-		
Contingency (Unknown Issues)						Comment		
<u>(Unknown Issues)</u>	[Explanation of				-			
[Contingency Item]	<u>Contingency]</u>	[%]	_	_	_	-		
Potential Risk Items						Commont		
Issues)						<u>comment</u>		
[add risk items as								
necessary]	[Description of risk item]	-	-	-	-	_		
_	_	_	_	[Total]	_			
<u>Taxes</u>	<u>Description</u>	Quantity	<u>Unit Cost</u>	Sub Totals	-	<u>Comment</u>		
	[DesciptionDescription of Taxes]	[%]						
Escalation	Description	Quantity	- Unit Cost	Sub Totals	-	Comment		
	Description Description of	accountry		200 101013	-	Somment		
_	Escalation]	[%]	-	-	_	-		
				[Total]				

• Example Estimated Substation Project Cost Detail:

Pre Construction Costs	Description	Cost	Unit Cost	Sub Totals	Comment
Studies		Cost or xx% of project cost	-	-	-
Legal Fees					
(List Studies Separately)	{Environmental, EMF, Cost Benefit, etc}	-	-	-	-
Engineering (internal)		Cost or xx% of project cost	-	-	-
		Cost or xx% of Construction			
Engineering (Consultant)		Cost	-	-	-
+/- Engineering Cost Adder	(+/- % adder for economy of scale)	[+/- %]	-	-	-
Project Management					
Licensing and Permitting Costs					
					/

 Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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	[LiDAR, Topographical, Boundary, Stake-out]	_	-	-	-	
Geotechnical Costs	[subsurface investigation, borings, etc.]			_		
Land Acquisitions Cost Item	Description	Quantity	Unit Cost	Sub Totals	Comment	
	Acreage +/- Cost Adder	[Acres]	[+/- \$ Adder/acre]	-		
	Acreage +/	[Acres]	[+/- \$ Adder/acre]	<u> </u>		
Fallow Land	Acreage +/	[Acres]	[+/ \$ Adder/acre]	<u> </u>	_	
Farm Crop Land	Acreage +/	[Acres]	[+/ \$ Adder/acre]	_	-	
	Acreage +/	[Acres]	[+/ \$ Adder/acre]	-	-	
	Acreage +/	[Acres]	[+/- \$ Adder/acre]	_	-	
	Acreage +/	[Acres]	[+/- \$ Adder/acre]	_	-	
add additional items]	-	_	-	-	-	
Major Equipment/Material				 		
	Description			Sub Totals		
Transformer	[Nameplate Ratings]	[total]	-	-	-	
Breaker	[Nameplate Ratings]	[total]	-	-	-	
Switches	[Nameplate Ratings]	[total]	-	-	-	
nstrument Transformers	[Nameplate Ratings]	[total]	-	-	-	
Surge Arresters	[Nameplate Ratings]	[total]	-	-	-	
Structures		[total]	-	-	-	
Foundations		[total]				
Dil Containment		[total]				
Conduits		[total]				
Grounding		[total]				
Control House		[total]				
Protection and Control		[total]				
SCADA		[total]				
Communications		[total]				
add additional items]	-		-	-	-	
Construction Cost Item	Description	Quantity	Unit Cost	Sub Totals	Comment	
Site Prep/Grading				-	-	
Below Grade: Foundation, Conduit Grounding				-	-	
Above Grade: Structures, Major Equipment				-	-	
Control House				-	-	
Protection and Control				-	-	
SCADA				-	-	

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Removal Costs (labor & Equipment)					
add additional items]	-	-	-	-	-
	-	-	-	[Total]	Total Substation Cost
Contingency (Unknown Issues)	-	-	-	-	-
Contingency Item]	[Explanation of Contingency]	[%]	[Substation Cost]	[Total]	(with contingency)
Potential Risk Items Adders (Known Issues)	-	-	-	-	-
add risk items as necessary]	[Description of risk item]	-	-	-{Cost}	-
	-	-	-	[Total]	(with Risk Items)
Allowance For Funds Used D	uring Construction (AFUDC) or Financi	ng costs (if applic	able)		
				[Cost]	
	-	-	-	[Total]	(Total Substation Cost)

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Attachment C - Developer's Data Submission for Solutions to Reliability Needs
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Pre-Construction	Description	Quantity	<u>Unit Cost</u>		<u>Sub</u> Totala	Included	Commen		
COSTS	[Environmental,				TOLOIS	<u>Capital Costs</u>			
	EMEGrounding, Cost		Castan	0/ - 6					
<u>Studies</u>	BenefitSound, Protection etc]		Cost or xx project co			Yes / No			Formatted Table
Legal Fees		-			-		-		
	-	-	Cost or xx		-	-	-		
Engineering (internal) Engineering	-	-	project co Cost or xx		-	-	-	-	
(Consultant)	-	_	project Co		_	_	_		
+/- Engineering Cost Adder	[+/- % adder for economy of scale]		L. (. 0(1						
	<u>or scalej</u>	-	[+/- %]		-		-	-	
Project Management Licensing and	-	-	-		-	-	-	-	
Permitting Costs	-	_			_	_	-		
Land Survey Costs	[LiDAR, Topographical, Boundary, Stake-out]								
	[subsurface investigation,	-	-		-		-		
Geotechnical Costs	borings, etc.]	_							
[add additional items]							<u> </u>		
Land Acquisitions Cost	Description	Quantity	Unit Cost		<u>Sub</u>	Included Capital Costs	Commen		
item					<u>l otals</u>	<u>Capital Costs</u>			
Commercial/Industrial	-	[Acres]	[\$Adder,		-	-	-	_	Formatted Table
Residential	_	[Acres]	[\$Adder,		-			-	
Fallow Land	-	[Acres]	[\$ Adder,	/acre]	-	-		_	
Farm Crop Land	-	[Acres]	[\$ Adder,	/acre]	_	_		_	
Forested Area		[Acres]	[\$ Adder,	/acre]	_		_		
Wetlands	-	[Acres]	[\$Adder,	/acre]	_	_	_		
Crop Damages	-	[Acres]	[\$Adder,	/acre]	_	_	_		
[add additional items]									
Major Fouipment/Material	Description	_	Unit Cost		Sub	Included			
Equipment/Material Cost Item	Description	<u>Quantity</u>	Material	<u>Install</u>	<u>Totals</u>	Capital Costs	<u>Commen</u>		
Transformer_	[Nameplate Ratings]	_	_						
<u>Breaker</u>	[Nameplate Ratings]	-	-		-				
<u>Switches</u>	[Nameplate Ratings]	_							
<u>Capacitors, Reactors,</u> etc	[Nameplate Ratings]								
Instrument									
Transformers	[Nameplate Ratings]	-	-		<u> -</u>	-		-	
Surge Arresters	[Nameplate Ratings]	-	-		ļ	-			
Structures	Description-	-	_	L					Formatted Table
Bus, Insulators, Hardware	Description								
Foundations	Description-	-			l.	.			
Oil Containment	Description-		_				_		
Conduits/Trench	Description-	-			1	-	1		
Grounding	Description-	-	1		1	-	1		
	Description-	-	-		1	-			
Control House AC and DC	Description	-	-		-	-		_	Formatted: Border: Top: (No border)
Distribution Systems		1	1	1	1		1	/	Formatted: Right, Right: -0.19", Tab stops: 6.31", Right

 Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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ADA	Description-				_	_	_		
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moval Costs (labor Equipment)									
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<u>nknown Issues)</u>	[Explanation of			_	<u>Totals</u>	-			
ontingency Item]	Contingency]	<u>[%]</u>	-		_	-			
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	Taxes]	[%]				_			
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	Cost not owned, or paid for, by <i>tement if applicable)</i> This project b/funding].	[Project Develope	r]: \$xx	
Total Project C	Cost:		\$xx	
Project Life and	Operation and Maintenance Costs	:		
The estimated li	ife of the project's installed facilitie	es is [] years.		
	timated annual maintenance/operat the facilities is \$[]/year. Provide d			
<u>Cost Cap for I</u>	ncluded Capital Costs voluntarily	submitted by De	veloper:	
Hard Cost Cap:			<u>\$xx</u>	
Or Soft Cost Ca	ıp:		<u>\$xx</u>	
<u>Risk sha</u>	red by Project Developer	<u>%</u>	4	Formatted: Indent: Left: 0.5"
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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	
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Attachment C.1A: Existing simplified System One-Line Diagram of Integrated Facilities	
Attachment C.1B: Existing detailed Electrical One Line Diagram of each Interconnecting substation	
Attachment C.1C: Proposed simplified System One-Line of Final Configuration	
Attachment C.1D: Proposed detailed Electrical One Line Diagram of each Interconnecting substation	
Attachment C.2A: Transmission Routing Study or plan for determining the routing and acquiring property rights	
(If Developer has not obtained all necessary property rights to implement the solution, insert the transmission routing study if completed. If a routing study has not been completed, include a description of the plan for determining the routing and acquiring property rights.)	
Attachment C.2B: Proposed Line Route (presented on a map with minimum scale of and displaying a centerline and corridor width of feet.)	
(this route should include any structure numbers that are specifically called out at any point)	
Attachment C.2C: Existing Site Plan and Plot Plan for each interconnecting substation	
(insert the existing Site Plan depicting the existing transmission lines and structures, rights of ways, property lines, regulated wetlands, culverts, ditches and other existing utilities in the area. Insert the existing Plot Plan for the interconnecting substations which depict the fenced areas, major structures, equipment, control buildings, property lines and access roads.)	
Attachment C.2D: Proposed Site Plan and Plot Plan for each interconnecting substation	
(insert the proposed Site Plan depicting the existing and new transmission lines and structures, rights of ways, property lines, regulated wetlands, culverts, ditches and other existing utilities in the area. Insert the proposed Plot Plan for the interconnecting substations which depict the new fenced areas, major structures, equipment, control buildings, property lines and access roads.)	
Attachment C.3: Typical Structure Drawings for Project	
(provide typical structure type drawings to be used on this project, tangent, running angle, and deadend structures. Insert other	
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Attachment C – Developer's Data Submission for Solutions to Reliability Needs Error! No text of specified style in document. Issued: 07/31/2015 – ii Public Policy Transmission Planning Process [419

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	tructures drawings, such as ROW cross sections, as to be helpful to nderstand project costs)	
Attachment C.4.1:	Detailed Estimated Cost Breakdown Sheet	
	(insert project Developer's estimating spreadsheet or other project costing method used to develop project costs.	
Attachment C.4.2:	[Project Developer] Associated Assets	
project)	(list major assets the project requestor will own at the end of the	
Attachment C.4.3:	Facilities Assets not owned by [Project Developer] (list assets that will be owned by others at the end of the project) (delete if not applicable)	
Attachment C.4.4:	Cost Estimate Assumptions & Clarifications	
Attachment C.5: <i>format))</i>	Project Milestone Schedule (Project Developer may use own	
Attachment C.6:	ROW Width Calculations & Drawings	
Attachment C.7:	Risk Register	
Attachment C.8:	Planning Study Results	
	(insert results of any studies or analysis completed by the Developer that illustrates that the project will address the Public Policy Transmission Need.)	

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 Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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Transmission Line Proposed Project Scope Document Attachment C.1.A and B Initial One-Line Diagrams

(Provide INITIAL one line diagrams as required)

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Attachment C Developer's Data Submission for Solutions to Reliability Needs
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Transmission Line Proposed Project Scope Document Attachment C.1.C and D Final/Ultimate One Line Diagrams

(Provide FINAL/ULTIMATE one line diagrams as required)

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Transmission Line Proposed Project Scope Document Attachment C.2.A Proposed Transmission Routing Study or Plan

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Transmission Line Proposed Project Scope Document Attachment C.2.B Proposed Line Route

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Transmission Line Proposed Project Scope Document Attachment C.2.C Existing Substation Site Plans and Plot Plans

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Transmission Line Proposed Project Scope Document Attachment C.2.D Proposed Substation Site Plans and Plot Plans

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Transmission Line Proposed Project Scope Document Attachment C.3 Typical Structure Drawings

(Provide Typical Structure Drawings as required)

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Transmission Line Proposed Project Scope Document Attachment C.4.1

(Provide Developer's Estimated Cost Breakdown sheet)

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Transmission Line Proposed Project Scope Document Attachment C.4.2 Cost Estimate – [Project Developer] Associated Assets

(List associated assets)

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 Attachment C - Developer's Data Submission for Solutions to Reliability Needs

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Transmission Line Proposed Project Scope Document Attachment C.4.3 Cost Estimate –Facilities Assets Owned By Others

(List other facilities and cost estimates)

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Transmission Line Proposed Project Scope Document Attachment C.4.4 Cost Estimate Assumptions and Clarifications

(*Review the following Assumptions & Clarifications. Delete those that do not apply and add others as required*)

- 1. This estimate contains [___%] contingency amounts. [Project Requestor] does not require contractor bonds or liquidated damages, so the costs for bonds and liquidated damages have not been included.
- 2. All costs are estimated in (year) dollars, and then escalated at a rate of x.x% per year to the year of expenditure. Engineering costs are assumed to be incurred in (year). All construction and material costs are escalated to a rate of x.x% and assumed to be incurred in (year). The percentages will be provided in the requests for solutions
- 3. A cost for miscellaneous equipment and materials, which is assumed to be [x%] of the total cost of the equipment and materials, is included. Miscellaneous construction costs, which are assumed to be [x%] of the total construction labor cost (excluding engineering and construction inspection), are also included. These costs are listed as sundries in the estimates.
- 4. New York State sales and use taxes have been added and are applied to material and the applicable labor categories.
- 5. All transmission line and substation construction will be performed by "contract labor."
- 6. All materials removed for this project are assumed to be scrapped. No salvage value is assumed for the existing structures, conductors and hardware during removal/modification of the existing lines.
- 7. The quantities of materials and labor shown are those estimated to be actually required (no extras) for the design and construction of the line and substation(s) except for the purchase of the line conductor and shield wire. The conductor and shield wire contains [] percent extra (3-5% typical).
- 8. The estimate is based on the existing transmission line being [energized / deenergized], distribution circuits being [energized / de-energized], and substation(s) being [energized/de-energized] during the construction period.
- 9. New transmission line structures will be located as close as possible to existing structures along the line route.
- 10. The estimate is based on the following restrictions on placement of transmission line structures in wetlands. The following mitigation costs are included for the wetland areas: (present details if applicable and available)
- 11. It is assumed that []% of the existing right-of-way will require [light / medium / heavy] clearing for line rebuild.

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- 12. OPGW termination equipment [is / is not] included in any estimate.
- 13. Approximately [] ground rods will be installed at each transmission line structure to achieve a target ground resistance of less than 40 ohms.
- 14. The need for protective matting during construction is based on input from [Contractor].
- 15. This estimate includes the assumption that [Location(s)] will be used for pole and material delivery and laydown.
- 16. Statement of compliance with, and identification of, all reliability standards, interconnection requirements, and design standards applicable to the project.

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Transmission Line Proposed Project Scope Document Attachment C.5 Project Milestone Schedule

(Provide Project Milestone Schedule)

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Attachment C Developer's Data Submission for Solutions to Reliability Needs
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NYISO PUBLIC POLICY TRANSMISSION PLANNING PROCESS MANUA (Formatted: Right, Right: -0.5" ATTACHMENTS New York ISO

Transmission Line Proposed Project Scope Document Attachment C.6 ROW Width Calculations with Associated Drawings

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 Attachment C - Developer's Data Submission for Solutions to Reliability Needs
 Image: Comparison of the system of the

NYISO PUBLIC POLICY TRANSMISSION PLANNING PROCESS MANUA ATTACHMENTS New York ISO

Transmission Line Proposed Project Scope Document Attachment C.7 Risk Register

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Attachment C - Developer's Data Submission for Solutions to Reliability Needs
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Transmission Line Proposed Project Scope Document Attachment C.8 Planning Study Results

(Insert results of any studies or analysis completed by the Developer that illustrates that the project will address the identified Public Policy Transmission Need)

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