



New York City PPTN Information Request

Attachment B Question #13 (Q13)

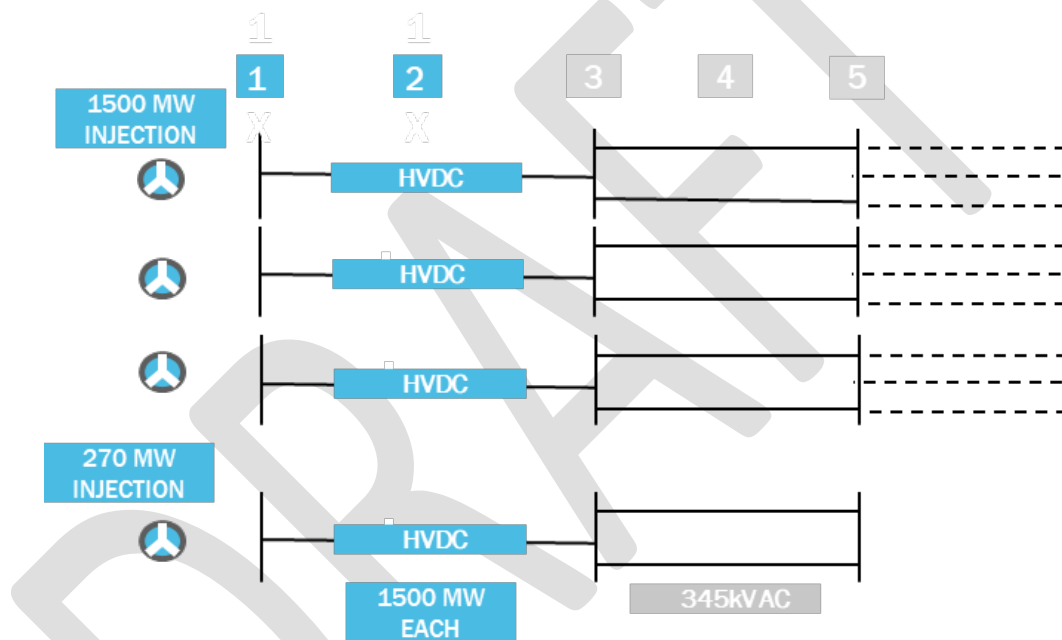
March ~~8~~18, 2024

DRAFT – FOR DISCUSSION PURPOSES ONLY

Information below must be provided as a separate Appendix to Attachment B in response to question 13 of Attachment B

Project Facility Summary Sheet

New York City Offshore Wind PPTN Illustrative Diagram



- 1 Offshore wind interconnection point(s)
- 2 Offshore transmission (*i.e.*, submarine cables)
- 3 Onshore station (*e.g.*, onshore converter substations)
- 4 Onshore transmission path(s) (*e.g.*, terrestrial cables)
- 5 Necessary improvements to and/or expansion of the existing onshore transmission system/proposed substation/existing substation

Project Facility Summary Sheet

Information provided below must be consistent to the information provided in Attachment C under Project Descriptions and Location and Milestone Schedule

	COMPONENT	DESCRIPTION	IN-SERVICE DATE
Offshore POI-Onshore Station-Onshore POI #X	Offshore Interconnection Point (Component 1)	Approximate location (e.g., latitude and longitude) of offshore interconnection point	
		Proposed connection to onshore collector/converter station system, configuration (e.g., symmetrical monopole, bipole with metallic return, AC cable etc.), nominal voltage, capacity	
		AC kV (from OSW Generator), HVDC kV, capacity	
	Onshore Collector/Converter Station (Component 3)	Location of onshore converter station	
		Proposed AC connection(s) to component 5, nominal voltage	
	Onshore POI(s) (Component 5 - Existing Zone J POI)	Substation(s) name	
	Onshore AC connection (Component 5 - new Zone J AC substation)	Location of proposed new substation	
		POI(s) (connection to the existing transmission system), nominal voltage	
	Additional Proposed Changes (Component 5 -necessary improvements to and/or expansion of the	List of additional proposed onshore facilities, nominal voltage	

	COMPONENT	DESCRIPTION	IN-SERVICE DATE
	existing onshore transmission system)		
	Proposed offshore wind generation injection by	January 1, 2033 - _____ MW	
		January 1, 2036, if applicable - _____ MW	
		Project In-Service Date - _____ MW	

Project Facility Summary Sheet - Sample

	COMPONENT	DESCRIPTION		IN-SERVICE DATE
Offshore POI-Onshore Station- Onshore POI #1	Offshore Interconnection Point# X (Component 1)	Approximate physical location (e.g., latitude and longitude) of offshore interconnection point	Coordinates	XX-20XX
		Proposed connection to onshore collector/converter station system, configuration (e.g., symmetrical monopole, bipole with metallic return, AC cable etc.), nominal voltage, capacity	320 kV symmetrical monopole	XX-20XX
		AC kV (from OSW Generator), HVDC kV, capacity	230 kV AC connection 320 kV HVDC 1,200 MW	XX-20XX
	Onshore Collector/Converter Station #X (Component 3)	Location of onshore converter station	Location	XX-20XX
		Proposed AC connection(s) to component 5, nominal voltage	1-345 kV line to existing S#1 1-345 kV line to existing S#2	XX-20XX

	COMPONENT	DESCRIPTION		IN-SERVICE DATE
		Indicate status of converter station site(s) (e.g. brownfield status)		XX-20XX
	Onshore POI(s) (Component 5 - Existing Zone J POI)	Substation name	Existing S#1 345 kV Existing S#2 345 kV	XX-20XX
Offshore POI-Onshore Station-Onshore POI #2	Offshore Interconnection Point# X (Component 1)	Approximate physical location (e.g., latitude and longitude) of offshore interconnection point	Coordinates	XX-20XX
		Proposed connection to onshore collector/converter station system, configuration (e.g., symmetrical monopole, bipole with metallic return, etc.), nominal voltage, capacity	320 kV symmetrical monopole	XX-20XX
		AC kV (from OSW Generator), HVDC kV, capacity	230 kV AC connection 320 kV HVDC 1,200 MW	XX-20XX
	Onshore Collector/Converter Station #X (Component 3)	Location of onshore converter station	Location	XX-20XX
		Proposed AC connection(s) to component 5, nominal voltage	2-345 kV lines to a proposed S#4 substation	XX-20XX
	Onshore AC connection (Component 5 - new Zone J AC substation)	Location of proposed new substation	Location	XX-20XX
		POI(s) (connection to the existing transmission system), nominal voltage	2-345 kV lines to existing S#5 345 kV	XX-20XX
	Additional Proposed Changes (Component 5 - necessary)	List of additional proposed onshore facilities	Proposed line from S#9-S#10	XX-20XX
Proposed line from S#9-S#11			XX-20XX	

	COMPONENT	DESCRIPTION		IN-SERVICE DATE
	improvements to and/or expansion of the existing onshore transmission system)		Proposed line from S#9-S#12	XX-20XX
	Proposed offshore wind generation injection by	January 1, 2033 - ____ MW		-
		January 1, 2036, if applicable - ____ MW		-
		Project In-Service Date - ____ MW		-

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Facility Characterization Summary

Information provided below must be consistent with the information provided in Attachment B under cost estimate section and Attachment C under Project Descriptions and Location section

Add facility characterizations (i.e., NEW, Public Polic Transmission Upgrade, or potential Network Upgrade Facilities [“NUF”]) for each proposed facility identified in the submittal

ID	SUB ID	SUBSTATION FACILITY	DEVELOPER FACILITY CHARACTERIZATION (Public Policy Transmission Upgrade, NEW, Potential NUF)
S#	Existing __ kV Substation (TO Name)		
	B1	Breaker and a half GIS installation	
	B2	Ring bus GIS installation	
	B3	Double Ring Bus GIS installation	
	B4	Breaker and a half AIS installation	
	B5	Ring bus AIS installation	
	B6	Double Ring Bus AIS installation	
	B7	Breaker installation	
	B8	Additional bay(s) installation	
	P1	PAR(s) installation on terminal of existing line(s)	
	P2	PAR(s) installation on terminal of proposed line(s)	
	R	Relay work	
	SHR1	Shunt reactor(s) installation on proposed line	
	SHR2	Shunt reactor(s) installation on existing line	
	SR	Series reactor(s) installation on existing line(s)	

ID	SUB ID	SUBSTATION FACILITY	DEVELOPER FACILITY CHARACTERIZATION (Public Policy Transmission Upgrade, NEW, Potential NUF)
	T	Transformer(s) installation	
	SHC	Shunt capacitors(s) installation	
	H	HVDC station(s)	
		Other Equipment, as applicable	
S#	Proposed __kV Substation (TO Name)		
	B1	Breaker and a half GIS installation	
	B2	Ring bus GIS installation	
	B3	Double Ring Bus GIS installation	
	B4	Breaker and a half AIS installation	
	B5	Ring bus AIS installation	
	B6	Double Ring Bus AIS installation	
	B7	Breaker installation	
	B8	Additional bay(s) installation	
	P1	PAR(s) installation on terminal of existing line(s)	
	P2	PAR(s) installation on terminal of proposed line(s)	
	R	Relay work	
	SHR1	Shunt reactor(s) installation on proposed line	
	SHR2	Shunt reactor(s) installation on existing line	
	SR	Series reactor(s) installation on existing line(s)	
	T	Transformer(s) installation	
	SHC	Shunt capacitor(s) installation	
	H	HVDC station(s)	
		Other Equipment, as applicable	

ID	TRANSMISSION FACILITY	DEVELOPER FACILITY CHARACTERIZATION (Public Policy Transmission Upgrade, NEW, Potential NUF)
L#	Substation Name (proposed) - Substation Name __ kV line(s)	

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Project Modeling Files

Information provided below must be consistent with the information provided in Attachment C under “Project Descriptions and Location” and results included in Attachment C.8

Provide Project model files for the following:

1. For injection of 4,770 MW of incremental offshore wind generation by January 1, 2033

- A. Project facilities that will be in service by January 1, 2033 to inject 4,770 MW of incremental offshore wind generation
- B. Generator model(s) to inject 4,770 MW of incremental offshore wind generation at each proposed offshore POI(s) by January 1, 2033
- C. Associated contingency files
- D. Table documenting acceptable adjustments to bring back underground cable circuit loading below LTE rating if using the NYSRC reliability rules criteria allowing underground cable circuit to be loaded up to its STE rating post contingency

2. For injection of incremental offshore wind generation higher than 4,770 MW

- A. Additional project facilities that will be in service after January 1, 2033 to inject incremental offshore wind generation higher than 4,770 MW, if applicable. Do not include facilities identified in File 1A.
- B. Generator model(s) to inject incremental offshore wind generation in excess of the 4,770 MW at each proposed POI(s), if applicable
- C. Associated contingency files
- D. Table documenting acceptable adjustments to bring back underground cable circuit loading below LTE rating if using the NYSRC reliability rules criteria allowing underground cable circuit to be loaded up to its STE rating post contingency

Project Modeling Files - Project Facilities Modeling Data Format

1. Bus Numbering

Use the following range when assigning bus modeling information for facilities connecting into Zone J:

<u>From</u>	<u>To</u>	<u>Area</u>	<u>Zone*</u>	<u>Owner</u>
<u>700409</u>	<u>700458</u>	<u>10</u>	<u>159 (CONED)</u> <u>170 (NYPA)</u>	<u>999</u>

* Use Zone 170 (NYPA) if connecting into Astoria Annex 345kV substation

1.2. Project Facilities

/Please ensure every line (empty lines, comments, etc.) is commented so that PSS/E does not throw "invalid argument" / "error"

/Please add comments after command line to identify its purpose

/This is a sample file format to add project facilities

/Developers should submit 2 files, as applicable:

/File #1A. File to add transmission facilities proposed to be in service by Jan 1, 2033, to accommodate 4770 MW of OSW

/File #2A. File to add transmission facilities proposed to be in service after Jan 1, 2033, to accommodate OSW higher than 4770MW,

/if applicable, in addition to facilities added by File#1A. Do not include facilities identified in File 1A.

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/*****NEW BUSES*****/
BAT_BUS_DATA_3 /Add 345kV bus
/*****NEW AC LINES*****/
BRANCH_DATA_3 /Add 345kV line S#1-S#2
/*****NEW HVDC LINES MODEL*****/
/
/*****NEW HVDC LINES GEN PAIR MODEL*****/
/
/*****NEW 2W/3W Transformers*****/
BAT_TWO_WINDING_DATA_5 /Add PAR on line from S#1-S#2
/*****SHUNTS*****/
/
/*****ADD SERIES REACTORS, IF ANY *****/
/
/*****OUT OF SERVICE*****/

```

Project Modeling Files – Generator Modeling Data Format

1. Future offshore wind generator model

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/Please ensure every line (empty lines, comments, etc.) is commented so that PSS/E does not throw unnecessary "invalid argument" /
/"error"
/ Please add comments after command line to identify its purpose
/ This is a sample file format to add future OSW generation at the Offshore POI(s)
/ Developers should submit 2 files:
/ File #1B. File to add 4770 MW of future OSW at the offshore POI(s)
/ File #2B. File to add future OSW in addition to the 4770MW added by File#1B, if applicable.
/*****FUTURE OSW GENERATION*****/
/
/*****Network Adjustments *****/

```

/System adjustments (e.g. generation to be dispatched down, PAR schedule changes) to accommodate proposed 4,770 MW of
/offshore wind generation under applicable reliability standards
/For all generation changes, area swing bus should be within its MW limits
/Include changes to intra-area interchange

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Project Modeling Files – Contingency File Format

Developers must submit separate contingency files associated with facilities that will be in service before January 1, 2033 to accommodate 4,770 MW of incremental offshore wind generation listing the following:

- 1.C.1 - new contingencies (~~contingencies~~contingency definitions associated with new proposed facilities)
- 1.C.2 - modified contingencies (~~contingencies~~contingency definitions included in the existing NYISO CON deck that need to be modified to accommodate the project)
- 1.C.3 - retired contingencies (~~contingencies~~contingency definitions included in the existing NYISO CON deck that need to be removed/retired (not modified) to accommodate the project)

Provide the following table (This is a sample file format):

PROJECT FILE NAME	SINGLE		MULTIPLE		RETIRED CON	CON FILE NAME	N-1 SINGLE S	N-1 MULTIPLE S	N-1-1 LEVEL 1	N-1-1 LEVEL 2 SINGLES	N-1-1 LEVEL 2 MULTIPLES
	NEW	MODIFIED	NEW	MODIFIED							
Project_Singles New	Con 1	-	-	-	-	-	✓	-	✓	✓	-
	Con 2	-	-	-	-	-	✓	-	✓	✓	-
	Con 3	-	-	-	-	-	✓	-	✓	✓	-
Project_Singles Modified	-	Con 4	-	-	-	NYISO CON file name in which the original continge	✓	-	✓	✓	-
	-	Con 5	-	-	-		✓	-	✓	✓	-
	-	Con 6	-	-	-		✓	-	-	-	-

PROJECT FILE NAME	SINGLE		MULTIPLE		RETIRED CON	CON FILE NAME	N-1 SINGLE S	N-1 MULTIPLE S	N-1-1 LEVEL 1	N-1-1 LEVEL 2 SINGLES	N-1-1 LEVEL 2 MULTIPLES
	NEW	MODIFIED	NEW	MODIFIED							
						ncy can be found					
Project_Multiple New	-	-	Con 7	-	-	-	-	✓	-	-	✓
Project_Multiple Modified	-	-	-	Con 8	-	NYISO CON file name in which the original contingency can be found	-	✓	✓	-	✓
	-	-	-	Con 9	-	NYISO CON file name in which the original contingency can be found	-	✓	✓	-	✓
Project_Retired	-	-	-	-	Con 10	NYISO CON file name in which the contingency can be found	-	-	-	-	-
	-	-	-	-	Con 11	NYISO CON file name in which the contingency can be found	-	-	-	-	-

Developers must submit separate contingency files to accommodate the incremental offshore wind generation in excess of 4,770 MW, if applicable, listing the following:

- 2.C.1 - new contingencies (~~contingencies~~contingency definitions associated with new proposed facilities)
- 2.C.2 - modified contingencies (~~contingencies~~contingency definitions included in the existing NYISO CON deck which need to be modified to accommodate the project)
- 2.C.3 - retired contingencies (~~contingencies~~contingency definitions included in the existing NYISO CON deck which need to be removed/retired (not modified) to accommodate the project)

Provide the following table (This is a sample file format):

PROJECT FILE NAME	SINGLE		MULTIPLE		RETIRED CON	CON FILE NAME	N-1 SINGLE S	N-1 MULTIPLE S	N-1-1 LEVEL 1	N-1-1 LEVEL 2 SINGLE S	N-1-1 LEVEL 2 MULTIPLE S
	NEW	MODIFIED	NEW	MODIFIED							
Project_Singles New	Con 1	-	-	-	-	-	✓	-	✓	✓	-
	Con 2	-	-	-	-	-	✓	-	✓	✓	-
	Con 3	-	-	-	-	-	✓	-	✓	✓	-
Project_Singles Modified	-	Con 4	-	-	-	NYISO CONcontingency file name in which the original contingency can be found	✓	-	✓	✓	-
	-	Con 5	-	-	-		✓	-	✓	✓	-
	-	Con 6	-	-	-		✓	-	-	-	-
Project_Multiple New	-	-	Con 7	-	-	-	-	✓	-	-	✓
	-	-	-	Con 8	-		-	✓	✓	-	✓

PROJECT FILE NAME	SINGLE		MULTIPLE		RETIRED CON	CON FILE NAME	N-1 SINGLE S	N-1 MULTIPLE S	N-1-1 LEVEL 1	N-1-1 LEVEL 2 SINGLE S	N-1-1 LEVEL 2 MULTIPLE S
	NEW	MODIFIED	NEW	MODIFIED							
Project_Multiple Modified	-	-	-	Con 9	-	NYISO CON contingency file name in which the original contingency can be found	-	✓	✓	-	✓
Project_Retired	-	-	-	-	Con 10	NYISO CON contingency file name in which the contingency can be found	-	-	-	-	-
	-	-	-	-	Con 11	NYISO CON contingency file name in which the contingency can be found	-	-	-	-	-

Project Modeling Files – Adjustments

If proposing to use the NYSRC reliability rule allowing underground cables circuit to go to STE rating post-contingency for one or more of the eligible facilities, the Developer must provide acceptable system adjustments, as needed and allowed for the contingency type, for every underground cable element and contingency pair to reduce the cable loading to its LTE rating.

Acceptable system adjustments should be provided in form of an automation script (e.g., .idev file) and listed in the table below.

1.D Acceptable adjustments to accommodate 4,770 MW of incremental offshore wind generation

MONITORED FACILITY	CONTINGENCY NAME	FILE NAME (AUTOMATION SCRIPT)	PRE ADJUSTMENT FLOW (% LOADING OF STE RATING)	POST ADJUSTMENT FLOW (% LOADING OF LTE RATING)

2.D Acceptable adjustments to accommodate incremental offshore wind generation in excess of 4,770 MW, if applicable

MONITORED FACILITY	CONTINGENCY NAME	FILE NAME (AUTOMATION SCRIPT)	PRE ADJUSTMENT FLOW (% LOADING OF STE RATING)	POST ADJUSTMENT FLOW (% LOADING OF LTE RATING)

Geospatial Data Files

Developers must provide information in .pdf, .kmz file formats and a summary of infrastructure crossings for each route in the requested format as part of Attachment C.2B. Specific to this NYC PPTN, Developers must also provide geospatial data of proposed project components/infrastructure in shapefile (.shp) format in addition to the information requested as part of Attachment C.2B.

Data provided must be consistent with information provided in Attachments C.2A, C.3A, C.3B, C.3C, C.3D, C.3E and other information provided in the project proposal.

Data in the .kmz and .shp file should include:

1. Proposed cable routes
2. Manholes and vaults
3. Offshore platforms/offshore POI(s)
4. Substations (including connections to existing substations)
5. Transition stations
6. HVDC converter stations
7. HDD pullback areas, crossings

The data must meet the following requirements:

- A. Polylines shall be used to represent proposed cable routes.
- B. If multiple cables are proposed along the same route, one polyline feature for each cable may be appropriate. Bundled cables can be shown as a single polyline. Bundled cables should report a spacing of 0 ft in the attribute table.
- C. Parallel cables not installed in one bundle should be shown as multiple polylines. Where parallel cables are proposed, the spacing of the cables, measured from center of one cable to center of the next cable, must be reported in the attribute table.
- D. Single cables not installed in a series of parallels should also report a spacing of 0 ft.
- E. Only one installation method is allowed for each feature in the attribute table. Where installation methods change along a route, one polyline must be ended and another must begin.

F. Polygons must be used to represent approximate footprints of proposed platforms/offshore POI(s), manholes, substations, transition stations, HVDC converter stations, HDD pullback areas, crossings and splice vaults. The attributes must clearly indicate whether a facility (polygon) represents construction on a new footprint, the expansion of an existing facility’s footprint, or be located within an existing facility’s footprint.

G. Points shall be used to represent HDD entry and exit locations.

At a minimum, the following attributes are to be provided for each feature, respective of type.

Polylines:





<u>LINE NAME</u>	<u>NUMBER OF CABLES per CIRCUIT</u>	<u>SPACING OF CABLES (FT.)</u>	<u>LIMIT OF DISTURBANCE WIDTH (FT.)</u>	<u>INSTALLATION METHOD</u>	<u>kV RATING</u>	<u>CIRCUIT MVA RATING (Normal/ LTE/STE)</u>	<u>CABLE TYPE</u>	<u>CABLE SIZE</u>	<u>HVDC vs. AC</u>
<u>Example</u>	<u>2</u>	<u>5 ft</u>	<u>12 ft</u>	<u>Open Trench</u>	<u>345kV</u>	<u>490/636/880</u>	<u>Tri-Core</u>	<u>1400mm²</u>	<u>AC</u>






Polygons :

<u>CONSTRUCTION FOOTPRINT (new/ expansion of existing/ upgrade within existing)</u>	<u>AREA ((Acres)</u>	<u>Voltage (kV)</u>	<u>HEIGHT OF NEW STRUCTURES ABOVE GROUND SURFACE (FT.)</u>	<u>HIGHEST ELEVATION OF NEW STRUCTURES (NAVD88)</u>
-			-	-
-			-	-

Developers must provide .kmz file with the requested attributes. Sample .kmz file is attached in the document and will be made available at the time of solicitation.

Developers must use following LEGENDs in the document and Google Earth files:

<u>OFFSHORE POI</u>	
<u>ONSHORE COLLECTOR/ CONVERTER STATION</u>	
<u>ONSHORE SUBSATION (345 kV)</u>	
<u>ONSHORE SUBSATION (138 kV)</u>	

<u>TRANSMISSION DC</u>	
<u>SUBMARINE TRANSMISSION AC (345 kV)</u>	
<u>SUBMARINE TRANSMISSION AC (Lower than 345 kV)</u>	
<u>TERRESTRIAL TRANSMISSION AC (345 kV)</u>	
<u>TERRESTRIAL TRANSMISSION AC (138 kV)</u>	

Developers must provide a table listing the GIS layers used in their analysis as part of Attachment C.2A. Developer must use GIS data sources included in Appendix A of the NYSERDA Offshore Wind Cable Corridor Constraints Assessment Report, January 2023 for their analyses. In the event more recent data on a particular Appendix A Resource/Area can be obtained, or if an additional GIS layers in the analysis is used but is not included in Appendix A, then updated information per Table A-1/2 (Resource/Area, Year, Category, Description, Web link/source) for this data must also be provided. Data provided must be consistent with Attachment C.2B.

<u>Resource/Area</u>	<u>Year</u>	<u>Description</u>	<u>Web link/Source</u>	<u>Project Component Crossing</u>
-		-	-	
-		-		

Include information and/or maps/figures regarding the resilience of the infrastructure against climate change and sea level rise. This can include, but not be limited to, details on the placement of key infrastructure with reference to mapped flood zones or projected areas of inundation.

Cost Estimate Information

The following costs must be included in the cost estimate details that must be provided in response to question 14 of Attachment B. Cost estimate information should only be included in Attachment B and not as part of this information request:

A. Offshore geotechnical costs to be included.

B. Sediment sampling for physical and chemical parameters for both offshore and terrestrial areas, if required, must include the scope and costs for the same.

C. For purposes of a Public Policy Transmission Project, a Developer is expected to complete a desktop analysis that evaluates routing and infrastructure and to submit that desktop analysis with its submittal. More detailed site and engineering evaluations will be required to further refine routes. Given the complexity of NYC this could be costly, time consulting, and result in significant route adjustments. Hence, Developers must also include details, costs and timeline on how they will refine their routes.

D. A large number of studies are expected for the permitting of a Public Policy Transmission Project to address the NYC PPTN some of which require significant field work as well as certain investigations necessary for route refinement. Developer must include a detailed list of anticipated studies or investigations with a general overview of their anticipated scope and costs that the Developer believes will be necessary.