New York City PPTN Information Request
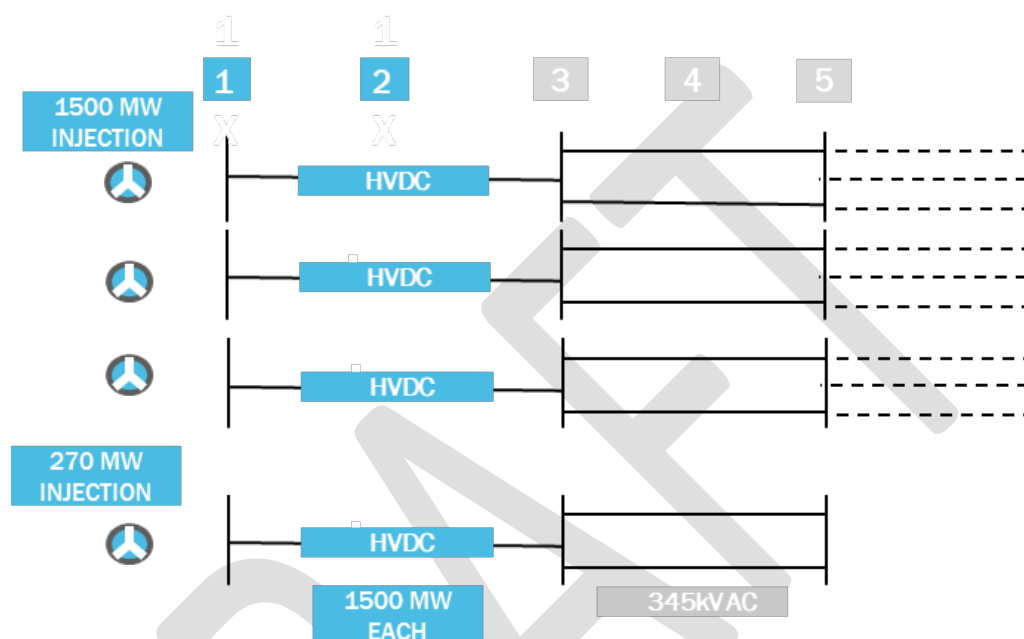
Attachment B Question #13 (Q13)

March 8, 2024

DRAFT – FOR DISCUSSION PURPOSES ONLY

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

Ensure that the information provided below is 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 Inservice 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	320kV symmetrical monopole	**XX-20XX**
		AC kV (from OSW Generator), HVDC kV, capacity	230 kV AC connection 320 kV HVDC 1200MW	**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	1-345kV line to existing S#1 1-345kV 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 345kV Existing S#2 345kV	**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	320kV symmetrical monopole	**XX-20XX**
		AC kV (from OSW Generator), HVDC kV, capacity	230 kV AC connection 320 kV HVDC 1200MW	**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	2-345kV line 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 line to existing S#5 345kV	**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 Inservice date - ____MW		

Facility Characterization Summary

Ensure that the information provided below is consistent with the information provided in Attachment C under Project Descriptions and Location

Add Facility Characterization for proposed facilities

ID	SUB ID	SUBSTATION FACILITY	DEVELOPER FACILITY CHARACTERIZATION (Public Policy Transmission Upgrade, NEW, Potential NUF)
		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	
S#	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	

ID	SUB ID	SUBSTATION FACILITY	DEVELOPER FACILITY CHARACTERIZATION (Public Policy Transmission Upgrade, NEW, Potential NUF)
	SHC	Shunt capacitors(s) installation	
	H	HVDC station(s)	
		Other Equipment, as applicable	
		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	
S#	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)	

Project Modeling Files

Ensure that the information provided below is 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 offshore wind generation by January 1, 2033**
   A. Project facilities that will be in service by Jan 1, 2033 to inject 4,770 MW of offshore wind generation
   B. Generator model(s) to inject 4,770 MW of offshore wind generation at proposed offshore POI(s) by Jan 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 offshore wind generation higher than 4,770 MW**
   A. Additional project facilities that will be in service after Jan 1, 2033 to inject offshore wind generation higher than 4,770 MW. Do not include facilities identified in File 1A.
   B. Generator model(s) to inject in excess of the 4,770 MW of offshore wind generation, 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 upto its STE rating post contingency

Project Modeling Files - Project Facilities Modeling Data Format

1. 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.
/*****************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

/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

Project Modeling Files – Contingency File Format

Developers should submit separate contingency files associated with facilities that will be in service before January 1, 2033 to accommodate 4,770 MW of offshore wind generation listing the following:
    1.C.1 - new contingencies (contingencies associated with new proposed facilities)
    1.C.2 - modified contingencies (contingencies included in the existing NYISO CON deck which need to be modified to accommodate the project)
    1.C.3 - retired contingencies (contingencies 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 SINGLES	N-1 MULTIPLES	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 contingency can be found	✓	-	✓	✓	-
	-	Con 5	-	-	-		✓	-	✓	✓	-
	-	Con 6	-	-	-		✓	-	-	-	-

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

Developers should submit separate contingency files to accommodate the offshore wind generation higher than 4,770 MW, if applicable listing the following:

    2.C.1 - new contingencies (contingencies associated with new proposed facilities)

    2.C.2 - modified contingencies (contingencies included in the existing NYISO CON deck which need to be modified to accommodate the project)

2.C.3 - retired contingencies (contingencies 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 SINGLES	N-1 MULTIPLES	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 contingency can be found	✓	-	✓	✓	-
	-	Con 5	-	-	-		✓	-	✓	✓	-
	-	Con 6	-	-	-		✓	-	-	-	-
Project_Multiple New	-	-	Con 7	-	-	-	-	✓	-	-	✓
Project_Multiple Modified	-	-	-	Con 8	-	NYISO CON file name in which the original contingency can be found	-	✓	✓	-	✓
	-	-	-	Con 9	-		-	✓	✓	-	✓
Project_Retired	-	-	-	-	Con 10		-	-	-	-	-

| PROJECT FILE NAME | SINGLE | | MULTIPLE | | RETIRED CON | CON FILE NAME | N-1 SINGLES | N-1 MULTIPLES | N-1-1 LEVEL 1 | N-1-1 LEVEL 2 SINGLES | N-1-1 LEVEL 2 MULTIPLES |
	NEW	MODIFIED	NEW	MODIFIED							
	-	-	-	-	Con 11	NYISO CON file name in which the contingency can be found	-	-	-	-	-

Project Modeling Files – Adjustments

If using the NYSRC reliability rule allowing underground cables circuit to go to STE rating post-contingency, developers should 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 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 offshore wind generation higher than 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)