

Deans 3,000 MW DC Injection

General Information

Proposing entity name	NEETMH
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	2-D30
PJM Proposal ID	461
Project title	Deans 3,000 MW DC Injection
Project description	Two 1,500 MW HVDC Symmetrical Monopole systems connecting offshore platforms in the Hudson South lease area to a new Fresh Ponds 500 kV substation near the existing Deans 500 kV switchyard. Loop in the existing Deans – Windsor and Deans Smithburg 500 kV lines into Fresh Ponds 500 kV..
Email	Johnbinh.Vu@nexteraenergy.com
Project in-service date	06/2028
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	See Attachment 2A for reliability studies performed, Attachment 2B for economic studies performed, and Attachment 2D for upgrades identified to address reliability issues for the injection of offshore wind associated with this proposal.

Project Components

1. Offshore Platform A
2. Offshore Platform B
3. Offshore Platform A – Raritan Bay Waterfront Park Landing HVDC

4. Offshore Platform B – Raritan Bay Waterfront Park Landing HVDC
5. Raritan Bay Waterfront Park Landing – Fresh Ponds Converter Station HVDC
6. Fresh Ponds Converter Station
7. Loop in and existing Deans - Smithburg 500 kV OH line to Fresh Ponds 50...
8. Loop in existing Deans - E. Windsor 500 kV OH line to Fresh Ponds 500 kV...
9. Loop in existing Deans - Smithburg 500 kV OH line to Fresh Ponds 500kV A...
10. Loop in existing Deans - E. Windsor 500 kV OH line to Fresh Ponds 500 kV...

Greenfield Substation Component

Component title	Offshore Platform A
Project description	Offshore Platform A to collect offshore wind and deliver 1,500 MW at the point of injection at the Neptune Converter Station
Substation name	Offshore Platform A
Substation description	Offshore platform with an HVDC VSC technology converter station that will allow offshore wind generation to interconnect at 66 kV AC
Nominal voltage	DC
Nominal voltage	400

Transformer Information

None		
Major equipment description	Offshore platform with an HVDC VSC technology converter station that will allow offshore wind generation to interconnect at 66 kV AC	
	Normal ratings	Emergency ratings
Summer (MVA)	1500.000000	1500.000000
Winter (MVA)	1500.000000	1500.000000
Environmental assessment	See Attachment 19	

Outreach plan	See Attachment 12
Land acquisition plan	See Attachment 22
Construction responsibility	Proposer
Benefits/Comments	See Attachment 1, Section 3.4

Component Cost Details - In Current Year \$

Engineering & design	Confidential competitive information
Permitting / routing / siting	Confidential competitive information
ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$787,561,163.00
Component cost (in-service year)	\$906,361,388.00

Greenfield Substation Component

Component title	Offshore Platform B
Project description	Offshore Platform B to collect offshore wind and deliver 1,500 MW at the point of injection at the Neptune Converter Station
Substation name	Offshore Platform B
Substation description	Offshore platform with an HVDC VSC technology converter station that will allow offshore wind generation to interconnect at 66 kV AC
Nominal voltage	DC

Nominal voltage 400

Transformer Information

None

Major equipment description Offshore platform with an HVDC VSC technology converter station that will allow offshore wind generation to interconnect at 66 kV AC

	Normal ratings	Emergency ratings
Summer (MVA)	1500.000000	1500.000000
Winter (MVA)	1500.000000	1500.000000

Environmental assessment See Attachment 19

Outreach plan See Attachment 12

Land acquisition plan See Attachment 22

Construction responsibility Proposer

Benefits/Comments See Attachment 1, Section 3.4

Component Cost Details - In Current Year \$

Engineering & design Confidential competitive information

Permitting / routing / siting Confidential competitive information

ROW / land acquisition Confidential competitive information

Materials & equipment Confidential competitive information

Construction & commissioning Confidential competitive information

Construction management Confidential competitive information

Overheads & miscellaneous costs Confidential competitive information

Contingency Confidential competitive information

Total component cost	\$787,556,303.00
Component cost (in-service year)	\$906,356,528.00

Greenfield Transmission Line Component

Component title	Offshore Platform A – Raritan Bay Waterfront Park Landing HVDC
Project description	Submarine HVDC Symmetrical monopole system from Offshore Platform A to Raritan Bay Waterfront Park Landing. NEETMA will deliver 1,500 MW at the onshore point of injection. Actual losses will be calculated based upon the exact location of the offshore platform and incorporated into the final cable design
Point A	Offshore Platform A
Point B	Raritan Bay Waterfront Park Landing
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1500.000000	1500.000000
Winter (MVA)	1500.000000	1500.000000
Conductor size and type	2000mm2 copper	
Nominal voltage	DC	
Nominal voltage	400	
Line construction type	Submarine	
General route description	Submarine route in Atlantic Ocean. See Attachments 4,19, and 22	
Terrain description	Submarine route in Atlantic Ocean. See Attachments 19 and 22	
Right-of-way width by segment	A kmz of the route is provided as Attachment 4. The project will primarily use existing public ROW. See Attachment 22 for more details.	
Electrical transmission infrastructure crossings	See Attachment 7 for a list of all crossings and proposed crossing plan	

Civil infrastructure/major waterway facility crossing plan	See Attachment 7 for a list of all crossings and proposed crossing plan
Environmental impacts	See Attachment 19
Tower characteristics	A submarine cable is being proposed. See Attachment 6 for details on the characteristics of the submarine cable and its proposed installation.
Construction responsibility	Proposer
Benefits/Comments	See Attachment 1, Section 3.4

Component Cost Details - In Current Year \$

Engineering & design	Confidential competitive information
Permitting / routing / siting	Confidential competitive information
ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$425,237,642.00
Component cost (in-service year)	\$445,791,842.00

Greenfield Transmission Line Component

Component title	Offshore Platform B – Raritan Bay Waterfront Park Landing HVDC
Project description	Submarine HVDC Symmetrical monopole system from Offshore Platform B to Raritan Bay Waterfront Park Landing. NEETMA will deliver 1,500 MW at the onshore point of injection. Actual losses will be calculated based upon the exact location of the offshore platform and incorporated into the final cable design
Point A	Offshore Platform B

Point B	Raritan Bay Waterfront Park Landing	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	1500.000000	1500.000000
Winter (MVA)	1500.000000	1500.000000
Conductor size and type	2000mm2 copper	
Nominal voltage	DC	
Nominal voltage	400	
Line construction type	Submarine	
General route description	Submarine route in Atlantic Ocean. See Attachments 4,19, and 22	
Terrain description	Submarine route in Atlantic Ocean. See Attachments 19 and 22	
Right-of-way width by segment	A kmz of the route is provided as Attachment 4. The project will primarily use existing public ROW. See Attachment 22 for more details.	
Electrical transmission infrastructure crossings	See Attachment 7 for a list of all crossings and proposed crossing plan	
Civil infrastructure/major waterway facility crossing plan	See Attachment 7 for a list of all crossings and proposed crossing plan	
Environmental impacts	See Attachment 19	
Tower characteristics	A submarine cable is being proposed. See Attachment 6 for details on the characteristics of the submarine cable and its proposed installation.	
Construction responsibility	Proposer	
Benefits/Comments	See Attachment 1, Section 3.4	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential competitive information	
Permitting / routing / siting	Confidential competitive information	

ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$453,022,413.00
Component cost (in-service year)	\$474,716,689.00

Greenfield Transmission Line Component

Component title	Raritan Bay Waterfront Park Landing – Fresh Ponds Converter Station HVDC	
Project description	Two terrestrial HVDC Symmetrical monopole systems in a common duct bank from Raritan Bay Waterfront Park Landing to Fresh Ponds Converter Station. NEETMA will deliver 3,000 MW at the onshore point of injection. Actual losses will be calculated based upon the exact location of the offshore platform and incorporated into the final cable design	
Point A	Raritan Bay Waterfront Park Landing	
Point B	Fresh Ponds Converter Station	
Point C		

	Normal ratings	Emergency ratings
Summer (MVA)	1500.000000	1500.000000
Winter (MVA)	1500.000000	1500.000000
Conductor size and type	2000mm2 copper	
Nominal voltage	DC	
Nominal voltage	400	

Line construction type	Underground
General route description	Submarine route in Atlantic Ocean. See Attachments 4,19, and 22
Terrain description	Submarine route in Atlantic Ocean. See Attachments 19 and 22
Right-of-way width by segment	A kmz of the route is provided as Attachment 4. The project will primarily use existing public ROW. See Attachment 22 for more details.
Electrical transmission infrastructure crossings	See Attachment 7 for a list of all crossings and proposed crossing plan
Civil infrastructure/major waterway facility crossing plan	See Attachment 7 for a list of all crossings and proposed crossing plan
Environmental impacts	See Attachment 19
Tower characteristics	A submarine cable is being proposed. See Attachment 6 for details on the characteristics of the submarine cable and its proposed installation.
Construction responsibility	Proposer
Benefits/Comments	See Attachment 1, Section 3.4
Component Cost Details - In Current Year \$	
Engineering & design	Confidential competitive information
Permitting / routing / siting	Confidential competitive information
ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$575,790,066.00
Component cost (in-service year)	\$663,990,066.00

Greenfield Substation Component

Component title	Fresh Ponds Converter Station
Project description	Onshore Converter station site with two 1,500 MW HVDC converters to connect to the existing 500 kV system to deliver 3000 MW of offshore wind from Offshore Platforms A and B
Substation name	Fresh Ponds Converter Station
Substation description	Two HVDC VSC 1500 MW converters, tying into a new 500 kV AC switchyard, with the existing Deans-Windsor and Deans-Smithburg 500 kV lines looped in
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Two HVDC VSC 1500 MW converters, tying into a new 500 kV AC switchyard, with the existing Deans-Windsor and Deans-Smithburg 500 kV lines looped in
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	Normal ratings	Emergency ratings
Summer (MVA)	0.000000	0.000000
Winter (MVA)	0.000000	0.000000
Environmental assessment	See Attachment 19	
Outreach plan	See Attachment 12	
Land acquisition plan	See Attachment 22	
Construction responsibility	Proposer	
Benefits/Comments	See Attachment 1, Section 3.4	

Component Cost Details - In Current Year \$

Engineering & design	Confidential competitive information
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Permitting / routing / siting	Confidential competitive information
ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$562,329,023.00
Component cost (in-service year)	\$641,243,902.30

Transmission Line Upgrade Component

Component title	Loop in and existing Deans - Smithburg 500 kV OH line to Fresh Ponds 500kV AIS substation
Project description	Loop in existing Deans - Smithburg 500 kV OH line at NEETMA proposed Fresh Ponds substation and use existing conductor from Fresh Ponds - Deans
Impacted transmission line	New NEETMA Fresh Ponds substation to Deans 500 kV line
Point A	Fresh Ponds
Point B	Deans
Point C	
Terrain description	Terrain is agriculture in nature. Cut-ins will occur on ROW/easements owned by incumbent, and substation will be constructed on property NEETMA will obtain site control for

Existing Line Physical Characteristics

Operating voltage	500
Conductor size and type	Same as existing
Hardware plan description	Utilize existing line hardware to extent practicable

Tower line characteristics

New dead end structures will need to be installed in order to loop existing lines into the NEETMA Fresh Ponds substation

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2349.000000	2859.000000
Winter (MVA)	2462.000000	2987.000000
Conductor size and type	2156 kcmil Bluebird ACSR: 1C Bundle	
Shield wire size and type	Utilize existing shield wire to extent practicable	
Rebuild line length	2.23 miles	
Rebuild portion description	Construct new ~0.1 mi long 500 kV loop-ins to tie into the NEETMA Fresh Ponds AC substation. Reconductor the entire section of the 500kV OH circuit from Fresh Ponds to Deans	
Right of way	Use of existing ROW and expansion for building 500 kV tie-in line (~0.1 mi long) into NEETMA proposed Fresh Ponds 500kV substation is anticipated	
Construction responsibility	PSEG	
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential competitive information	
Permitting / routing / siting	Confidential competitive information	
ROW / land acquisition	Confidential competitive information	
Materials & equipment	Confidential competitive information	
Construction & commissioning	Confidential competitive information	

Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2656.000000	2983.000000
Winter (MVA)	2931.000000	3229.000000
Conductor size and type	Same as existing	
Shield wire size and type	Utilize existing shield wire to extent practicable	
Rebuild line length	0.1 miles	
Rebuild portion description	Construct new ~0.1 mi long 500 kV loop-ins to tie into the NEETMA Fresh Ponds AC substation	
Right of way	Use of existing ROW and expansion for building 500 kV tie-in line (~0.1 mi long) into NEETMA proposed Fresh Ponds 500kV substation is anticipated	
Construction responsibility	PSEG	
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential competitive information	
Permitting / routing / siting	Confidential competitive information	
ROW / land acquisition	Confidential competitive information	
Materials & equipment	Confidential competitive information	
Construction & commissioning	Confidential competitive information	
Construction management	Confidential competitive information	
Overheads & miscellaneous costs	Confidential competitive information	
Contingency	Confidential competitive information	
Total component cost	\$3,000,000.00	

Component cost (in-service year) \$3,250,000.00

Transmission Line Upgrade Component

Component title Loop in existing Deans - Smithburg 500 kV OH line to Fresh Ponds 500kV AIS substation and use existing conductors

Project description Loop in existing Deans - Smithburg 500 kV OH line at NEETMA proposed Fresh Ponds substation and reconductor on the section of line from Fresh Ponds - Deans

Impacted transmission line New NEETMA-Fresh Ponds substation to Deans 500 kV line

Point A Fresh Ponds

Point B Deans

Point C

Terrain description Terrain is agriculture in nature. Cut-ins will occur on ROW/easements owned by incumbent, and substation will be constructed on property NEETMA will obtain site control for

Existing Line Physical Characteristics

Operating voltage 500

Conductor size and type Same as existing

Hardware plan description Utilize existing line hardware to extent practicable

Tower line characteristics New dead end structures will need to be installed in order to loop existing lines into the NEETMA Fresh Ponds substation

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2078.000000	2078.000000

Winter (MVA)	2078.000000	2078.000000
Conductor size and type	Same as existing	
Shield wire size and type	Utilize existing shield wire to extent practicable	
Rebuild line length	0.1 miles	
Rebuild portion description	Construct new ~0.1 mi long 500 kV loop-ins to tie into the NEETMA Fresh Ponds AC substation, and reconductor 2.23 miles back to Deans from Fresh Ponds	
Right of way	Use of existing ROW and expansion for building 500 kV tie-in line (~0.1 mi long) into NEETMA proposed Fresh Ponds 500kV substation is anticipated, existing rights of -way will be used for reconductor	
Construction responsibility	PSEG	
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential competitive information	
Permitting / routing / siting	Confidential competitive information	
ROW / land acquisition	Confidential competitive information	
Materials & equipment	Confidential competitive information	
Construction & commissioning	Confidential competitive information	
Construction management	Confidential competitive information	
Overheads & miscellaneous costs	Confidential competitive information	
Contingency	Confidential competitive information	
Total component cost	\$8,000,000.00	
Component cost (in-service year)	\$8,660,000.00	

Transmission Line Upgrade Component

Component title	Loop in existing Deans - E. Windsor 500 kV OH line to Fresh Ponds 500 kV AIS substation and use existing conductors
Project description	Loop in existing Deans - E. Windsor 500 kV OH line at NEETMA proposed Fresh Pond sub. Use existing conductors on the section Fresh Ponds - E. Windsor
Impacted transmission line	New NEETMA-Fresh Ponds substation to Deans 500 kV line
Point A	Fresh Ponds
Point B	E. Windsor
Point C	
Terrain description	Terrain is agriculture in nature. Cut-ins will occur on ROW/easements owned by incumbent, and substation will be constructed on property NEETMA will obtain site control for

Existing Line Physical Characteristics

Operating voltage	500
Conductor size and type	Same as existing
Hardware plan description	Utilize existing line hardware to extent practicable
Tower line characteristics	New dead end structures will need to be installed in order to loop existing lines into the NEETMA Fresh Ponds substation

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2656.000000	2983.000000
Winter (MVA)	2931.000000	3229.000000
Conductor size and type	Same as existing	

Shield wire size and type	Utilize existing shield wire to extent practicable
Rebuild line length	0.1 miles
Rebuild portion description	Construct new ~0.1 mi long 500 kV loop-ins to tie into the NEETMA Fresh Ponds AC substation
Right of way	Use of existing ROW and expansion for building 500 kV tie-in line (~0.1 mi long) into NEETMA proposed Fresh Ponds 500kV substation is anticipated
Construction responsibility	PSEG
Benefits/Comments	Resolves reliability issues identified per PJM's Gen. Deliv. Process

Component Cost Details - In Current Year \$

Engineering & design	Confidential competitive information
Permitting / routing / siting	Confidential competitive information
ROW / land acquisition	Confidential competitive information
Materials & equipment	Confidential competitive information
Construction & commissioning	Confidential competitive information
Construction management	Confidential competitive information
Overheads & miscellaneous costs	Confidential competitive information
Contingency	Confidential competitive information
Total component cost	\$3,000,000.00
Component cost (in-service year)	\$3,250,000.00

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

None

Financial Information

Capital spend start date 01/2022

Construction start date 12/2025

Project Duration (In Months) 77

Cost Containment Commitment

Cost cap (in current year) Confidential competitive information

Cost cap (in-service year) Confidential competitive information

Components covered by cost containment

1. Offshore Platform A - Proposer
2. Offshore Platform B - Proposer
3. Offshore Platform A – Raritan Bay Waterfront Park Landing HVDC - Proposer
4. Offshore Platform B – Raritan Bay Waterfront Park Landing HVDC - Proposer
5. Raritan Bay Waterfront Park Landing – Fresh Ponds Converter Station HVDC - Proposer
6. Fresh Ponds Converter Station - Proposer

Cost elements covered by cost containment

Engineering & design Yes

Permitting / routing / siting Yes

ROW / land acquisition Yes

Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes
Additional Information	Confidential competitive information
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	Yes
Would the proposer seek to increase the proposed ROE if FERC finds that a higher ROE would not be unreasonable?	No
Is the proposer offering a Debt to Equity Ratio cap?	Confidential competitive information
Additional cost containment measures not covered above	

Additional Comments

None