

Clean Energy Gateway - Solution B

General Information

Proposing entity name	CONFIDENTIAL INFORMATION
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	CONFIDENTIAL INFORMATION
Company proposal ID	CONFIDENTIAL INFORMATION
PJM Proposal ID	629
Project title	Clean Energy Gateway - Solution B
Project description	See BPU Supplemental Form.
Email	CONFIDENTIAL INFORMATION
Project in-service date	01/2028
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	CONFIDENTIAL INFORMATION

Project Components

1. Lighthouse - Crossroads 500kV Transmission Line #1
2. Lighthouse 500kV Substation
3. Crossroads 500kV Substation
4. Larrabee 230kV Upgrades
5. Smithburg 500kV Bus Expansion
6. Crossroads - Garden View 500kV Transmission Line

7. Deans - Smithburg 500kV Transmission Line Uprate
8. Old York 500/230kV Substation
9. Lighthouse - Crossroads 500kV Transmission Line #2
10. Lighthouse - Crossroads 500kV Transmission Line #3
11. Gardenview 500kV Substation
12. Smithburg - Crossroads 500kV Transmission Line
13. Deans - Substation Interconnection
14. Lighthouse - Crossroads 500kV Transmission Line #4
15. Lighthouse - Crossroads 500kV Transmission Line #5
16. Lighthouse - Crossroads 500kV Transmission Line #6

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #1	
Project description	CONFIDENTIAL INFORMATION	
Point A	Lighthouse Substation	
Point B	Crossroads Substation	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	1125.000000	1608.000000
Winter (MVA)	1229.000000	1757.000000
Conductor size and type	2500mm ² - XLPE Copper Milliken Shape	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Underground	
General route description	See BPU Supplemental Attachment Section VI and Section VII.	

Terrain description	See BPU Supplemental Attachment Section VI and Section VII.
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment
Environmental impacts	See BPU Supplemental Attachment Section VII.
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.
Construction responsibility	CONFIDENTIAL INFORMATION
Benefits/Comments	CONFIDENTIAL INFORMATION
Component Cost Details - In Current Year \$	
Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$96,589,741.48
Component cost (in-service year)	\$107,494,016.79
Greenfield Substation Component	
Component title	Lighthouse 500kV Substation
Project description	CONFIDENTIAL INFORMATION

Substation name	Lighthouse 500kV Substation
Substation description	The Lighthouse substation will connect submarine cables directly from wind farms or Option 2 proposals. The Lighthouse substation can accommodate up to fifteen (15) submarine cables. Cables can be either 275kV or 345kV. The substation will have four (4) power transformers to step the voltage up to 500kV. The 500kV yard will have six (6) connections to the Crossroads 500kV substation. The Lighthouse substation has been designed with space for dynamic reactive support devices and harmonic filter banks necessary for offshore generators to meet power factor and harmonic mitigation requirements. Shunt reactors sizes to connect offshore generators will be determined once offshore wind farm locations are determined.
Nominal voltage	AC
Nominal voltage	500kV / 345kV or 275kV

Transformer Information

	Name	Capacity (MVA)	
Transformer	Transformer #1	1640 / 2050	
	High Side	Low Side	Tertiary
Voltage (kV)	500	345 or 275	
	Name	Capacity (MVA)	
Transformer	Transformer #2	1640 / 2050	
	High Side	Low Side	Tertiary
Voltage (kV)	500	345 or 275	
	Name	Capacity (MVA)	
Transformer	Transformer #3	1640 / 2050	
	High Side	Low Side	Tertiary
Voltage (kV)	500	345 or 275	

	Name	Capacity (MVA)	
Transformer	Transformer #4	1640 / 2050	
	High Side	Low Side	Tertiary
Voltage (kV)	500	345 or 275	
Major equipment description	See BPU Supplemental Attachment.		
	Normal ratings	Emergency ratings	
Summer (MVA)	6600.000000	6600.000000	
Winter (MVA)	6600.000000	6600.000000	
Environmental assessment	See BPU Supplemental Attachment Section VI & VII.		
Outreach plan	See BPU Supplemental Attachment Section VI & VII.		
Land acquisition plan	See BPU Supplemental Attachment Section VI & VII.		
Construction responsibility	CONFIDENTIAL INFORMATION		
Benefits/Comments	CONFIDENTIAL INFORMATION		
Component Cost Details - In Current Year \$			
Engineering & design	CONFIDENTIAL INFORMATION		
Permitting / routing / siting	CONFIDENTIAL INFORMATION		
ROW / land acquisition	CONFIDENTIAL INFORMATION		
Materials & equipment	CONFIDENTIAL INFORMATION		
Construction & commissioning	CONFIDENTIAL INFORMATION		
Construction management	CONFIDENTIAL INFORMATION		
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION		

Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$194,585,712.00
Component cost (in-service year)	\$210,774,031.00

Greenfield Substation Component

Component title	Crossroads 500kV Substation
Project description	CONFIDENTIAL INFORMATION
Substation name	Crossroads 500kV Substation
Substation description	500 / 230kV gas insulated substation. The substation will have a nine (9) position four-thirds arrangement 500kV gas insulated yard. The substation will also include one double breaker position for one 450 MVAR dynamic reactive control device. There will also be one 500 / 230kV transformer. After transforming to 230kV one line will make a separate connection to the existing 230kV Larrabee substation.
Nominal voltage	AC
Nominal voltage	500/ 230

Transformer Information

	Name	Capacity (MVA)	
Transformer	Transformer #1	1640 / 2050	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	
Major equipment description	Fourteen (14) 500kV GIS breakers; 6000A, 63 kA One 500/230kV transformer. One 450 MVAR synchronous condenser.		
	Normal ratings	Emergency ratings	
Summer (MVA)	6600.000000	6600.000000	

Winter (MVA)	6600.000000	6600.000000
Environmental assessment	See BPU Supplemental Attachment Section VII.	
Outreach plan	See BPU Supplemental Attachment 4-1 - Stakeholder Engagement Plan.	
Land acquisition plan	See BPU Supplemental Attachment 6-3 - Site Acquisition Plan.	
Construction responsibility	CONFIDENTIAL INFORMATION	
Benefits/Comments	CONFIDENTIAL INFORMATION	

Component Cost Details - In Current Year \$

Engineering & design	CONFIDENTIAL INFORMATION	
Permitting / routing / siting	CONFIDENTIAL INFORMATION	
ROW / land acquisition	CONFIDENTIAL INFORMATION	
Materials & equipment	CONFIDENTIAL INFORMATION	
Construction & commissioning	CONFIDENTIAL INFORMATION	
Construction management	CONFIDENTIAL INFORMATION	
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION	
Contingency	CONFIDENTIAL INFORMATION	
Total component cost	\$309,626,841.00	
Component cost (in-service year)	\$328,992,464.00	

Substation Upgrade Component

Component title	Larrabee 230kV Upgrades	
Project description	CONFIDENTIAL INFORMATION	
Substation name	Larrabee 230kV	
Substation zone	226	

Substation upgrade scope

Add two (2) 230kV circuit breakers to the Larrabee 230kV substation to create one (1) new position for the connections to Crossroads. To create these positions the western most main bus will need reconfigured as shown in the attached general arrangement drawing.

Transformer Information

None

New equipment description

Two (2) 230kV circuit breakers - 5000A 63kA

Substation assumptions

One bay appears available based on aerial imagery and current substation one-lines.

Real-estate description

N/A

Construction responsibility

CONFIDENTIAL INFORMATION

Benefits/Comments

CONFIDENTIAL INFORMATION

Component Cost Details - In Current Year \$

Engineering & design

CONFIDENTIAL INFORMATION

Permitting / routing / siting

CONFIDENTIAL INFORMATION

ROW / land acquisition

CONFIDENTIAL INFORMATION

Materials & equipment

CONFIDENTIAL INFORMATION

Construction & commissioning

CONFIDENTIAL INFORMATION

Construction management

CONFIDENTIAL INFORMATION

Overheads & miscellaneous costs

CONFIDENTIAL INFORMATION

Contingency

CONFIDENTIAL INFORMATION

Total component cost

\$8,569,816.00

Component cost (in-service year)

\$9,614,345.00

Substation Upgrade Component

Component title

Smithburg 500kV Bus Expansion

Project description	CONFIDENTIAL INFORMATION
Substation name	Smithburg 500kV Substation
Substation zone	1822
Substation upgrade scope	The major equipment involved in the Smithburg Substation Upgrade involves adding nine (9) new 500kV GIS breakers and one (1) 500/230kV transformer.

Transformer Information

	Name	Capacity (MVA)	
Transformer	Transformer #1	1500	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	
New equipment description	Nine (9) 500kV GIS circuit breakers - 6000A, 63kA		
Substation assumptions	Additional space for the upgrade appear available based on aerial imagery and current substation one-lines.		

Real-estate description	
Construction responsibility	CONFIDENTIAL INFORMATION
Benefits/Comments	CONFIDENTIAL INFORMATION

Component Cost Details - In Current Year \$

Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION

Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$45,747,977.00
Component cost (in-service year)	\$51,529,344.00

Greenfield Transmission Line Component

Component title	Crossroads - Garden View 500kV Transmission Line
Project description	CONFIDENTIAL INFORMATION
Point A	Crossroads
Point B	Smithburg
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	5196.000000	5196.000000
Winter (MVA)	5196.000000	5196.000000
Conductor size and type	Triple Bundle 1272 kcmil "Bittern" ACSS High Strength	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	See BPU Submittal Form Section VI and Section VII.	
Terrain description	See BPU Submittal Form Section VI and Section VII.	
Right-of-way width by segment	See BPU Submittal Form Section VI and Section VII.	

Electrical transmission infrastructure crossings	See BPU Submittal Form Section VI and Section VII, specifically Attachment 6-3.
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 of BPU Submittal Form.
Environmental impacts	See BPU Submittal Form Section VII.
Tower characteristics	The preliminary design for the transmission line utilizes steel monopole structures with single circuit, triple bundle 1272 "Bittern" ACSS high strength conductor in a vertical configuration and a single optical groundwire.
Construction responsibility	CONFIDENTIAL INFORMATION
Benefits/Comments	CONFIDENTIAL INFORMATION
Component Cost Details - In Current Year \$	
Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$125,962,401.47
Component cost (in-service year)	\$140,875,629.46
Transmission Line Upgrade Component	
Component title	Deans - Smithburg 500kV Transmission Line Upgrade
Project description	CONFIDENTIAL INFORMATION
Impacted transmission line	Deans - Smithburg

Point A	Deans
Point B	Smithburg
Point C	
Terrain description	Agricultural Fields

Existing Line Physical Characteristics

Operating voltage	500
Conductor size and type	N/A
Hardware plan description	N/A
Tower line characteristics	N/A

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	5196.000000	5196.000000
Winter (MVA)	5196.000000	5196.000000
Conductor size and type	N/A	
Shield wire size and type	N/A	
Rebuild line length	N/A	
Rebuild portion description	N/A	
Right of way	N/A	
Construction responsibility	CONFIDENTIAL INFORMATION	

Benefits/Comments CONFIDENTIAL INFORMATION

Component Cost Details - In Current Year \$

Engineering & design CONFIDENTIAL INFORMATION

Permitting / routing / siting CONFIDENTIAL INFORMATION

ROW / land acquisition CONFIDENTIAL INFORMATION

Materials & equipment CONFIDENTIAL INFORMATION

Construction & commissioning CONFIDENTIAL INFORMATION

Construction management CONFIDENTIAL INFORMATION

Overheads & miscellaneous costs CONFIDENTIAL INFORMATION

Contingency CONFIDENTIAL INFORMATION

Total component cost \$110,786,328.00

Component cost (in-service year) \$123,501,656.00

Greenfield Substation Component

Component title Old York 500/230kV Substation

Project description CONFIDENTIAL INFORMATION

Substation name Old York

Substation description The Old York substation will include a four (4) position breaker and a half configuration 500kV yard that connects to a six (6) position four-thirds configuration 230kV yard via two (2) transformers. The 500kV yard and the 230kV yard will be gas insulated substations housed in separate enclosures. Each transformer will be rated at 1200 MVA.

Nominal voltage AC

Nominal voltage 500 / 230

Transformer Information

	Name	Capacity (MVA)	
Transformer	Transformer #1	1200 / 1500 / 1800	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	
	Name	Capacity (MVA)	
Transformer	Transformer #2	1200 / 1500 / 1800	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	
Major equipment description	500kV gas insulated substation (GIS) circuit breakers (6) will have a continuous current rating of 4000A, a 3464 MVA rating, and a short circuit current rating of 63kA. 500kV terminal equipment will be rated at 4000A. 230kV GIS circuit breakers (8) will have a continuous current rating of 4000A, a 1593 MVA rating, and a short circuit current rating of 63kA. 230kV terminal equipment will be rated at 4000A. The two (2) 500/230kV transformer will each have a capacity of 1200 MVA.		
	Normal ratings	Emergency ratings	
Summer (MVA)	3464.000000	3464.000000	
Winter (MVA)	3464.000000	3464.000000	
Environmental assessment	See BPU Supplemental Attachment Section VII.		
Outreach plan	See BPU Supplemental Attachment 4-1 - Stakeholder Engagement Plan.		
Land acquisition plan	See BPU Supplemental Attachment 6-3 - Site Acquisition Plan.		
Construction responsibility	CONFIDENTIAL INFORMATION		
Benefits/Comments	CONFIDENTIAL INFORMATION		
Component Cost Details - In Current Year \$			

Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$73,101,957.00
Component cost (in-service year)	\$84,202,406.00

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #2
Project description	CONFIDENTIAL INFORMATION
Point A	Lighthouse 500kV Substaton
Point B	Crossroads 500kV Substation
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1125.000000	1608.000000
Winter (MVA)	1229.000000	1757.000000
Conductor size and type	2500mm ² - XLPE Copper Milliken Shape	
Nominal voltage	AC	

Nominal voltage	500
Line construction type	Underground
General route description	See BPU Supplemental Attachment Section VI and Section VII.
Terrain description	See BPU Supplemental Attachment Section VI and Section VII.
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment
Environmental impacts	See BPU Supplemental Attachment Section VII.
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.
Construction responsibility	CONFIDENTIAL INFORMATION
Benefits/Comments	CONFIDENTIAL INFORMATION
Component Cost Details - In Current Year \$	
Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$96,589,741.48
Component cost (in-service year)	\$107,494,016.79

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #3	
Project description	CONFIDENTIAL INFORMATION	
Point A	Lighthouse Substation	
Point B	Crossroads Substation	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	1125.000000	1608.000000
Winter (MVA)	1229.000000	1757.000000
Conductor size and type	2500mm ² - XLPE Copper Milliken Shape	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Underground	
General route description	See BPU Supplemental Attachment Section VI and Section VII.	
Terrain description	See BPU Supplemental Attachment Section VI and Section VII.	
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.	
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.	
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment	
Environmental impacts	See BPU Supplemental Attachment Section VII.	
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.	
Construction responsibility	CONFIDENTIAL INFORMATION	

Benefits/Comments CONFIDENTIAL INFORMATION

Component Cost Details - In Current Year \$

Engineering & design CONFIDENTIAL INFORMATION

Permitting / routing / siting CONFIDENTIAL INFORMATION

ROW / land acquisition CONFIDENTIAL INFORMATION

Materials & equipment CONFIDENTIAL INFORMATION

Construction & commissioning CONFIDENTIAL INFORMATION

Construction management CONFIDENTIAL INFORMATION

Overheads & miscellaneous costs CONFIDENTIAL INFORMATION

Contingency CONFIDENTIAL INFORMATION

Total component cost \$96,606,100.35

Component cost (in-service year) \$108,369,123.56

Greenfield Substation Component

Component title Gardenview 500kV Substation

Project description CONFIDENTIAL INFORMATION

Substation name Gardenview Substation

Substation description The Gardenview substation will be a 500kV gas insulated substation that will consist of a 4 position breaker and a half arrangement and one double breaker position.

Nominal voltage AC

Nominal voltage 500

Transformer Information

None

Major equipment description	Eight (8) 500kV GIS circuit breakers.	
	Normal ratings	Emergency ratings
Summer (MVA)	5200.000000	5200.000000
Winter (MVA)	5200.000000	5200.000000
Environmental assessment	See BPU Supplemental Attachment Section VI & VII.	
Outreach plan	See BPU Supplemental Attachment Section VI & VII.	
Land acquisition plan	See BPU Supplemental Attachment Section VI & VII.	
Construction responsibility	CONFIDENTIAL INFORMATION	
Benefits/Comments	CONFIDENTIAL INFORMATION	
Component Cost Details - In Current Year \$		
Engineering & design	CONFIDENTIAL INFORMATION	
Permitting / routing / siting	CONFIDENTIAL INFORMATION	
ROW / land acquisition	CONFIDENTIAL INFORMATION	
Materials & equipment	CONFIDENTIAL INFORMATION	
Construction & commissioning	CONFIDENTIAL INFORMATION	
Construction management	CONFIDENTIAL INFORMATION	
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION	
Contingency	CONFIDENTIAL INFORMATION	
Total component cost	\$38,253,626.00	
Component cost (in-service year)	\$42,730,470.00	

Greenfield Transmission Line Component

Component title	Smithburg - Crossroads 500kV Transmission Line	
Project description	CONFIDENTIAL INFORMATION	
Point A	Crossroads	
Point B	Smithburg	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	5196.000000	5196.000000
Winter (MVA)	5196.000000	5196.000000
Conductor size and type	Triple Bundle 1272 kcmil "Bittern" ACSS High Strength	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	See BPU Submittal Form Section VI and Section VII.	
Terrain description	See BPU Submittal Form Section VI and Section VII.	
Right-of-way width by segment	See BPU Submittal Form Section VI and Section VII.	
Electrical transmission infrastructure crossings	See BPU Submittal Form Section VI and Section VII, specifically Attachment 6-3.	
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 of BPU Submittal Form.	
Environmental impacts	See BPU Submittal Form Section VII.	
Tower characteristics	The overhead transmission lines will be monopole structures arranged in a vertical configuration.	
Construction responsibility	CONFIDENTIAL INFORMATION	
Benefits/Comments	CONFIDENTIAL INFORMATION	

Component Cost Details - In Current Year \$

Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$73,173,522.94
Component cost (in-service year)	\$82,090,884.14

Substation Upgrade Component

Component title	Deans - Substation Interconnection
Project description	CONFIDENTIAL INFORMATION
Substation name	Deans 500kV
Substation zone	1826
Substation upgrade scope	Add two (2) 500kV circuit breakers to the Deans 500kV substation to create one (1) new position for the connection to Garden View.

Transformer Information

None	
New equipment description	Two (2) 500kV circuit breakers
Substation assumptions	Bay expansion appear available based on aerial imagery and current substation one-lines.

Real-estate description	N/A
Construction responsibility	CONFIDENTIAL INFORMATION
Benefits/Comments	CONFIDENTIAL INFORMATION

Component Cost Details - In Current Year \$

Engineering & design	CONFIDENTIAL INFORMATION
Permitting / routing / siting	CONFIDENTIAL INFORMATION
ROW / land acquisition	CONFIDENTIAL INFORMATION
Materials & equipment	CONFIDENTIAL INFORMATION
Construction & commissioning	CONFIDENTIAL INFORMATION
Construction management	CONFIDENTIAL INFORMATION
Overheads & miscellaneous costs	CONFIDENTIAL INFORMATION
Contingency	CONFIDENTIAL INFORMATION
Total component cost	\$12,933,088.00
Component cost (in-service year)	\$14,507,558.00

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #4
Project description	Confidential Information
Point A	Lighthouse Substation
Point B	Crossroads Substation
Point C	

Normal ratings

Emergency ratings

Summer (MVA)	1125.000000	1608.000000
Winter (MVA)	1229.000000	1757.000000
Conductor size and type	2500mm^2 - XLPE Copper Milliken Shape	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Underground	
General route description	See BPU Supplemental Attachment Section VI and Section VII.	
Terrain description	See BPU Supplemental Attachment Section VI and Section VII.	
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.	
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.	
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment	
Environmental impacts	See BPU Supplemental Attachment Section VII.	
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	
Construction management	Confidential Information	

Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	\$96,606,100.35
Component cost (in-service year)	\$108,369,123.56

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #5
Project description	Confidential Information
Point A	Lighthouse Substation
Point B	Crossroads Substation

Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	1229.000000	1757.000000
Winter (MVA)	1342.000000	1919.000000
Conductor size and type	2500mm ² - XLPE Copper Milliken Shape	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Underground	
General route description	See BPU Supplemental Attachment Section VI and Section VII.	
Terrain description	See BPU Supplemental Attachment Section VI and Section VII.	
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.	
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.	

Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment
Environmental impacts	See BPU Supplemental Attachment Section VII.
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information

Component Cost Details - In Current Year \$

Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	\$94,490,698.78
Component cost (in-service year)	\$109,069,147.95

Greenfield Transmission Line Component

Component title	Lighthouse - Crossroads 500kV Transmission Line #6
Project description	Confidential Information
Point A	Lighthouse Substation
Point B	Crossroads Substation
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	1229.000000	1757.000000
Winter (MVA)	1342.000000	1919.000000
Conductor size and type	2500mm^2 - XLPE Copper Milliken Shape	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Underground	
General route description	See BPU Supplemental Attachment Section VI and Section VII.	
Terrain description	See BPU Supplemental Attachment Section VI and Section VII.	
Right-of-way width by segment	See BPU Supplemental Attachment Section VI and Section VII, specifically Attachment 6-3.	
Electrical transmission infrastructure crossings	See Attachment 6-3 of BPU Submittal Form.	
Civil infrastructure/major waterway facility crossing plan	See Attachment 6-3 and Attachment 6-6 of BPU Supplemental Attachment	
Environmental impacts	See BPU Supplemental Attachment Section VII.	
Tower characteristics	Cables will be contained within buried duct banks. See Attachment 3-5 of the BPU Submittal Form.	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year \$		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	

Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	\$94,490,698.78
Component cost (in-service year)	\$109,069,147.95

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
28-GD-S2-W9	232012	HOPE CREEK	232014	LSPWR CABLE	1	230	225	Gen Deliv (winter)	Included
28-GD-S2-W9	232012	HOPE CREEK	232014	LSPWR CABLE	2	230	225	Gen Deliv (winter)	Included
28-GD-S2-W9	232014	LSPWR CABLE	232013	SILVER RUN	1	230	225	Gen Deliv (winter)	Included
28-GD-S2-S8	206302	28OYSTER C	206297	28MANITOU	1	230	228	Gen Deliv (Summer)	Included
28-GD-S2-S9	206302	28OYSTER C	206297	28MANITOU	1	230	228	Gen Deliv (Summer)	Included
28-GD-S2-S11	206302	28OYSTER C	206297	28MANITOU	2	230	228	Gen Deliv (Summer)	Included
28-GD-W18	206236	28GILBERT	208091	SFLD	1	230	228/229	Gen Deliv (winter)	Included
35-GD-S2-W18	206236	28GILBERT	208091	SFLD	1	230/230	228/229	Gen Deliv (winter)	Included
28-GD-S66	206316	28WINDSOR	219752	CLRKSVLL_1	1	230	228/231	Gen Deliv (Summer)	Included
28-GD-S2-S3	206316	28WINDSOR	219752	CLRKSVLL_1	1	230	228/231	Gen Deliv (Summer)	Included
28-GD-S72	219104	CLRKSVLL_2	217150	LAWRENCE	1	230	231	Gen Deliv (Summer)	Included
28-GD-L14	218306	DEANS	218304	BRUNSWCK	1	230	231	Light Load - Gen Deliv	Included
35-GD-L14	218306	DEANS	218304	BRUNSWCK	1	230	231	Light Load - Gen Deliv	Included
28-GD-S64	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (Summer)	Included
28-GD-S65	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (Summer)	Included
28-GD-W109	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
28-GD-W108	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-W3	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-W8	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-W6	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-S2-S1	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (Summer)	Included
28-GD-S2-S2	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (Summer)	Included
28-GD-S2-W7	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-S2-W6	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-S2-W9	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-S2-W9	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
28-GD-S2-W9	218306	DEANS	218304	BRUNSWCK	1	230	231	Gen Deliv (winter)	Included
35-GD-S2-W1	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-S2-W1	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-S2-W1	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-W4	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-W7	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-W9	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (winter)	Included
35-GD-S2-S2	218306	DEANS	218304	BRUNSWCK	1	230/230	231/231	Gen Deliv (Summer)	Included
28-GD-S73	200006	DEANS C	218306	DEANS	3	500/230	231	Gen Deliv (Summer)	Included
28-GD-S2-S1	227900	CARDIFF C	219100	NEWFRDM	1	230	231/234	Gen Deliv (Summer)	Included
28-GD-S2-W1	227900	CARDIFF C	219100	NEWFRDM	1	230	231/234	Gen Deliv (winter)	Included
28-GD-S2-W1	227900	CARDIFF C	219100	NEWFRDM	1	230	231/234	Gen Deliv (winter)	Included
28-GD-S2-W1	227900	CARDIFF C	219100	NEWFRDM	1	230	231/234	Gen Deliv (winter)	Included
28-GD-S2-W1	227900	CARDIFF C	219100	NEWFRDM	1	230	231/234	Gen Deliv (winter)	Included
35-GD-S2-S8	227900	CARDIFF C	219100	NEWFRDM	1	230/230	234/231	Gen Deliv (Summer)	Included
35-GD-S2-W7	227900	CARDIFF C	219100	NEWFRDM	1	230/230	234/231	Gen Deliv (winter)	Included
35-GD-S2-W3	227900	CARDIFF C	219100	NEWFRDM	1	230/230	234/231	Gen Deliv (winter)	Included
35-GD-S2-W1	227900	CARDIFF C	219100	NEWFRDM	1	230/230	234/231	Gen Deliv (winter)	Included

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
35-GD-S2-W9	227900	CARDIFF C	219100	NEWFRDM	1	230/230	234/231	Gen Deliv (winter)	Included
28-GD-S2-S1	227934	CARDIFF2	227945	LEWIS #2	1	138	234	Gen Deliv (Summer)	Included
28-GD-S2-S1	227945	LEWIS #2	227902	LEWIS #1	1	138	234	Gen Deliv (Summer)	Included

New Flowgates

CONFIDENTIAL INFORMATION

Financial Information

Capital spend start date 08/2021

Construction start date 02/2025

Project Duration (In Months) 77

Cost Containment Commitment

Cost cap (in current year) Confidential Information

Cost cap (in-service year) Confidential Information

Components covered by cost containment

1. Lighthouse - Crossroads 500kV Transmission Line #1 - Proposer
2. Lighthouse 500kV Substation - Proposer
3. Crossroads 500kV Substation - Proposer
4. Crossroads - Garden View 500kV Transmission Line - Proposer
5. Old York 500/230kV Substation - Proposer
6. Lighthouse - Crossroads 500kV Transmission Line #2 - Proposer
7. Lighthouse - Crossroads 500kV Transmission Line #3 - Proposer
8. Gardenview 500kV Substation - Proposer
9. Smithburg - Crossroads 500kV Transmission Line - Proposer

- 10. Lighthouse - Crossroads 500kV Transmission Line #4 - Proposer
- 11. Lighthouse - Crossroads 500kV Transmission Line #5 - Proposer
- 12. Lighthouse - Crossroads 500kV Transmission Line #6 - 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 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 Information
Additional cost containment measures not covered above	Confidential Information

Additional Comments

None