

Proposal E - Brambleton-Hinsons Ford Rd 500kV

General Information

Proposing entity name	Competitive
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Competitive
Company proposal ID	Competitive
PJM Proposal ID	325
Project title	Proposal E - Brambleton-Hinsons Ford Rd 500kV
Project description	Brambleton-Hinsons Ford Rd 500kV
Email	Competitive
Project in-service date	06/2027
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Competitive

Project Components

1. North Delta 500kV Upgrade
2. Raphael Rd 230kV Upgrade
3. Waugh Chapel 500kV Upgrade
4. Peach Bottom 500kV Upgrade
5. Conastone 230kV Short Circuit Upgrade
6. North Delta-New Raphael 500kV

7. New Raphael-Waugh Chapel 500kV
8. Reconductor North Delta-Peach Bottom 500kV
9. New Brambleton to Hinsons Ford Rd 500kV line
10. Reconductor Front Royal-Hinson Ford Rd 500kV
11. New Raphael 500kV Station
12. Hinsons Ford Rd 500kV

Substation Upgrade Component

Component title	North Delta 500kV Upgrade
Project description	Competitive
Substation name	North Delta
Substation zone	PECO
Substation upgrade scope	Expand the North Delta 500kV ring bus by adding one 500kV circuit breaker and its associated disconnect switches along with one 500kV line terminal and line disconnect switch for the new 500kV line to Raphael Substation. Upgrade (5) 500kV breakers to a higher rating of 80kA

Transformer Information

None	
New equipment description	One (1) 500kV circuit breaker, two (2) 500kV circuit breaker disconnect switches, one (1) 500kV line disconnect switch.
Substation assumptions	This proposal assumes that all necessary outages will be available; existing AC, DC, and telecom. systems will accommodate the new equipment; geotechnical data is available; the existing cable trench has space for the new cables; the existing control house has space for the new relay panels; existing yard station equipment does not need to be replaced except for the associated line relays and existing line interchange metering exists and does not need to be replaced. The future 500/230kV North Delta Substation will include a 500kV ring bus with an open line position that will allow for the installation of the new 500kV line from Raphael Substation
Real-estate description	No substation expansion is anticipated.
Construction responsibility	Competitive

Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$10,379,425.00
Component cost (in-service year)	\$11,287,292.00

Substation Upgrade Component

Component title	Raphael Rd 230kV Upgrade
Project description	Competitive
Substation name	Raphael Rd
Substation zone	BGE
Substation upgrade scope	Expand Raphael 230kV station to add (2) new breakers and upgrade three (3) 230kV breakers to a higher rating of 63kA

Transformer Information

None	
New equipment description	Two (2) new 230kv breakers

Substation assumptions	The Raphael Rd 500kV expansion will be installed south of the existing 230kV yard. Significant grading and a retaining wall will be required.
Real-estate description	This proposal assumes that all necessary outages will be available; existing AC, DC, and telecom. systems will accommodate the new equipment; geotechnical data is available; ground grid upgrades will not be needed; the existing cable trench has space for the new cables; the existing control house has space for the new relay panels; existing yard station equipment does not need to be replaced except for the associated line relays and existing line interchange metering exists and does not need to be replaced.
Construction responsibility	Competitive
Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$1,103,701.00
Component cost (in-service year)	\$1,200,238.00
Substation Upgrade Component	
Component title	Waugh Chapel 500kV Upgrade
Project description	Competitive
Substation name	Waugh Chapel Substation

Substation zone	BGE
Substation upgrade scope	Install a new bay in the existing Waugh Chapel 500kV yard that includes two (2) 500KV circuit breakers and their associated disconnect switches and one (1) 500KV line terminal for the new 500kV Waugh Chapel to Raphael line.

Transformer Information

None	
New equipment description	Two (2) 500KV line disconnect switches, existing 500kV main bus and bus supports.
Substation assumptions	This proposal assumes that all necessary outages will be available; existing AC, DC, and telecom. systems will accommodate the new equipment; geotechnical data is available; ground grid upgrades will not be needed; the existing cable trench has space for the new cables; the existing control house has space for the new relay panels; existing yard station equipment does not need to be replaced except for the associated line relays and existing line interchange metering exists and does not need to be replaced.

Real-estate description	No substation expansion is anticipated.
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Construction responsibility	Competitive
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Benefits/Comments	Competitive
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Component Cost Details - In Current Year \$

Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$6,439,067.00

Component cost (in-service year) \$7,002,278.00

Substation Upgrade Component

Component title Peach Bottom 500kV Upgrade

Project description Competitive

Substation name Peach Bottom

Substation zone PECO

Substation upgrade scope Upgrade five (5) 500kV breakers to a higher rating of 80kA. Rebuild the Peach Bottom South Main Bus #1 and Main Bus #2. Upgrade the existing bus, bus supports, and two (2) line disconnect switches.

Transformer Information

None

New equipment description Two (2) 500KV line disconnect switches, existing 500kV main bus and bus supports

Substation assumptions This proposal assumes that all necessary outages will be available; existing AC, DC, and telecom. systems will accommodate the new equipment; geotechnical data is available; ground grid upgrades will not be needed; the existing cable trench has space for the new cables; the existing control house has space for the new relay panels; existing yard station equipment does not need to be replaced except for the associated line relays and existing line interchange metering exists and does not need to be replaced.

Real-estate description No substation expansion is anticipated.

Construction responsibility Competitive

Benefits/Comments Competitive

Component Cost Details - In Current Year \$

Engineering & design Competitive

Permitting / routing / siting Competitive

ROW / land acquisition Competitive

Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$12,535,570.00
Component cost (in-service year)	\$13,632,031.00

Substation Upgrade Component

Component title	Conastone 230kV Short Circuit Upgrade
Project description	Competitive
Substation name	Conastone
Substation zone	BGE
Substation upgrade scope	Upgrade (3) 230kV breakers to a higher rating of 63kA

Transformer Information

None	
New equipment description	Two (2) 230kV breakers
Substation assumptions	This proposal assumes that all necessary outages will be available; existing AC, DC, and telecom. systems will accommodate the new equipment; geotechnical data is available; ground grid upgrades will not be needed; the existing cable trench has space for the new cables; the existing control house has space for the new relay panels; existing yard station equipment does not need to be replaced except for the associated line relays and existing line interchange metering exists and does not need to be replaced.
Real-estate description	No substation expansion is anticipated.
Construction responsibility	Competitive

Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$770,574.00
Component cost (in-service year)	\$837,974.00

Greenfield Transmission Line Component

Component title	North Delta-New Raphael 500kV
Project description	Competitive
Point A	North Delta 500kV
Point B	New Raphael 500kV
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	2940.000000	3733.000000
Winter (MVA)	3618.000000	4424.000000

Conductor size and type	500-kV AC single-circuit 954 kcmil ACSR "Cardinal"
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	Approximately 32.5 miles between 500kV North Delta Substation and the New Raphael 500kV Substation
Terrain description	North Delta to New Rafael route begins in Southern PA and heads in a southerly direction until the Abingdon area. At which point the route turns south west until New Rafael station.
Right-of-way width by segment	This project will use Right-of-ways of 80-85 feet in residential areas, 125-130 feet in residential/farmland areas, 150 feet in farmland, and 170 feet at the Patapsco river
Electrical transmission infrastructure crossings	Existing transmission line crossing between #144 and #145, Existing transmission line crossing between #150 and #151, Existing transmission line crossing between #154 and #155, Existing transmission line crossing between #157 and #158, Existing transmission line crossing between #160 and #161, Existing transmission line crossing between #166 and #167
Civil infrastructure/major waterway facility crossing plan	All civil infrastructure and major waterway crossings can be found in the attached crossing plan

Environmental impacts

The Team conducted an assessment of anticipated permits associated with the proposed route and have supported the evaluation of routing and development scenarios throughout the process. The assessments included a review of Federal, state, regional, and local regulatory requirements that could potentially impact each of the individual project scenarios. The circuits and associated stations are located in Pennsylvania and Maryland. A GIS analysis was performed to route away from known public lands and no public lands will be required for this project scope. Reviews were performed using publicly available GIS data from both MD and PA sources. Upon award a detailed field based analysis will be completed. No transmission towers are located in stream crossings which will minimize stream bed impact. NWI wetlands data, FEMA floodplain layers, and state datasets were reviewed as part of the project analysis. Known wetlands areas were used for avoidance however field analysis will confirm total proposed temporary and permanent impacts. PSE&G has been able to largely avoid permanent impacts to wetlands for overhead transmission projects and will work to shift tower foundations wherever feasible in detailed design upon confirmation of field conditions. The proposed route will intersect FEMA mapped floodplains however only the tower foundations will have assumed impacts. Field based delineations and assessments will include the above mentioned wetlands and streams delineations, habitat surveys for species identified by the records review, and cultural resource studies will be completed for the entire project (including known construction only impacts). Following field studies, data will be incorporated into the engineering model so that tower locations and applicable station location are sited to maximize avoidance of sensitive resources. Towers will be placed outside of wetlands, streams, known threatened and endangered species habitat and cultural/historical areas and floodplains to the greatest extent possible. Construction timing will be scheduled in accordance with USFWS and state agency specifications to minimize impacts to threatened and endangered habitat locations. At a minimum, approvals and permits are anticipated to be acquired from the Maryland Public Service Commission, Pennsylvania Public Utility Commission, USACE, USFWS, MDE, PADEP, MD County Soil Conservation Districts and in accordance with the standards & specifications of applicable local ordinances

Tower characteristics

Monopole - single circuit

Construction responsibility

Competitive

Benefits/Comments

Competitive

Component Cost Details - In Current Year \$

Engineering & design

Competitive

Permitting / routing / siting

Competitive

ROW / land acquisition

Competitive

Materials & equipment

Competitive

Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$219,121,451.00
Component cost (in-service year)	\$238,287,550.00

Greenfield Transmission Line Component

Component title	New Raphael-Waugh Chapel 500kV
Project description	Competitive
Point A	New Raphael 500kV
Point B	Waugh Chapel 500kV
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	2940.000000	3733.000000
Winter (MVA)	3618.000000	4424.000000
Conductor size and type	500-kV AC single-circuit 954 kcmil ACSR "Cardinal"	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	Approximately 37 miles between the New Raphael 500kV Substation and the 500kV Waugh Chapel Substation	

Terrain description	Route is mostly in urban areas with some undeveloped and farmland. Northern portion of the route is to the east of Baltimore and south is to the west of Annapolis. Route terrain has an average elevation of 240' Average slope is 2% for the route.
Right-of-way width by segment	This project will use Right-of-ways of 80-85 feet in residential areas, 125-130 feet in residential/farmland areas, 150 feet in farmland, and 170 feet at the Patapsco river
Electrical transmission infrastructure crossings	Existing transmission line and railroad crossing between #136 and #137, Existing transmission line crossing between #14 and #15, Multiple existing transmission lines crossing between #151 and #152, Multiple existing transmission lines crossing between #73 and #74
Civil infrastructure/major waterway facility crossing plan	All civil infrastructure and major waterway crossings can be found in the attached crossing plans
Environmental impacts	<p>The Team conducted an assessment of anticipated permits associated with the proposed route and have supported the evaluation of routing and development scenarios throughout the process. The permitting and environmental assessments have included a review of Federal, state, regional, and local regulatory requirements that could potentially impact each of the individual project scenarios. The circuits and associated stations are located in Maryland. A GIS analysis was performed to route away from known public lands and no public lands will be required for this project scope. Reviews were performed using publicly available GIS data from MD sources. Upon award a detailed field based analysis will be completed. No transmission towers are located in stream crossings which will minimize stream bed impacts. NWI wetlands data, FEMA floodplain layers, and state datasets were reviewed as part of the project analysis. Known wetlands areas were used for avoidance however field analysis will confirm total proposed temporary and permanent impacts. PSE&G has been able to largely avoid permanent impacts to wetlands for overhead transmission projects and will work to shift tower foundations wherever feasible in detailed design upon confirmation of field conditions. The proposed route will intersect FEMA mapped floodplains however only the tower foundations will have assumed impacts. Field based delineations and assessments will include the above mentioned wetlands and streams delineations, habitat surveys for species identified by the records review, and cultural resource studies will be completed for the entire project (including known construction only impacts). Following field studies, data will be incorporated into the engineering model so that tower locations and applicable station location are sited to maximize avoidance of sensitive resources. Towers will be placed outside of wetlands, streams, known threatened and endangered species habitat and cultural/historical areas and floodplains to the greatest extent possible. Construction timing will be scheduled in accordance with USFWS and state agency specifications to minimize impacts to threatened and endangered habitat locations. At a minimum, approvals and permits are anticipated to be acquired from the Maryland Public Service Commission, USACE, USFWS, MDE, MD County Soil Conservation Districts and in accordance with the standards and specifications of applicable local ordinances.</p>
Tower characteristics	Monopole - single circuit
Construction responsibility	Competitive

Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$336,172,835.00
Component cost (in-service year)	\$365,577,175.00

Transmission Line Upgrade Component

Component title	Reconductor North Delta-Peach Bottom 500kV
Project description	Competitive
Impacted transmission line	North Delta-Peach Bottom 500kV
Point A	North Delta 500kV
Point B	Peach Bottom 500kV
Point C	
Terrain description	Existing ROWs will be reused. Mainly in rural areas in Southern PA.

Existing Line Physical Characteristics

Operating voltage	500
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Conductor size and type	n/a
Hardware plan description	Hardware is assumed to be in good shape and will be reused.
Tower line characteristics	Tower structures and foundations are assumed to be in good shape and will be reused.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	2926.000000	3815.000000
Winter (MVA)	3529.000000	4623.000000
Conductor size and type	954 kcmil ACSR "Cardinal"	
Shield wire size and type	Shield wire assumed in good shape and will be reused.	
Rebuild line length	2.4 miles	
Rebuild portion description	Reconductor approximately 2.4 miles of transmission line	
Right of way	The project will use existing ROWs	
Construction responsibility	Competitive	
Benefits/Comments	Competitive	
Component Cost Details - In Current Year \$		
Engineering & design	Competitive	
Permitting / routing / siting	Competitive	
ROW / land acquisition	Competitive	
Materials & equipment	Competitive	

Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$4,277,181.00
Component cost (in-service year)	\$4,651,296.00

Greenfield Transmission Line Component

Component title	New Brambleton to Hinsons Ford Rd 500kV line
Project description	Competitive
Point A	Brambleton
Point B	Hinsons Ford Rd
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	2940.000000	3733.000000
Winter (MVA)	3618.000000	4424.000000
Conductor size and type	500-kV AC single-circuit 954 kcmil ACSR "Cardinal"	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	Approximately 34 miles between 500kV Brambleton Substation and the new Hinson Ford Rd 500kV Substation	

Terrain description	Brambleton-Hinsons Ford Rd 500kV begins in the south of Brambleton and heads southwest to a new station location. The northern portion of the route is urban and then turns largely rural once south of Route 66.
Right-of-way width by segment	This project will use Right-of-ways of 80-85 feet in residential areas, 125-130 feet in residential/farmland areas, 150 feet in farmland, and 170 feet at the Patapsco river
Electrical transmission infrastructure crossings	Existing Transmission line crossing and Grassland Grove Drive between #113 and #114, Existing Transmission line crossing between #100 and #101
Civil infrastructure/major waterway facility crossing plan	All civil infrastructure and major waterway crossings can be found in the attached crossing plan
Environmental impacts	<p>The Team conducted an assessment of anticipated permits associated with the proposed route and have supported the evaluation of routing and development scenarios throughout the process. The permitting and environmental assessments have included a review of Federal, state, regional, and local regulatory requirements that could potentially impact each of the individual project scenarios. The circuits and associated stations are located in Virginia. A GIS analysis was performed to route away from known public lands and no federal or state lands will be required for this project scope using publicly available GIS data from Virginia sources. Upon award a detailed field based analysis will be completed. No transmission towers are located in stream crossings which will minimize stream bed impacts. NWI wetlands data, FEMA floodplain layers, and state datasets were reviewed as part of the project analysis. Known wetlands areas were used for avoidance however field analysis will confirm total proposed temporary and permanent impacts. PSE&G has been able to largely avoid permanent impacts to wetlands for overhead transmission projects and will work to shift tower foundations wherever feasible in detailed design upon confirmation of field conditions. The proposed route will intersect FEMA mapped floodplains however only the tower foundations will have assumed impacts. Field based delineations and assessments will include the above mentioned wetlands and streams delineations, habitat surveys for species identified by the records review, and cultural resource studies will be completed for the entire project (including known temporary –construction based impacts). Following field studies, data will be incorporated into the engineering model so that tower locations and applicable station location are sited to maximize avoidance of sensitive resources. Towers will be placed outside of wetlands, streams, known threatened and endangered species habitat and cultural/historical areas and floodplains to the greatest extent possible. Construction timing will be scheduled in accordance with USFWS and state agency specifications to minimize impacts to threatened and endangered habitat locations. At a minimum, approvals and permits are anticipated to be acquired from the Virginia State Corporation Commission, USACE, USFWS, DEQ, VA Soil and Water Conservation Districts and in accordance with the standards and specifications of applicable local ordinances.</p>
Tower characteristics	H-frame - single circuit
Construction responsibility	Competitive

Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$185,483,848.00
Component cost (in-service year)	\$201,707,736.00

Transmission Line Upgrade Component

Component title	Reconductor Front Royal-Hinson Ford Rd 500kV
Project description	Competitive
Impacted transmission line	Front Royal-Hinsons Ford Rd 500kV
Point A	Front Royal 500kV
Point B	Hinsons Ford Rd 500kV
Point C	
Terrain description	Mainly rural around Hinsons Ford Rd. Existing ROWs expected to be used
Existing Line Physical Characteristics	
Operating voltage	500kV

Conductor size and type	unknown
Hardware plan description	Hardware assumed to be in good shape and will be reused
Tower line characteristics	Tower structures and foundations assumed to be in good shape and will be reused.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	500.000000	500.000000
	Normal ratings	Emergency ratings
Summer (MVA)	4050.000000	4175.000000
Winter (MVA)	4850.000000	4875.000000
Conductor size and type	954 kcmil ACSR "Cardinal"	
Shield wire size and type	Shield wire assumed to be in good shape and will be reused.	
Rebuild line length	24.2 miles	
Rebuild portion description	Approximately 24.2 miles of existing Fort Royal to Hinsons Ford 500KV will be reconducted.	
Right of way	The project will use existing ROWs	
Construction responsibility	Competitive	
Benefits/Comments	Competitive	
Component Cost Details - In Current Year \$		
Engineering & design	Competitive	
Permitting / routing / siting	Competitive	
ROW / land acquisition	Competitive	
Materials & equipment	Competitive	

Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$43,181,696.00
Component cost (in-service year)	\$46,958,709.00

Greenfield Substation Component

Component title	New Raphael 500kV Station		
Project description	Competitive		
Substation name	New Raphael 500kV		
Substation description	Build a New Raphael 500kV Substation by installing six (6) single phase 500/230kV 750MVA XFMRs and a four-breaker 500kV ring bus with two (2) 500kV line terminals and their associated disconnect switches. A new control building will also be required. Upgrade three (3) 230kV breakers to a higher rating of 63kV. Install two(2) 230kV circuit breakers and their associated disconnect switches to the existing Raphael Rd 230kV yard and two 230kV line terminals that will connect to the Raphael Rd 500kV yard		
Nominal voltage	AC		
Nominal voltage	500kV		

Transformer Information

	Name	Capacity (MVA)		
Transformer	01	750		
	High Side	Low Side	Tertiary	
Voltage (kV)	500	230		

	Name	Capacity (MVA)	
Transformer	02	750	
	High Side	Low Side	Tertiary
Voltage (kV)	500	230	
Major equipment description	Six (6) single phase 500/230kV 750MVA XFMRs, four (4) 500kV circuit breakers and their associated disconnect switches, two (2) 500kV line disconnect switches, two (2) 500kV line terminals, two (2) 500kV XFMR disconnect switches, two (2) 230kV XFMR disconnect switches, and one (1) control building. Two (2) 230kV circuit breakers and their associated disconnect switches.		
	Normal ratings	Emergency ratings	
Summer (MVA)	1500.000000	1875.000000	
Winter (MVA)	1875.000000	2025.000000	
Environmental assessment	A GIS analysis was performed to locate known public lands and no public lands will be required for this project scope. Environmental reviews were performed using publicly available GIS data from Maryland sources. Upon award a detailed field based analysis will be completed. NWI wetlands data, FEMA floodplain layers, and state datasets were reviewed as part of the project analysis. Field based delineations and assessments will include wetlands and streams delineations, habitat surveys for species identified by the records review, and cultural resource studies will be completed for the entire project (including known temporary –construction based impacts). Following field studies, data will be incorporated into the engineering model so that the station development maximizes avoidance of sensitive resources. Development will be placed outside of wetlands, streams, known threatened and endangered species habitat and cultural/historical areas and floodplains to the greatest extent possible. Construction timing will be scheduled in accordance with USFWS and state agency specifications to minimize impacts to threatened and endangered habitat locations. At a minimum, approvals and permits are anticipated to be acquired from the Maryland Public Service Commission, USACE, USFWS, MDE, MD County Soil Conservation District and in accordance with the standards and specifications of applicable local ordinances.		

Outreach plan	PSE&G will coordinate all outreach, real estate-related requests, and efforts to identify environmental and non-environmental conditions affecting the properties along the proposed Project route. Working collaboratively with our internal Outreach Team, PSE&G will coordinate stakeholder engagement and public outreach with land acquisition planning. This level of collaboration will help to ensure proactive and cohesive stakeholder communications in order to better serve landowners and impacted individuals and entities. PSE&G contemplates the need for access roads and areas, as part of any lands to be acquired.
Land acquisition plan	PSEG has identified several properties that are suitable for this proposed solution. The Project Team has initiated contact with the property owners and will continue to work to acquire site control in the event of award. The Project Team will work with impacted stakeholders, municipalities, and local authorities to obtain the necessary property rights to construct and maintain its facilities. While this solution is located outside of PSE&G territory, PSE&G is committed to a transparent, timely, and efficient land rights acquisition process for any site control required. PSE&G intends to utilize the same land acquisition professionals from start to finish, ensuring landowners have the same team assigned to their negotiations throughout the process.
Construction responsibility	Competitive
Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$85,876,313.00
Component cost (in-service year)	\$93,387,735.00

Greenfield Substation Component

Component title	Hinsons Ford Rd 500kV
Project description	Competitive
Substation name	Hinsons Ford Rd
Substation description	Build new Hinsons Ford Rd 500kV station with a four (4) breaker ring bus. Cut and loop the 500kV circuit 541 between Front Royal , and Morrisville into new Hinsons Ford Rd 500kV Station
Nominal voltage	AC
Nominal voltage	500kV

Transformer Information

None

Major equipment description Four (4) breaker ring bus 4000A, 63kA

	Normal ratings	Emergency ratings
Summer (MVA)	0.000000	0.000000
Winter (MVA)	0.000000	0.000000

Environmental assessment A GIS analysis was performed to locate known public lands and no public lands will be required for this project scope. Environmental reviews were performed using publicly available GIS data from Virginia sources. Upon award a detailed field based analysis will be completed. NWI wetlands data, FEMA floodplain layers, and state datasets were reviewed as part of the project analysis. Field based delineations and assessments will include wetlands and streams delineations, habitat surveys for species identified by the records review, and cultural resource studies will be completed for the entire project (including known temporary –construction based impacts). Following field studies, data will be incorporated into the engineering model so that the station development maximizes avoidance of sensitive resources. Development will be placed outside of wetlands, streams, known threatened and endangered species habitat and cultural/historical areas and floodplains to the greatest extent possible. Construction timing will be scheduled in accordance with USFWS and state agency specifications to minimize impacts to threatened and endangered habitat locations. At a minimum, approvals and permits are anticipated to be acquired from the Virginia State Corporation Commission, USACE, USFWS, DEQ, VA Soil and Water Conservation Districts and in accordance with the standards and specifications of applicable local ordinances.

Outreach plan	PSE&G will coordinate all outreach, real estate-related requests, and efforts to identify environmental and non-environmental conditions affecting the properties along the proposed Project route. Working collaboratively with our internal Outreach Team, PSE&G will coordinate stakeholder engagement and public outreach with land acquisition planning. This level of collaboration will help to ensure proactive and cohesive stakeholder communications in order to better serve landowners and impacted individuals and entities. PSE&G contemplates the need for access roads and areas, as part of any lands to be acquired.
Land acquisition plan	PSEG has identified several properties that are suitable for this proposed solution. The Project Team has initiated contact with the property owners and will continue to work to acquire site control in the event of award. The Project Team will work with impacted stakeholders, municipalities, and local authorities to obtain the necessary property rights to construct and maintain its facilities. While this solution is located outside of PSE&G territory, PSE&G is committed to a transparent, timely, and efficient land rights acquisition process for any site control required. PSE&G intends to utilize the same land acquisition professionals from start to finish, ensuring landowners have the same team assigned to their negotiations throughout the process.
Construction responsibility	Competitive
Benefits/Comments	Competitive
Component Cost Details - In Current Year \$	
Engineering & design	Competitive
Permitting / routing / siting	Competitive
ROW / land acquisition	Competitive
Materials & equipment	Competitive
Construction & commissioning	Competitive
Construction management	Competitive
Overheads & miscellaneous costs	Competitive
Contingency	Competitive
Total component cost	\$38,712,438.00
Component cost (in-service year)	\$42,098,534.00

Congestion Drivers

None

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S177204538	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W12204544	204544	27LINCOLN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-W38 213869	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S119213869	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S177208047	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-S203200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W41 204544	204544	27LINCOLN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S281200065	200065	PCHBTM2S	200064	PCHBTM1S	Z1	500	230	Summer Gen Deliv	Included
2022W3-GD-W12200532	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included
2022W3-GD-S125204529	204529	27GERMANTN	204530	27GERMANTN	1	115/138	227	Summer Gen Deliv	Included
2022W3-GD-W42 314916	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W43 314916	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W12200512	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-GD-S779200512	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-N1-ST21204544	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST21204544	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S165213846	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W13200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S276204514	204514	27TMI	204502	27JACKSON	1	230	227	Summer Gen Deliv	Included
2022W3-N1-ST20200512	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST24204544	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1	Included
2022W3-GD-S176204538	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST21208069	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST21	221090	GLENARM2	221089	WINDYED1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-GD-W81	204544	27LINCORN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S135	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W138	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S177	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W138	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W82	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W82	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W94	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W50	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-S84	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S85	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S139	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W132	200065	PCHBTM2S	200064	PCHBTM1S	Z2	500	230	Winter Gen Deliv	Included
2022W3-GD-W133	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S177	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-S780	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S127	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-N1-ST22	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S166	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD-S166	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD-S166	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S166	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S178	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S147	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W83	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S178	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD-W83	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S170	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S326	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-S152	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-W136	235504	01RIDGLY	235593	01HAMPS2	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S95	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S155	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-W58	204538	27STRABAN	204529	27GERMANTN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S96	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S203	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-N1-ST24	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-GD-S312	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included
2022W3-N1-ST11	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST11	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-S166	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S170	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-N1-ST10	221092	FIVE.FOR	221096	ROCKRGE1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-N1-ST23	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Summer N-1 Thermal	Included
2022W3-GD-S88	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST23	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S89	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST23	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST23	208071	SAHA34TP	208069	PPL-BGE TIE	1	230/230	229/229	Summer N-1 Thermal	Included
2022W3-N1-ST23	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-ST11	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST23	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-GD-S179	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-S164	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W12	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S1792	20962	NWEST311	220972	GRANITE1	1	230	232	Summer Gen Deliv	Included
2022W3-GD-S1712	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S1712	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W842	204538	27STRABAN	204529	27GERMANTN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-ST122	221092	FIVE.FOR	221096	ROCKRGE1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-GD-S1712	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-N1-ST9	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S1712	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W842	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W11	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included
2022W3-GD-S1792	204515	27YORKANA	208048	OTCR	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD-W842	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W122	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-N1-ST7	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST122	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S97	207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD-S1702	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-N1-ST24	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-GD-S1672	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W11	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S1672	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1032	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S1042	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S2042	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-S3402	204515	27YORKANA	208048	OTCR	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD_L1372	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S1802	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S1802	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S205200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD_L138235504	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S172200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S172200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-N1-ST13207922	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST14207922	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-WT14200512	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Winter N-1 Thermal	Included
2022W3-N1-ST13207922	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST13414916	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-S180200512	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD_L142235504	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S172200064	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD_L141235504	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S172200064	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S205200004	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD_L143235504	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S172204544	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S172204544	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S346200065	200065	PCHBTM2S	200066	PCHBTM1N	2	500	230	Summer Gen Deliv	Included
2022W3-GD-S347313440	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Summer Gen Deliv	Included
2022W3-N1-WT15207922	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Winter N-1 Thermal	Included
2022W3-N1-ST23314916	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST24204544	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT15314916	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST25204544	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT37314916	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT15314916	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-S173200064	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S201	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S202	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-N1-ST39	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S172	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST15	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT1	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Winter N-1 Thermal	Included
2022W3-GD-S173	14916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST50	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST51	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST53	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S173	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-WT53	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT54	14916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST16	14916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT56	14916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST46	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-W13	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-N1-ST47	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST16	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT58	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-LD-ST11	200004	CNASTONE	200064	PCHBTM1S	1	500/500	232/230	Load Deliverability	Included
2022W3-N1-ST59	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-LD-ST13	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-LD-ST12	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-GD-W85	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-N1-ST63	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W85	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W97	204515	27YORKANA	208048	OTCR	1	230	227/229	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST172	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-ST58	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W1407	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-N1-ST71	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W1002	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Winter Gen Deliv	Included
2022W3-N1-ST72	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W73	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-W74	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-ST74	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W63	204514	27TMI	204502	27JACKSON	1	230	227	Winter Gen Deliv	Included
2022W3-GD-W987	200065	PCHBTM2S	200064	PCHBTM1S	Z2	500	230	Winter Gen Deliv	Included
2022W3-GD-W64	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Winter Gen Deliv	Included
2022W3-GD-W65	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-W68	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-W995	200065	PCHBTM2S	200064	PCHBTM1S	Z1	500	230	Winter Gen Deliv	Included
2022W3-GD-W67	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-W78	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-GD-W1012	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-N1-WT933	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-S1812	235596	01VASC T	235173	01EDGEWT	1	138	201	Summer Gen Deliv	Included
2022W3-N1-WT953	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT862	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT882	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W1013	313440	8VINTHIL	314125	6VINTHIL	2	500/230	345	Winter Gen Deliv	Included
2022W3-GD-W77	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WT102	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W86	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-GD-W1523	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT100	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W887	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W81	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-W83	204515	27YORKANA	208048	OTCR	1	230	227/229	Winter Gen Deliv	Included
2022W3-GD-W883	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-GD-W85	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-GD-W93	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-GD-S2060	221090	GLENARM2	221089	WINDYED1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-S1742	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W899	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-GD-W95	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-W1382	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S1820	31440	8VINTHIL	314913	8LOUDOUN	1	500	345	Summer Gen Deliv	Included
2022W3-GD-W891	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-GD-W892	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-GD-W1240	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-LD-ST15	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-LD-ST14	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-GD-W903	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-LD-ST17	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-W904	31440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-LD-ST16	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-N1-ST184	208071	SAHA34TP	208069	PPL-BGE TIE	1	230/230	229/229	Summer N-1 Thermal	Included
2022W3-GD-W96	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-N1-WT1920	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W902	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-N1-WT1920	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W97	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S13	235484	01MESSCK	235490	01MORGAN	1	138	201	Summer Gen Deliv	Included
2022W3-N1-WT19	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-S14	235484	01MESSCK	235490	01MORGAN	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S17	204529	27GERMANTN	204530	27GERMANTN	1	115/138	227	Summer Gen Deliv	Included
2022W3-GD-S16	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S15	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-N1-WT12	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-S17	208395	FARO FF	208393	FARO DC TIE	2	69/115	229	Summer Gen Deliv	Included
2022W3-GD-W1	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S10	5213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S24	7208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-W15	213844	NOTTINGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W10	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-WT15	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W1	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S11	0207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD-S24	9235504	01RIDGLY	235484	01MESSCK	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W16	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W9	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-N1-WT16	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W1	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S16	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W1	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S25	2235504	01RIDGLY	235484	01MESSCK	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W19	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-GD-W3	5235504	01RIDGLY	235484	01MESSCK	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S26	0208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W3	4235504	01RIDGLY	235484	01MESSCK	1	138	201	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST194	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST196	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S2062	221090	GLENARM2	221089	WINDYED1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-W906	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-LD-ST192	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-S1752	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-LD-ST182	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-S23	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1756	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W1363	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-LD-ST21	200003	BRIGHTON	200004	CNASTONE	1	500/500	233/232	Load Deliverability	Included
2022W3-GD-S1642	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1757	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Summer Gen Deliv	Included
2022W3-LD-ST20	208047	PPL-BGE TIE	220963	CONASTON	1	230/230	229/232	Load Deliverability	Included
2022W3-GD-S1762	208395	FARO FF	208393	FARO DC TIE	1	69/115	229	Summer Gen Deliv	Included
2022W3-LD-ST22	208048	OTCR	208047	PPL-BGE TIE	1	230/230	229/229	Load Deliverability	Included
2022W3-GD-W91	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S812	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W786	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S1683	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD-S1182	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W92	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-N1-ST242	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1	Included
2022W3-GD-S1656	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W11	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-S2016	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST84	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST205	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S1652	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1682	204514	27TMI	204502	27JACKSON	1	230	227	Summer Gen Deliv	Included
2022W3-GD-W806208	204047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Winter Gen Deliv	Included
2022W3-GD-S47	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W3191	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S2015	235504	01RIDGLY	235593	01HAMPS2	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S2622	235180	01FAYETT	235271	01WWAYNE	1	138	201	Summer Gen Deliv	Included
2022W3-N1-ST192	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-GD-S76N2	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S1652	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1682	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST79	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST202	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-GD-S1652	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-N1-ST80	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST202	213846	NOTTREAC	213869	PCHBTMTP	1	230/230	230/230	Summer N-1 Thermal	Included
2022W3-GD-S1652	207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-N1-ST202	213844	NOTTNGHM	213846	NOTTREAC	1	230/230	230/230	Summer N-1 Thermal	Included
2022W3-N1-SNC1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-SNC1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included

New Flowgates

Competitive

Financial Information

Capital spend start date 01/2024

Construction start date 11/2025

Project Duration (In Months) 41

Cost Containment Commitment

Cost cap (in current year) Competitive

Cost cap (in-service year) Competitive

Components covered by cost containment

1. North Delta-New Raphael 500kV - PSEG
2. New Raphael-Waugh Chapel 500kV - PSEG
3. New Brambleton to Hinsons Ford Rd 500kV line - PSEG
4. New Raphael 500kV Station - PSEG
5. Hinsons Ford Rd 500kV - PSEG

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	No
AFUDC	No
Escalation	Yes
Additional Information	Competitive
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?	Competitive
Additional cost containment measures not covered above	Competitive

Additional Comments

None