Dominion Regional Solution

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	938
Project title	Dominion Regional Solution
Project description	This proposal incorporates construction of multiple transmission lines and substations to provide a robust, expandable transmission solution to address the 2025 Open Window 1 violations identified in 2032 studies. This proposal will also ensure the PJM transmission system can safely and reliably accommodate future load growth. Refer to Executive Abstract attached to Market Efficiency simulation modeling files section.
Email	Confidential Information
Project in-service date	06/2030
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Confidential Information

Project Components

1. Lea Anna 765 kV Switchyard
2. Ladysmith 765 kV Switchyard
3. Lea Anna - Ladysmith 765 kV Line

4. Bristers 765/500 kV Substation
5. Bristers 500 kV Yard Expansion
6. Ladysmith - Bristers 765 kV Line
7. Morrisville 765/500 kV Substation
8. Morrisville 500 kV Yard Expansion
9. Lea Anna - Morrisville 765 kV Line
10. Rogers Rd 765 kV Switchyard
11. Centerville Rd 765 kV Switchyard
12. Centerville Rd - Rogers Rd 765 kV Line
13. Perkins Rd 765 kV Switchyard
14. Rogers Rd - Perkins Rd 765 kV Line
15. Perkins Rd - Lea Anna 765 kV Line
16. Lea Anna 765/500 kV Substation
17. Ladysmith 765/500 kV Substation
18. Ladysmith Substation: Revise Relay Settings
19. Rogers Rd 765/500 kV Substation
20. Rogers Rd 500 kV Yard Expansion
21. Perkins Rd 765/500 kV Substation
22. Creekward 500 kV Switchyard
23. Carson - Creekward 500 kV Line
24. Carson 500 kV Yard Expansion

Greenfield Substation Component

Component title	Lea Anna 765 kV Switchyard
Project description	Confidential Information
Substation name	Lea Anna

Substation description	Construct the Lea Anna 765 kV Switchyard in breaker-and-a-half configuration at the approximate coordinates of (37.7620,-77.7648) and loop in the Joshua Falls – Yeat 765 kV Line. Additional 765 kV lines will be constructed and terminated into Lea Anna (Lea Anna - Morrisville 765 kV Line, Ladysmith - Lea Anna 765 kV Line, Lea Anna - Perkins Rd 765 kV Line). The scope and cost of the additional 765 kV line are captured in subsequent components.
Nominal voltage	AC
Nominal voltage	765

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (8) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (16) 765 kV MOAB disconnect switches. Install (7) 765 kV surge arresters. Install (8) 765 kV CVTs. Install (5) 765 kV dead-end structures. Install (4) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (5) line protection panels consisting of (2) SEL-411L relays each. Install (5) bus protection panels consisting of (2) SEL-487B relays each. Install (8) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation
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	$97,371,699.00
Component cost (in-service year)	$108,953,040.00

Greenfield Substation Component

Component title	Ladysmith 765 kV Switchyard
Project description	Confidential Information
Substation name	Ladysmith
Substation description	Construct the new Ladysmith 765 kV Switchyard in a ring bus configuration adjacent to the existing Ladysmith Substation, at the approximate coordinates of (38.0467,-77.5501). This station will be constructed to accommodate the connection of the proposed Lea Anna - Ladysmith 765 kV Line (Component 3), the proposed Ladysmith - Bristers 765 kV Line (Component 6), and the proposed 765/500 kV transformation at Ladysmith Substation (Component 17).
Nominal voltage	AC
Nominal voltage	765

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (4) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (8) 765 kV MOAB disconnect switches. Install (4) 765 kV surge arresters. Install (4) 765 kV CVTs. Install (2) 765 kV dead-end structures. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (2) line protection panels consisting of (2) SEL-411L relays each. Install (2) bus protection panels consisting of (2) SEL-487B relays each. Install (4) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.
Outreach plan	Public outreach is a critical component to the Proposing Entity's siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity's approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$49,485,109.00
Component cost (in-service year)	$55,370,843.00

Greenfield Transmission Line Component

Component title	Lea Anna - Ladysmith 765 kV Line
Project description	Confidential Information
Point A	Lea Anna
Point B	Ladysmith
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000

Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle
Nominal voltage	AC
Nominal voltage	765
Line construction type	Overhead
General route description	This new 43-mile 765 kV line will be constructed from the proposed Lea Anna 765 kV Switchyard in Hanover County, VA to the proposed Ladysmith 765 kV Switchyard in Caroline County, VA. The line will traverse Hanover and Caroline counties in Virginia, close to the existing Cunningham – Elmont 500 kV Line and Elmont - Ladysmith 500 kV Line. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 43 miles of new right-of-way will be required. A full application will be required from the Virginia State Corporation Commission.
Terrain description	The terrain for the transmission line corridor is flat/hilly. The highest elevation is near Mountain Rd in Glen Allen, VA at near 345 feet msl and the lowest elevation is near Verdon Rd in Doswell, VA at approximately 61 feet msl.

Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical right-of-way needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of two times.
Civil infrastructure/major waterway facility crossing plan	The proposed route will cross seven highways, three railways, (13) waterways, and (37) wetlands. Traffic control, flagging, and crossing permits may be required.
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$259,612,500.00
Component cost (in-service year)	$289,227,596.00

Greenfield Substation Component

Component title	Bristers 765/500 kV Substation
Project description	Confidential Information
Substation name	Bristers
Substation description	Construct the new Bristers 765 kV Switchyard in a ring bus configuration, located at the approximate coordinates of (38.5629,-77.5954). Install two 765/500 kV transformers and interconnect into the existing Bristers Substation.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

	Name	Capacity (MVA)
Transformer	Bristers 765/500 kV Transformer No. 1	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name	Capacity (MVA)

Transformer	Bristers 765/500 kV Transformer No. 2		3125 MVA SN, 4000 MVA SE
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

Major equipment description

Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765/500 kV single phase transformers. Purchase (2) spare 765/500 kV single phase transformers. Install (3) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (6) 765 kV MOAB disconnect switches. Install (3) 765 kV surge arresters. Install (3) 765 kV CVTs. Install (1) 765 kV dead-end structure. Install (1) 500 kV circuit breaker. Install (2) 500 kV MOAB disconnect switches. Install (1) 500 kV CCVT. Install (1) 500 kV surge arresters. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of 765 kV & 500 kV hard bus, fittings, insulators, conductor, connectors, and steel structures. Install (1 Lot) of shielding for lightning protection. Install (1 Lot) of fencing and lighting for new substation yard. Install (2) prefabricated control buildings with battery systems, AC & DC aux power panels, security cabinets, and MPLS network equipment. Relaying & Control: Install (1) line protection panel(s) consisting of (2) SEL-411L relays each. Install (1) bus protection panel(s) consisting of (2) SEL-487B relays each. Install (2) transformer protection panels consisting of (1) SEL-487E, (1) SEL-587, and (1) SEL-421 relays each. Install (4) breaker control panels consisting of (1) SEL-451 relay each. Install (2) SCADA RTU cabinets. Install (2) ATS. Install (2) HMI panel including GPS clock and RTACs. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment

Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$92,909,646.00
Component cost (in-service year)	$103,960,270.00

Greenfield Substation Component

Component title	Bristers 500 kV Yard Expansion
Project description	Confidential Information
Substation name	Bristers
Substation description	Install (1) 500 kV circuit breaker and associated relaying at Bristers Substation to accommodate the proposed 765/500 kV interconnection (Component 4).
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Install (1) 500 kV, 63 kAIC, 5000 A circuit breakers. Install (2) 500 kV MOAB disconnect switches. Install (1) 500 kV CCVT. Install (1) 500 kV surge arresters. Install (1) breaker control panels consisting of (1) SEL-451 relay each.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6364.000000

Environmental assessment	There will be no fence expansion nor land acquisition for this component.
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	There will be no fence expansion nor land acquisition for this component.
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	$9,888,255.00
Component cost (in-service year)	$11,064,359.00

Greenfield Transmission Line Component

Component title	Ladysmith - Bristers 765 kV Line
Project description	Confidential Information
Point A	Ladysmith
Point B	Bristers
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000

Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle
Nominal voltage	AC
Nominal voltage	765
Line construction type	Overhead
General route description	This proposed 37-mile 765 kV line will be constructed from the proposed Ladysmith 765 kV Switchyard in Caroline County, VA to the proposed Bristers 765 kV Switchyard in Fauquier County, VA. The line will traverse Caroline, Spotsylvania, Stafford and Fauquier counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 37 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.
Terrain description	The terrain for the transmission line corridor is flat/hilly. The highest elevation is near Bristers Substation at approximately 411 feet msl, and the lowest elevation is midway near Lake Mooney Reservoir at approximately 91 feet msl.
Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical ROW needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of one time.
Civil infrastructure/major waterway facility crossing plan	The line crosses (6) major roads, (4) waterways, and (51) wetlands. Traffic control and flagging may be required.

Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$223,390,255.00
Component cost (in-service year)	$248,873,548.00

Greenfield Substation Component

Component title	Morrisville 765/500 kV Substation
Project description	Confidential Information
Substation name	Morrisville Substation
Substation description	Construct the new Morrisville 765 kV Switchyard in a ring bus configuration, located at the approximate coordinates of (38.5009,-77.7087). Install two 765/500 kV transformers and interconnect into the existing Morrisville Substation.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

	Name		Capacity (MVA)
Transformer	Morrisville 765/500 kV Transformer No. 1		3125 MVA SN, 4000 MVA SE
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name		Capacity (MVA)
Transformer	Morrisville 765/500 kV Transformer No. 2		3125 MVA SN, 4000 MVA SE
	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765/500 kV single-phase transformers. Purchase (2) 765/500 kV single-phase spare transformers. Install (3) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (6) 765 kV MOAB disconnect switches. Install (3) 765 kV surge arresters. Install (3) 765 kV CVTs. Install (1) 765 kV dead-end structure. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of 765 kV & 500 kV hard bus, fittings, insulators, conductor, connectors, and steel structures. Install (1 Lot) of shielding for lightning protection. Install (1 Lot) of fencing and lighting for new substation yard. Install (2) prefabricated control buildings with battery systems, AC & DC aux power panels, security cabinets, and MPLS network equipment. Relaying & Control: Install (1) line protection panel(s) consisting of (2) SEL-411L relays each. Install (1) bus protection panel(s) consisting of (2) SEL-487B relays each. Install (2) transformer protection panels consisting of (1) SEL-487E, (1) SEL-587, and (1) SEL-421 relays each. Install (3) breaker control panels consisting of (1) SEL-451 relay each. Install (2) SCADA RTU cabinets. Install (2) ATS. Install (2) HMI panel including GPS clock and RTACs. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.

Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$92,910,888.00
Component cost (in-service year)	$103,961,661.00

Greenfield Substation Component

Component title	Morrisville 500 kV Yard Expansion
Project description	Confidential Information
Substation name	Morrisville
Substation description	Install three 500 kV circuit breakers and associated relaying at Morrisville Substation to accommodate the proposed 765/500 kV interconnection (Component 7).

Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Install (3) 500 kV, 63 kAIC, 5000 A circuit breakers. Install (6) 500 kV MOAB disconnect switches. Install (3) 500 kV CCVT. Install (3) 500 kV surge arresters. Install (3) breaker control panels consisting of (1) SEL-451 relay each. Install (1 Lot) of conductor in the new string.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6364.000000

Environmental assessment	There will be no fence expansion nor land acquisition for this component.
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	No expansion beyond the existing fence of the Morrisville Substation is required.
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	$41,055,507.00
Component cost (in-service year)	$45,938,627.00

Greenfield Transmission Line Component

Component title	Lea Anna - Morrisville 765 kV Line
Project description	Confidential Information
Point A	Lea Anna
Point B	Morrisville
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000

Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle
Nominal voltage	AC
Nominal voltage	765
Line construction type	Overhead

General route description	This new approximately 54-mile 765 kV line will be constructed from the proposed Lea Anna 765 kV Switchyard in Hanover County, VA to the proposed Morrisville 765 kV Switchyard in Fauquier County, VA. The line will traverse Hanover, Louisa, Spotsylvania, Orange, Culpeper and Fauquier counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 54 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.
Terrain description	The terrain for the transmission line corridor is flat/hilly. The highest elevation is at Morrisville Substation at approximately 409 feet msl, and the lowest elevation is near Lake Anna at approximately 175 feet msl.
Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical ROW needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of two times.
Civil infrastructure/major waterway facility crossing plan	The proposed route will cross (12) highways, (3) railways, and (12) waterways. Traffic control, flagging, and crossing permits may be required.
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.

Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$326,025,000.00
Component cost (in-service year)	$363,216,051.00

Greenfield Substation Component

Component title	Rogers Rd 765 kV Switchyard
Project description	Confidential Information
Substation name	Rogers Rd

Substation description	Construct the new Rogers Rd 765 kV Switchyard in a breaker-and-a-half configuration adjacent to the existing Rogers Rd Substation, at the approximate coordinates of (36.7231,-77.6554). This station will be constructed to accommodate the interconnection of the proposed Centerville - Rogers Rd 765 kV Line (Component 12), the Rogers Rd - Perkins Rd 765 kV Line (Component 14), and the 765/500 kV transformation at Rogers Rd Substation (Component 19).
Nominal voltage	AC
Nominal voltage	765

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (12) 765 kV MOAB disconnect switches. Install (4) 765 kV surge arresters. Install (6) 765 kV CVTs. Install (2) 765 kV dead-end structures. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (2) line protection panels consisting of (2) SEL-411L relays each. Install (2) bus protection panels consisting of (2) SEL-487B relays each. Install (6) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$75,969,935.00
Component cost (in-service year)	$85,005,762.00

Greenfield Substation Component

Component title	Centerville Rd 765 kV Switchyard
Project description	Confidential Information
Substation name	Centerville Rd
Substation description	Construct Centerville Rd 765 kV Switchyard in a ring bus configuration near Axton Substation, at the approximate coordinates of (36.6489,-79.6998). Loop in the Jacksons Ferry – Axton 765 kV Line. This 765 kV switchyard will accommodate the construction of the Centerville Rd - Rogers Rd 765 kV Line (Component 12).
Nominal voltage	AC
Nominal voltage	765

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (3) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (6) 765 kV MOAB disconnect switches. Install (3) 765 kV surge arresters. Install (3) 765 kV CVTs. Install (3) 765 kV dead-end structures. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (3) line protection panels consisting of (2) SEL-411L relays each. Install (3) bus protection panels consisting of (2) SEL-487B relays each. Install (3) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.
Outreach plan	Public outreach is a critical component to the Proposing Entity's siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity's approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$60,985,251.00
Component cost (in-service year)	$68,238,806.00

Greenfield Transmission Line Component

Component title	Centerville Rd - Rogers Rd 765 kV Line
Project description	Confidential Information
Point A	Centerville Rd
Point B	Rogers Rd
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000

Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle
Nominal voltage	AC
Nominal voltage	765
Line construction type	Overhead
General route description	This new approximately 152-mile 765 kV line will be constructed from the proposed Centerville Rd 765 kV Switching Station in Henry County, VA to the proposed Rogers Rd 765 kV Switchyard in Greensville County, VA. The line will traverse Henry, Pittsylvania, Halifax, Charlotte, Mecklenburg, Lunenburg, Brunswick and Greensville counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 152 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.

Terrain description	The terrain for the transmission line corridor is flat/hilly and generally slopes downhill from the proposed Centerville Rd Switchyard to the proposed Rogers Rd Substation (west to east). The highest elevation is at Centerville Rd Switchyard at near 980 feet msl to the lowest elevation at Rogers Rd Substation at approximately 170 feet msl.
Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical ROW needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of (12) times.
Civil infrastructure/major waterway facility crossing plan	The proposed route will cross (15) Highways, (1) Railway, and (6) waterways. Traffic control, flagging, and crossing permits may be required.
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$917,700,000.00
Component cost (in-service year)	$1,022,385,921.00

Greenfield Substation Component

Component title	Perkins Rd 765 kV Switchyard
Project description	Confidential Information
Substation name	Perkins Rd
Substation description	Construct the Perkins Rd 765 kV Switchyard in a breaker-and-a-half configuration at the approximate coordinates of (37.0890,-77.4334). This station will be constructed to accommodate the connection of the proposed Rogers Rd - Perkins Rd 765 kV Line (Component 14), the proposed Perkins Rd - Lea Anna 765 kV Line (Component 15), and the proposed 765/500 kV transformation at the Perkins Rd Switchyard (Component 21).
Nominal voltage	AC
Nominal voltage	765

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765 kV, 63 kAIC, 5000 A circuit breakers. Install (12) 765 kV MOAB disconnect switches. Install (4) 765 kV surge arresters. Install (6) 765 kV CVTs. Install (2) 765 kV dead-end structures. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (2) line protection panels consisting of (2) SEL-411L relays each. Install (2) bus protection panels consisting of (2) SEL-487B relays each. Install (6) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	8312.000000
Winter (MVA)	8488.000000	9775.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$70,219,866.00
Component cost (in-service year)	$78,571,780.00

Greenfield Transmission Line Component

Component title	Rogers Rd - Perkins Rd 765 kV Line
Project description	Confidential Information
Point A	Rogers Rd
Point B	Perkins Rd
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000

Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle
Nominal voltage	AC
Nominal voltage	765
Line construction type	Overhead
General route description	This new approximately 32-mile 765 kV line will be constructed from the proposed Rogers Rd 765 kV Switchyard in Greensville County, VA to the proposed Perkins Rd 765 kV Switchyard in Dinwiddie County, VA. The line will traverse Greensville, Sussex, and Dinwiddie counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 32 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.
Terrain description	The terrain for the transmission line corridor is Flat/Hilly and generally slopes downhill from the proposed Rogers Rd Switchyard to the proposed Perkins Rd Switchyard (west to east). The highest elevation is near Rogers Rd Switchyard at near 253 feet msl to the lowest elevation at Perkins Rd Switchyard at approximately 87 feet msl.
Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical ROW needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of three times.
Civil infrastructure/major waterway facility crossing plan	The proposed route will cross (7) Highways and (1) Railways. Traffic control, flagging, and crossing permits may be required.

Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$193,200,000.00
Component cost (in-service year)	$215,239,141.00

Greenfield Transmission Line Component

Component title	Perkins Rd - Lea Anna 765 kV Line	
Project description	Confidential Information	
Point A	Perkins Rd	
Point B	Lea Anna	
Point C		
	Normal ratings	Emergency ratings
Summer (MVA)	6392.000000	7253.000000
Winter (MVA)	7512.000000	7918.000000
Conductor size and type	795 KCMIL ACSR 45/7 ‘Tern’ STR x6 conductor bundle	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	This new approximately 56-mile 765 kV line will be constructed from the proposed Perkins Rd 765 kV Switchyard in Dinwiddie County, VA to the proposed Lea Anna 765 kV Switchyard in Hanover County, VA. The line will traverse Dinwiddie, Chesterfield, Powhatan, Goochland and Hanover counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 56 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.	
Terrain description	The terrain for the transmission line corridor is flat/hilly. The highest elevation is near Salisbury Rd in Midlothian, VA midway through the new 765 kV transmission line at near 371 feet msl and the lowest elevation is near around Hickory Rd in Petersburg, VA at approximately 95 feet msl.	

Right-of-way width by segment	The right-of-way width is assumed to be 200 feet. This width is based on the typical ROW needed for a 765 kV line and does not account for structure configuration or span lengths. Width may vary depending upon final design and tree clearing requirements. Any necessary ROW acquisition will be conducted by real estate agents that will approach private landowners for voluntary negotiations of the permanent and/or temporary rights needed for the project. Although eminent domain will be a last resort, it may be necessary for project completion. For public lands, the controlling agency will be contacted to obtain the necessary licenses, special use agreements or other agreements pursuant to their respective requirements. In sensitive areas, the structure type/configuration and span lengths will be evaluated to minimize the amount of ROW needed to accommodate the new line in these areas.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of one time.
Civil infrastructure/major waterway facility crossing plan	The proposed route will cross (18) Highways, (3) Railways, and (3) waterways. Traffic control, flagging, and crossing permits may be required.
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	This 765 kV transmission line utilizes a combination of self-supporting and guyed-V lattice tower construction that is horizontally configured. The predominant structure type will be guyed-V suspension towers supported by a center grillage and four bridge-strand anchors. Self-supporting suspension towers, running-corner suspension towers, and tension structures will utilize concrete drilled piers to support foundation loads. Self-supporting suspension structures will be used to the extent possible as an effort to keep electrical infrastructure compatible with agricultural use.
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	$338,100,000.00
Component cost (in-service year)	$376,668,497.00

Greenfield Substation Component

Component title	Lea Anna 765/500 kV Substation
Project description	Confidential Information
Substation name	Lea Anna
Substation description	Construct the Lea Anna 500 kV Switchyard in breaker-and-a-half configuration at the approximate coordinates of (37.7620,-77.7648). Install (2) 765/500 kV transformers to interconnect into the proposed Lea Anna 765 kV Switchyard (Component 1). Loop the Cunningham – Elmont 500 kV Line and Midlothian - North Anna 500 kV Line into the Lea Anna Substation.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

	Name	Capacity (MVA)
Transformer	Lea Anna 765/500 kV Transformer No. 1	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name	Capacity (MVA)
Transformer	Lea Anna 765/500 kV Transformer No. 2	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765/500 kV single-phase transformers. Purchase (2) 765/500 kV single-phase spare transformers. Install (6) 500 kV circuit breaker. Install (12) 500 kV MOAB disconnect switches. Install (6) 500 kV CCVT. Install (4) 500 kV dead-end structure. Install (6) 500 kV surge arresters. Install (1 Lot) of 500 kV hard bus, fittings, insulators, conductor, connectors, and steel structures. Relaying & Control: Install (4) line protection panel(s) consisting of (2) SEL-411L relays each. Install (4) bus protection panel(s) consisting of (2) SEL-487B relays each. Install (2) transformer protection panels consisting of (1) SEL-487E, (1) SEL-587, and (1) SEL-421 relays each. Install (6) breaker control panels consisting of (1) SEL-451 relay each. Install (2) SCADA RTU cabinets. Install (2) ATS. Install (2) HMI panel including GPS clock and RTACs. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6389.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$110,000,098.00
Component cost (in-service year)	$123,083,454.00

Substation Upgrade Component

Component title	Ladysmith 765/500 kV Substation
Project description	Confidential Information
Substation name	Ladysmith
Substation zone	345
Substation upgrade scope	Install (2) 765/500 kV transformers at the proposed Ladysmith 765 kV Switchyard (Component 2) and interconnect into the existing Ladysmith Substation.

Transformer Information

	Name	Capacity (MVA)
Transformer	Ladysmith 765/500 kV Transformer No. 1	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name	Capacity (MVA)
Transformer	Ladysmith 765/500 kV Transformer No. 2	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

New equipment description	Install (6) 765/500 kV single-phase transformers and associated relaying. Purchase (2) 765/500 kV single-phase spare transformers.
Substation assumptions	The Ladysmith 765 kV Switchyard (Component 2) will be constructed to accommodate future expansion, including transformation and control house availability. Therefore, the scope of this component is limited to installing the transformation.
Real-estate description	There will be no real estate impact, as the Ladysmith 765 kV Switchyard (Component 2) will encompass the land acquisition necessary for this transformation.
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	$59,462,794.00
Component cost (in-service year)	$66,535,268.00

Greenfield Substation Component

Component title	Ladysmith Substation: Revise Relay Settings
Project description	Confidential Information
Substation name	Ladysmith
Substation description	Revise relaying at Ladysmith Substation to accommodate the interconnection of the Ladysmith 765/500 kV transformation (Component 17). The (2) 765/500 kV transformers will connect to the existing 500 kV buses at Ladysmith Substation.
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Revise relaying at Ladysmith Substation.	
	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6389.000000
Environmental assessment	No expansion beyond the existing fence of the Ladysmith 500 kV Substation is required. Permits for construction will be acquired from the appropriate governing agencies.	
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.	
Land acquisition plan	No expansion beyond the existing fence of the Ladysmith 500 kV Substation is required. The land needed for installation of the new equipment and the substation expansion is owned by Dominion.	
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	$80,501.00
Component cost (in-service year)	$90,076.00

Substation Upgrade Component

Component title	Rogers Rd 765/500 kV Substation
Project description	Confidential Information
Substation name	Rogers Rd
Substation zone	345
Substation upgrade scope	Interconnect the proposed Rogers Rd 765 kV Switchyard (Component 10) and the existing Rogers Rd Substation but installing (2) 765/500 kV transformers and associated equipment.

Transformer Information

	Name	Capacity (MVA)
Transformer	Rogers Rd 765/500 kV Transformer No. 1	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name	Capacity (MVA)
Transformer	Rogers Rd 765/500 kV Transformer No. 2	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

New equipment description	Install (6) 765/500 kV single-phase transformers and associated relaying. Purchase (2) 765/500 kV single-phase spare transformers. The Rogers Rd 765 kV Switchyard (Component 10) will be constructed to accommodate future expansion, including transformation and control house availability. Therefore, the scope of this component is limited to installing the transformation.
Substation assumptions	The Rogers Rd 765 kV Switchyard (Component 10) will be constructed to accommodate future expansion, including transformation and control house availability.
Real-estate description	There will be no real estate impact, as the Rogers Rd 765 kV Switchyard (Component 10) will encompass the land acquisition necessary for this transformation.
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	$54,925,920.00
Component cost (in-service year)	$61,458,781.00

Greenfield Substation Component

Component title	Rogers Rd 500 kV Yard Expansion
Project description	Confidential Information

Substation name	Rogers Rd
Substation description	Install (2) 500 kV circuit breakers and associated relaying at Rogers Rd Substation to accommodate the proposed 765/500 kV interconnection (Component 19).
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Install (2) 500 kV, 63 kAIC, 5000 A circuit breakers. Install (4) 500 kV MOAB disconnect switches. Install (2) 500 kV CCVT. Install (2) 500 kV surge arresters. Install (2) breaker control panels consisting of (1) SEL-451 relay each.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6364.000000

Environmental assessment	There will be no fence expansion nor land acquisition for this component.
Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	There will be no fence expansion nor land acquisition for this component.
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	$5,231,953.00
Component cost (in-service year)	$5,854,240.00

Greenfield Substation Component

Component title	Perkins Rd 765/500 kV Substation
Project description	Confidential Information
Substation name	Perkins Rd
Substation description	Construct the Perkins Rd 500 kV Switchyard in breaker-and-a-half configuration at the approximate coordinates of (37.0890,-77.4334). Install (2) 765/500 kV transformers to interconnect into the proposed Perkins Rd 765 kV Switchyard (Component 13). Loop in the Carson – Midlothian 500 kV Line and the Carson – Rawlings 500 kV Line.
Nominal voltage	AC
Nominal voltage	765/500

Transformer Information

	Name	Capacity (MVA)
Transformer	Perkins Rd 765/500 kV Transformer No. 1	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

	Name	Capacity (MVA)
Transformer	Perkins Rd 765/500 kV Transformer No. 2	3125 MVA SN, 4000 MVA SE

	High Side	Low Side	Tertiary
Voltage (kV)	765	500	13.8

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (6) 765/500 kV single-phase transformers. Purchase (2) 765/500 kV single-phase spare transformers. Install (6) 500 kV circuit breaker. Install (12) 500 kV MOAB disconnect switches. Install (6) 500 kV CCVT. Install (2) 500 kV dead-end structure. Install (4) 500 kV surge arresters. Install (1 Lot) of 500 kV hard bus, fittings, insulators, conductor, connectors, and steel structures. Relaying & Control: Install (2) line protection panel(s) consisting of (2) SEL-411L relays each. Install (2) bus protection panel(s) consisting of (2) SEL-487B relays each. Install (2) transformer protection panels consisting of (1) SEL-487E, (1) SEL-587, and (1) SEL-421 relays each. Install (6) breaker control panels consisting of (1) SEL-451 relay each. Install (2) SCADA RTU cabinets. Install (2) ATS. Install (2) HMI panel including GPS clock and RTACs. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6389.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$107,125,063.00
Component cost (in-service year)	$119,866,464.00

Greenfield Substation Component

Component title	Creekward 500 kV Switchyard
Project description	Confidential Information
Substation name	Creekward Switching Station
Substation description	Construct Creekward 500 kV Switchyard in 3-breaker ring bus configuration at the approximate coordinates of (37.2383,-77.0786). Loop in the Surry – Chickahominy 500 kV Line.
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Below Grade: Install (1 Lot) of foundations, conduit, and grounding for new equipment. Install (1 Lot) of cable trench. Install (1 Lot) of fencing, stoning, grading, access road, and ground grid for the new substation. Install (1 Lot) of conduit for fiber. Above Grade: Install (3) 500 kV, 63 kAIC, 5000 A circuit breakers. Install (6) 500 kV MOAB disconnect switches. Install (3) 500 kV surge arresters. Install (3) 500 kV CVTs. Install (3) 500 kV dead-end structures. Install (3) aux power transformers to be fed from distribution system. Install (1 Lot) of shielding for lightning protection. Install (1) Prefabricated control building. Install (1) lot of fencing and lighting for new substation yard and (1) gate. Install (1) lot of cables, steel structures, rigid bus, grounding, and fittings for new equipment. Relaying & Control: Install (3) line protection panels consisting of (2) SEL-411L relays each. Install (3) bus protection panels consisting of (2) SEL-487B relays each. Install (3) breaker control panels consisting of (1) SEL-451 relay each. Install (1) SCADA RTU cabinets. Install (1) ATS. Install (1) HMI panel including GPS clock and RTAC. Install (1) fiber patch panel. Install (1) lot of control cables, fiber, and SEL cables.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6389.000000

Environmental assessment	Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation. A suitable site location has been identified. Tree clearing will be minimized to the extent practicable and any seasonal restrictions or mitigation for any sensitive species will be followed, as necessary. Permits for construction will be acquired from the appropriate governing agencies.
Outreach plan	Public outreach is a critical component to the Proposing Entity's siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity's approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	The site for the proposed substation has been identified and Real Estate agents for the Proposing Entity will contact the landowners to start discussions and negotiations when appropriate. Approximately 35 to 40 acres of usable land will be needed for the substation footprint. This does not include land needed for site development (grading, stormwater management, etc.), transmission line ROW, access roads, onsite soils management or mitigation.
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	$51,911,641.00
Component cost (in-service year)	$58,085,984.00

Greenfield Transmission Line Component

Component title	Carson - Creekward 500 kV Line
Project description	Confidential Information
Point A	Carson
Point B	Creekward
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	4741.000000
Winter (MVA)	4909.000000	5175.000000

Conductor size and type	113 KCMIL ACSS 54/19 STR x3 conductor bundle rated at 200 degrees Celsius (200 C)
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	This new approximately 36-mile 765 kV line will be constructed from Carson 500 kV Substation in Dinwiddie County, VA to the proposed Creekward 500 kV Switching Station in Prince George County, VA. The line will traverse Dinwiddie and Prince George counties in Virginia. It is assumed that the 765 kV line will parallel existing transmission ROW for most of the line except for deviations to avoid developed areas or other constraints. Where feasible, consideration will be given to leveraging existing transmission ROW and transmission infrastructure. Approximately 36 miles of new ROW will be required. A full application will be required from the Virginia State Corporation Commission.

Terrain description	The terrain for the transmission line corridor is Flat/Hilly and generally slopes downhill from Carson Substation to the proposed Creekward switchyard (west to east). The highest elevation is near Carson Substation at near 174 feet msl to the lowest elevation new Creekward Switchyard at approximately 5 feet msl.
Right-of-way width by segment	ROW width used in this estimate for the calculation of easement area is based on the widest ROW needed for 500 kV construction.
Electrical transmission infrastructure crossings	The proposed route crosses existing transmission lines a total of three times.
Civil infrastructure/major waterway facility crossing plan	The proposed route crosses (10) major roadways and (5) railways. Traffic control, flagging, and crossing permits may be required.
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements. No restrictions on construction from an Environmental Species perspective was identified. Road Bonds are required. Environmental Filming Documentation of Existing roads) are required. Environmental Access and Road Crossing Permit Fees is required. Environmental Development of Permit Binder is required. Environmental Cultural Resource Consultation is required. Environmental Construction walk down is required. The line crosses streams/rivers/ bodies of water multiple times. Crossing permits and other construction and design considerations may be required.
Tower characteristics	It is assumed the new line will be constructed on single circuit 500 kV tubular steel monopole structures. It is assumed the new structures will have an average height of 175 ft and an average span length of 1200 ft. It is assumed all new structures on drilled shaft foundations will require rock drilling and temporary casing.
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	$185,230,500.00
Component cost (in-service year)	$206,360,527.00

Greenfield Substation Component

Component title	Carson 500 kV Yard Expansion
Project description	Confidential Information
Substation name	Carson
Substation description	Install (1) 500 kV breaker and relaying at Carson Substation to accommodate the interconnection of the proposed Carson - Creekward 500 kV Line (Component 23).
Nominal voltage	AC
Nominal voltage	500

Transformer Information

None

Major equipment description	Install (1) 500 kV, 63 kAIC, 5000 A circuit breakers. Install (2) 500 kV MOAB disconnect switches. Install (1) 500 kV CCVT. Install (1) 500 kV surge arresters. Install (1) breaker control panels consisting of (1) SEL-451 relay each.

	Normal ratings	Emergency ratings
Summer (MVA)	4178.000000	5433.000000
Winter (MVA)	5548.000000	6364.000000

Environmental assessment	There will be no fence expansion nor land acquisition for this component.

Outreach plan	Public outreach is a critical component to the Proposing Entity’s siting process, so efforts will include properly informing the public; federal, state, and local agencies; local governments; and other key stakeholders on the need for, and benefits of, this Project. The Proposing Entity’s approach to public outreach is to be always candid and transparent, and to offer a variety of tools and means for directly impacted parties to engage with our staff. The Proposing Entity will provide development updates to local government officials, key stakeholders, and impacted parties as the Project progresses. Public outreach also will involve collecting information about landowner properties and communicating with directly affected landowners during the final siting process.
Land acquisition plan	There will be no fence expansion nor land acquisition for this component.
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	$4,138,184.00
Component cost (in-service year)	$4,630,378.00

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
2025W1-32GD-S64	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S65	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL32	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL33	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S66	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S67	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S100	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S60	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S61	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S62	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S63	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S109	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S106	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S107	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S108	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S101	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL35	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S68	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S69	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S103	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S104	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL42	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S75	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S1NEW	941030	AE2-094 TAP	314902	8CARSON	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S76	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S77	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S110	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-S111	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S78	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL45	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S71	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S72	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S73	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S74	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S7NEW	941030	AE2-094 TAP	314902	8CARSON	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S70	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S6NEW	941030	AE2-094 TAP	314902	8CARSON	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S5NEW	941030	AE2-094 TAP	314902	8CARSON	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S4NEW	941030	AE2-094 TAP	314902	8CARSON	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S3NEW	289543	05YEAT	314919	8OX	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-S2NEW	289543	05YEAT	314919	8OX	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-LL50	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S117	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL51	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S119	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S79	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S112	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL47	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S113	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL48	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S114	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S115	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL49	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S42	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S43	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-S44	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S45	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL12	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL21	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S87	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S89	970672	AG2-436 TP	941030	AE2-094 TAP	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S83	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S84	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL19	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S85	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S86	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL20	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S46	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL13	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL14	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S48	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL15	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S49	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL16	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S82	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL22	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S56	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL23	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S50	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S51	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S98	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S99	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S94	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-LL28	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S95	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL29	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S96	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL30	314923	8SEPTA	314924	8SURRY	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S97	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL31	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S57	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL24	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S90	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S58	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S91	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL25	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S92	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S59	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL26	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL27	314923	8SEPTA	314924	8SURRY	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S93	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S20	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S21	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S143	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S22	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S23	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL1	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S28	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S149	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S29	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S24	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-S145	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S25	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S26	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S27	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S152	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S31	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S32	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S153	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S33	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S30	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL10	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL11	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL6	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL9	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL2	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S35	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL3	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S37	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL4	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL5	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL63	314908	8ELMONT	314911	8LADYSMITH	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL53	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S120	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL54	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S121	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL55	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S1	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S122	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-LL56	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S8NEW	314923	8SEPTA	314924	8SURRY	1	500	345	Summer 2032 Generation Deliverability	Included
2025W1-32GD-LL52	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL68	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL67	314902	8CARSON	314914	8MDLTHAN	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL66	314902	8CARSON	314914	8MDLTHAN	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL65	314924	8SURRY	314903	8CHCKAHM	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL64	314924	8SURRY	314903	8CHCKAHM	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL61	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S6	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S127	314918	8NO ANNA	314934	8SPOTSYL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S7	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S8	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S9	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S123	314911	8LADYSMITH	313483	8KRAKEN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL57	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL58	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S124	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S3	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL59	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S125	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S5	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S126	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL60	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL74	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	Generation Deliverability	Included
2025W1-32GD-S130	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S10	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S131	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-32GD-LL73	314924	8SURRY	314903	8CHCKAHM	1	500	345	Generation Deliverability	Included
2025W1-32GD-S11	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S132	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL72	314924	8SURRY	314903	8CHCKAHM	1	500	345	Generation Deliverability	Included
2025W1-32GD-S133	314914	8MDLTHAN	314918	8NO ANNA	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S12	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL71	314924	8SURRY	314903	8CHCKAHM	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL70	314902	8CARSON	314914	8MDLTHAN	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL69	314902	8CARSON	314914	8MDLTHAN	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL62	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-LL76	314902	8CARSON	314914	8MDLTHAN	1	500	345	Generation Deliverability	Included
2025W1-32GD-LL75	314908	8ELMONT	314911	8LADYSMITH	1	500	345	Generation Deliverability	Included
2025W1-32GD-S17	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S138	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S18	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S19	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S134	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S13	314924	8SURRY	314903	8CHCKAHM	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S14	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S135	314936	8RAWLINGS	314902	8CARSON	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S15	314902	8CARSON	314914	8MDLTHAN	1	500	345	2032 Generation Deliverability	Included
2025W1-32GD-S16	314908	8ELMONT	314911	8LADYSMITH	1	500	345	2032 Generation Deliverability	Included

New Flowgates

Confidential Information

Financial Information

Capital spend start date 03/2026

Construction start date	06/2028
Project Duration (In Months)	51

Cost Containment Commitment

Cost cap (in current year)	Confidential Information
Cost cap (in-service year)	Confidential Information

Components covered by cost containment

1. Lea Anna 765 kV Switchyard - TRAILCo
2. Ladysmith 765 kV Switchyard - TRAILCo
3. Lea Anna - Ladysmith 765 kV Line - TRAILCo
4. Bristers 765/500 kV Substation - TRAILCo
5. Ladysmith - Bristers 765 kV Line - TRAILCo
6. Morrisville 765/500 kV Substation - TRAILCo
7. Lea Anna - Morrisville 765 kV Line - TRAILCo
8. Rogers Rd 765 kV Switchyard - TRAILCo
9. Centerville Rd 765 kV Switchyard - TRAILCo
10. Centerville Rd - Rogers Rd 765 kV Line - TRAILCo
11. Perkins Rd 765 kV Switchyard - TRAILCo
12. Rogers Rd - Perkins Rd 765 kV Line - TRAILCo
13. Perkins Rd - Lea Anna 765 kV Line - TRAILCo
14. Lea Anna 765/500 kV Substation - TRAILCo
15. Ladysmith 765/500 kV Substation - TRAILCo
16. Rogers Rd 765/500 kV Substation - TRAILCo
17. Perkins Rd 765/500 kV Substation - TRAILCo
18. Creekward 500 kV Switchyard - TRAILCo
19. Carson - Creekward 500 kV Line - TRAILCo

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	No
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?	No
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

Ready for submission. Contact us with any questions.