Data Center Reinforcement Proposal #2

General Information

Proposing entity name	Company specific
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Yes
Company proposal ID	2022-W3-23
PJM Proposal ID	23
Project title	Data Center Reinforcement Proposal #2
Project description	This proposal incorporates construction of multiple transmission lines and substation expansions to provide a robust, expandable transmission solution to address the 2022 Open Window 3 violations. This proposal will also ensure the PJM transmission system can safely and reliably accommodate future load growth. NOTE: The proposing entity has worked closely with other PJM TOs in developing a transmission solution and this proposal should be reviewed in conjunction with proposal 2022-W3-129 and proposal 2023-W3-660. Subsequent to execution of the DEA for one or more of these projects, the proposing entity may file application with the FERC for award of the CWIP and abandonment transmission rate incentives that are typical for projects of this size.
Email	Company specific
Project in-service date	06/2030
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	The proposed solution is a robust and expandable solution. The proposal will place new transmission facilities in proximity to existing transmission infrastructure which will provide opportunities to improve the reliability and resilience of the transmission system as the transmission system changes. Historic reliability and congestion issues on the transmission system such as the Black Oak-Bedington interface and the AP South interface could be addressed with smaller additions or expansions to the transmission facilities proposed in this submittal.

Project Components

1. Doubs Substation - Install 500 kV Breaker
2. Doubs Substation - Expand 500 kV Switchyard
3. Meadow Brook Substation - Expand 500 kV Switchyard
4. Fort Martin Substation - Install 500 kV Breaker
5. Pruntytown Substation - Expand 500 kV Switchyard
6. Bedington Substation - Rebuild & Install 600 MVAR STATCOM
7. Fort Martin - Doubs 500 kV #1 Line
8. Meadow Brook - Doubs 500 kV Line
9. Meadow Brook - Pruntytown 500 kV Line
10. Black Oak Substation - Install Redundant Relaying
11. Reid Substation - Install Redundant Relaying
12. Pruntytown - Install Redundant Relaying
13. Junction - Install Redundant Relaying
14. Doubs 500 kV - Overduty Breaker Replacements
15. Pruntytown - Rebuild 138 kV Switchyard Due to Over Duty Breakers
16. Doubs - Goose Creek 500 kV Rebuild
17. Doubs - Aspen 500 kV Line
18. Rebuild the Germantown - Carroll 138 kV Line to 230 kV double circuit construction
19. Taneytown Substation terminal upgrade
20. Carroll 230 kV Substation Expansion
21. Rebuild the Germantown - Lincoln 115 kV Line for 230 kV double circuit construction
22. Rebuild the Hunterstown- Lincoln 115 kV Line for 230 kV double circuit construction
23. Construct New 230 kV Hunterstown - Carroll Line (MAIT section)
24. Rebuild the Germantown - Carroll 138 kV Line for 230 kV double circuit construction (MAIT)
25. Revise Relay Settings at Germantown Substation
26. Install new 230 kV line terminal at Hunterstown Substation
27. Revise Relay Settings at Lincoln Substation

28. Install DTT relaying at Straban Substation
29. Network Upgrades at Carroll Substation
30. Construct New 230 kV Hunterstown - Carroll Line (APS-PE section)
31. Fort Martin Substation - Expand 500 kV
32. Fort Martin - Doubs 500 kV #2 Line

Substation Upgrade Component

Component title	Doubs Substation - Install 500 kV Breaker
Project description	Install one 500 kV Breaker, relaying, and associated equipment at Doubs Substation.
Substation name	Doubs (235105)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Install foundation, conduit, and grounding for new equipment. - Install (1) 500 kV circuit breaker. - Install (2) 500 kV GOAB disconnect switches. - Install (1) 500 kV MOAB disconnect switch. - Install (3) 500 kV CVTs. - Install (3) 500 kV surge arresters. - Install (1) lot of steel structures, cables, and grounding for new equipment. - Install (1) line relay panel. - Install (1) breaker control panel. - Install (1) lot of control cables. - Relay Revisions at Doubs Substation.

Transformer Information

None

New equipment description	The new 500 kV breaker, terminal equipment, and relaying will be rated at 5000 A or higher.
Substation assumptions	- It is assumed that the control house has adequate space. - It is assumed that the existing substation bay can be utilized without expanding Doubs Substation and without rebuilding and bus work.
Real-estate description	Land acquisition and substation fence expansion are not required.
Construction responsibility	Company specific
Benefits/Comments	This 500 kV breaker installation will allow two new lines to be terminated at Doubs substation without expanding the fence of Doubs Substation. Doubs Substation is an important interface with the Dominion Zone, so additional power flow through Doubs Substation is a reliability benefit to the EHV system.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$4,719,889.00
Component cost (in-service year)	$5,426,954.00

Substation Upgrade Component

Component title	Doubs Substation - Expand 500 kV Switchyard
Project description	Expand the Doubs 500 kV substation by constructing an additional three-breaker, 500 kV string to accommodate the termination of two additional 500 kV lines. This will require the 500 kV Buses A & B to be extended, a fence expansion, and relay installations. No land acquisition is required. This upgrade will be required if Component 7 (Fort Martin - Doubs 500 kV Line) is constructed.
Substation name	Doubs (235105)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Install foundation, conduit, trench, and grounding for new equipment. - Install fencing, stoning, and ground grid for substation expansion. - Install (3) 500 kV, 5000 A circuit breakers. - Install (6) 500 kV CVTs. - Install (6) 500 kV surge arresters. - Install (6) 500 kV, 5000 A GOAB disconnect switches. - Install (2) 500 kV, 5000 A MOAB disconnect switches. - Install (2) 500 kV H-frames. - Install (2) breaker control panels. - Install (2) line relay panels. - Install (1) bus diff panel. - Wetland mitigation.

Transformer Information

None

New equipment description	All new equipment to be rated at 5000 A or higher.
Substation assumptions	- There is adequate space in the existing control house for the new panels. - Land does not need to be purchased. Expansion is on existing substation property. - Conductor shall be installed in triple cable jumper.
Real-estate description	Doubs 500 kV substation will require a fence expansion, but no property acquisition is required. There are forested wetlands to the west, where the expansion is currently proposed. The expansion will require wetland mitigation such as stream enclosure or relocation. The terrain is hilly.
Construction responsibility	Company specific
Benefits/Comments	This 500 kV substation expansion will allow an additional two 500 kV lines to be terminated at Doubs Substation. Doubs Substation is an interface with the Dominion territory, so this substation is critical for power transfer to the Dominion Zone.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$14,436,447.00
Component cost (in-service year)	$16,594,016.00

Substation Upgrade Component

Component title	Meadow Brook Substation - Expand 500 kV Switchyard
Project description	Expand the Meadow Brook 500 kV substation by extending the 500 kV bus and adding a new line terminal to accommodate the termination of a new 500 kV line. This upgrade will be required if one or more new 500 kV lines terminate at Meadow Brook Substation.
Substation name	Meadow Brook (235110)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Install grounding, conduit & foundations for substation expansion. - Install new cable trench, and tie into existing trench. - (1) A-frame dead-ends - (2) 500 kV breakers - (4) 500 kV breaker disconnect switches - (1) 500 kV line disconnect switch - (1) set of 500 kV arresters - (1) sets of 500 kV CVT's - Expand the Meadow Brook Substation fence - (2) Breaker control panels - (1) Line relaying panel - (1) Bus Differential - Revise relay settings at Meadow Brook Substation

Transformer Information

None

New equipment description	All new equipment to be rated at 5000 A or higher.
Substation assumptions	- There is adequate space in the existing control house for the new panels. - Land does not need to be purchased. Expansion is on existing substation property. - Bus protection will be installed for future line position - Existing SCADA transport at Meadow Brook Substation is sufficient for additional SCADA telemetry.
Real-estate description	Meadow Brook 500 kV Substation will require a fence expansion, but no property acquisition is required. No wetlands or environmental risks were identified at this time.
Construction responsibility	Company specific
Benefits/Comments	This 500 kV substation expansion will allow an additional 500 kV line to be terminated at Meadow Brook Substation. Meadow Brook Substation is an interface with the Dominion zone, so this substation is critical for power transfer into and out of the Dominion Zone.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary

ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$16,547,994.00
Component cost (in-service year)	$19,197,920.00

Substation Upgrade Component

Component title	Fort Martin Substation - Install 500 kV Breaker
Project description	Install one 500 kV Breaker, relaying, and associated equipment at Fort Martin Substation. This upgrade will be required if one or more new 500 kV Lines terminate at Fort Martin Substation (Component 7: Fort Martin - Doubs 500 kV Line).
Substation name	Fort Martin (235106)
Substation zone	APS (Area 201, Zone 1201)
Substation upgrade scope	- Install foundation, conduit, and grounding for new equipment. - Install conduit for fiber. - Install (1) 500 kV circuit breaker. - Install (2) 500 kV GOAB disconnect switches. - Install (1) 500 kV MOAB disconnect switch. - Install (3) 500 kV CVTs. - Install (3) 500 kV surge arresters. - Install (1) 500 kV H-frame. - Install (1) lot of steel structures, cables, rigid bus, and grounding for new equipment. - Install (1) line relay panel. - Install (1) lot of control cables.

Transformer Information

None

New equipment description	New equipment to be rated at 5000 A or higher.
Substation assumptions	It is assumed that the existing substation bay can be utilized without expanding Fort Martin Substation.

Real-estate description	Land acquisition and substation fence expansion are not required.
Construction responsibility	Company specific
Benefits/Comments	This 500 kV breaker installation will allow a new line to be terminated at Fort Martin Substation without expanding the fence. Fort Martin Substation provides a strong source for transferring power from the west to the east.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$6,013,770.00
Component cost (in-service year)	$6,924,500.00

Substation Upgrade Component

Component title	Pruntytown Substation - Expand 500 kV Switchyard
Project description	Expand the Pruntytown 500 kV substation by installing a new three-breaker cross bus with three 500 kV breakers to accommodate the termination of a new 500 kV line. This upgrade will be required for a new 500 kV line terminal at Pruntytown Substation (Component 9: Pruntytown - Meadow Brook 500 kV Line).
Substation name	Pruntytown (235112)
Substation zone	APS (Area 201, Zone 1201)

Substation upgrade scope	At Pruntytown Substation: - Install grounding, conduit & foundations for substation expansion. - Install new cable trench, and tie into existing trench. - (5) H-frame deadends - (4) 500 kV breakers - (8) 500 kV breaker disconnect switches - (4) 500 kV line disconnect switches - (4) sets of 500 kV arresters - (6) sets of 500 kV CVT's - Fence expansion - Install (2) breaker control panels. - Install (5) line relaying panels. - Install (1) bus protection panel. - Install (2) 3-pole dead-end structures and (0.2) miles of new conductor for the Mount Storm-Pruntytown 500 kV Line re-termination.

Transformer Information

None

New equipment description	All new equipment to be rated 5000 A or higher.
Substation assumptions	Pruntytown Substation Assumptions: - Existing poles for future dead-end locations are still able to be utilized. - There is adequate space in the existing control house for the new panels. - Transformer protection will not be updated. - Expansion would require wetland mitigation such as stream enclosure or relocation - The new conductor will match the existing conductor. - Assumed no E&S measures to be installed by ROW Clearing Contractor. - No time-of-year clearing restrictions. - No site restoration activities performed by clearing contractor. - No maintenance efforts will be absorbed by the project. - All construction work areas are located within the ROW. - Some clearing may be required. - Permit conditions, Real Estate Provisions for Property Owners, finalized line route, information on access road needs and schedules, restoration requirements requested of vegetation management, ability to work without schedule conflicts with other vendors, access road design outside of the ROW, all rights and permits will be in-hand upon mobilization. - A rights and restrictions review by Real Estate will be required. - Georeferenced ROW extents will be required to be provided to engineering. - Road Bonds are required.
Real-estate description	Pruntytown 500 kV Substation will require a fence expansion, but no property acquisition is required. The expansion will require wetland mitigation such as stream enclosure or relocation. The terrain is hilly. Real estate dollars have been included for: - Internal support including document review, project planning meetings, subcontractor oversight. - External support for easement digitization and other GIS support, general project support, and acquisition of 1 access road and 1 yard.
Construction responsibility	Company specific
Benefits/Comments	Pruntytown Substation is an interface with the Dominion Zone and is also a strong source for network power flow to the east.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary

ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$28,211,763.00
Component cost (in-service year)	$32,210,363.00

Substation Upgrade Component

Component title	Bedington Substation - Rebuild & Install 600 MVAR STATCOM
Project description	Rebuild Bedington 500 kV Substation to a 12-breaker, breaker-and-a-half configuration and install a 600 MVAR STATCOM. This includes the relocation and re-termination of the Doubs - Black Oak & Doubs - Bedington 500 kV lines.
Substation name	Bedington (235101)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Demolish and remove existing 500 kV equipment, including but not limited to: (2) wave traps, (4) circuit breakers, (14) MOAB disconnect switches, (9) CVTs, (1 lot) of steel structures, (4) grounding switches. - Expand the Bedington substation fence. - Rebuild Bedington 500 kV substation to a 12-breaker, breaker-and-a-half configuration - Install a 600 MVAR STATCOM - Re-locate and re-terminate the Bedington - Black Oak & Bedington - Doubs 500 kV Lines.

Transformer Information

None

New equipment description	All new equipment to be rated at 5000 A or higher.

Substation assumptions	Bedington Substation Assumptions: - There is adequate space in the existing control house for the new panels. - Land does not need to be purchase. Expansion is on existing substation property. - Expansion may require wetland mitigation such as stream enclosure or relocation. - No new metering needed for 500 kV lines - No new metering is required for the 138 kV lines - Assumed that the existing SCADA transport at Bedington 500kV Substation is sufficient for additional SCADA telemetry.
Real-estate description	Bedington 500 kV Substation will require a fence expansion, but no property acquisition is required. There is a stream channel to the west of the sub, where the expansion is currently proposed. Wetland mitigation may be required.
Construction responsibility	Company specific
Benefits/Comments	The rebuild of Bedington Substation and installation of a STATCOM will provide significant reactive support for the Hatfield - Black Oak - Bedington - Doubs 500 kV path. The loss of this path results in no-solves and voltage collapse issues from P1 contingencies in the power flow model. The rebuild of the 500 kV switchyard will also provide for additional 500 kV expansion, providing great support and power flow through that corridor.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$131,384,996.00
Component cost (in-service year)	$153,799,133.00

Greenfield Transmission Line Component

Component title	Fort Martin - Doubs 500 kV #1 Line
Project description	Construct ~158 miles of new 500 kV line from Fort Martin Substation to Doubs Substation. Terminate the new transmission line and revise relay settings at Doubs and Fort Martin substations. Install fiber OPGW along the new line route. The construction of this new line will require the acquisition of 158 miles of new right-of-way, forestry clearing, permitting, and access road construction. Re-terminate the Bismark 500 kV Line at Doubs Substation. Aerial LiDAR will be required. This new transmission line will require Proposal Components 1 (Doubs Substation - Install 500 kV Breaker), 2 (Doubs Substation - Expand 500 kV), and 4 (Fort Martin Substation - Install 500 kV Breaker) to be completed. Note: total cost of Proposal Component 7 is included in Proposal Component 32.
Point A	Fort Martin (235106)
Point B	Doubs (235105)
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	4625.000000	5670.000000
Winter (MVA)	5252.000000	6724.000000

Conductor size and type	3x 1590 KCMIL 45/7 ACSR rated at 212°F
Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	- This new 500 kV line will be constructed in West Virginia, Virginia, and Maryland. Full Applications will be required in each state. - It is assumed that the new 500 kV line will parallel existing ROW for approximately (85.6) miles and require (74.4) miles of new ROW not adjacent to existing ROW. It is assumed that no existing lines will be overbuilt with double circuit structures, but existing line rebuilds will be considered where applicable. - Approximately (695) parcels will be affected by the line route. Assumed 5% condemnation (35 parcels).
Terrain description	- The terrain for this line is hilly/mountainous with state lands, national parks, and rivers along the proposed route of this new line. Traditional access and construction may be affected. Alternative access and construction methods will be considered.

Right-of-way width by segment	- The right-of-way width is assumed to be 200 ft. This width is based on the widest ROW needed for 500 kV and does not account for structure configuration or span lengths. Widths needed may vary upon final design.
Electrical transmission infrastructure crossings	See information below. Each crossing will not be listed as the route is subject to change.
Civil infrastructure/major waterway facility crossing plan	- The new 500 kV line will cross (23) major roads. Traffic control and flagging will be required. - The new 500 kV line will cross (4) CSX Railroads, (1) Norfolk Southern Railroad, and parallels railroad ROW for (3.2) miles. Crossing permits and flagging will be required. - The new 500 kV line will cross (14) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new 500 kV line crosses through (9) wetlands and (5) parks. Environmental considerations and special coordination may be required. - The new 500 kV line will cross (2) 500kV, (25) 138kV, (1) 115kV, and (9) 34.5kV transmission lines multiple times. - Crosses DNR owned land in WV/MD/VA. Licensing and permitting of new ROW with either state's DNR could take 24 months and may need to be approved by the state's legislature. - Crosses the Youghiogheny River, a state designated scenic river. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crossing of large wetland complexes in WV and MD could result in lengthier permitting 12-18 months and increased mitigation cost. - Crosses C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete.
Environmental impacts	- The new 500 kV line will cross (14) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new 500 kV line crosses through (9) wetlands and (5) parks. Environmental considerations and special coordination may be required. - Crosses DNR owned land in WV/MD/VA. Licensing and permitting of new ROW with either state's DNR could take 24 months and may need to be approved by the state's legislature. - Crosses the Youghiogheny River, a state designated scenic river. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crossing of large wetland complexes in WV and MD could result in lengthier permitting 12-18 months and increased mitigation cost. - Crosses C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete. - Road Bonds are required. - Environmental Filming (Documentation of Existing roads) is 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.
Tower characteristics	- The new Fort Martin-Doubs #1 500 kV Line will be constructed on double circuit 500 kV tubular steel monopole and two-Pole structures. The second 500 kV circuit is component 32. Component 32 has the costs for the complete double circuit construction, including this component. - The average span length is 1200 ft. - It is assumed that the new double circuit monopole structures will have an average height of 180 ft. Final structure heights will need to be determined during project development. FAA filing and application may be required. - The new structures will utilize custom 500 kV V-string and double I-string suspension and dead-end insulator assemblies.
Construction responsibility	Company specific

Benefits/Comments	- This new 500 kV line provides a direct connection from the west side of the system to the east side. - This new line provides the ability to install a second Fort Martin - Doubs 500 kV Line on the same structures, without additional right-of-way acquisition. - This new line route will provide the opportunity to loop the Fort Martin - Doubs 500 kV Line into Bedington and/or Black Oak substations in the future, if necessary for reliability or resiliency. - Greenfield construction is assumed due to outage constraints, but existing rights-of-way and corridors to rebuild lower voltage lines will be considered where applicable.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$.00
Component cost (in-service year)	$.00

Greenfield Transmission Line Component

Component title	Meadow Brook - Doubs 500 kV Line
Project description	Construct 55.3 miles of new 500 kV line from Meadow Brook Substation to Doubs Substation. Terminate the new transmission line and revise relay settings at Doubs and Meadow Brook substations. Install fiber along the new line route. The construction of this new line will require the acquisition of 55.3 miles of new right-of-way, forestry clearing, permitting, and access road construction. Re-terminate the Meadow Brook - Loudon & Meadow Brook - Front Royal 500 kV lines at Meadow Brook Substation. Aerial LiDAR will be required. This new transmission line will require Proposal Components 1 (Doubs Substation - Install 500 kV Breaker), Component 2 (Doubs Substation - Expand 500 kV), and Component 3 (Meadow Brook Substation - Expand 500 kV) to be completed.

Point A	Meadow Brook (235110)	
Point B	Doubs (235105)	
Point C		
	Normal ratings	**Emergency ratings**
Summer (MVA)	4625.000000	5670.000000
Winter (MVA)	5252.000000	6724.000000
Conductor size and type	3x 1590 KCMIL 45/7 ACSR rated at 212°F	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	- This new 500 kV line will be constructed in Virginia, West Virginia, and Maryland. Full Applications will be required in each state. - It is assumed that the new line will parallel existing ROW for approximately (22.8) miles and require (32.5) miles of new ROW not adjacent to existing ROW. It is assumed that no existing lines will be overbuilt with double circuit structures, but existing line rebuilds will be considered where applicable. - Approximately (146) parcels will be affected by the line route. Assumed 5% condemnation (7 parcels).	
Terrain description	- The terrain for this line is flat/hilly/semi-mountainous with state lands, national parks, and rivers along the proposed route of this new line.	
Right-of-way width by segment	- The right-of-way width is assumed to be 200 ft. This width is based on the widest ROW needed for 500 kV and does not account for structure configuration or span lengths. Widths needed can vary upon final design.	
Electrical transmission infrastructure crossings	See information below. Each crossing will not be listed as the route is subject to change.	

Civil infrastructure/major waterway facility crossing plan	- The new line will cross (9) major roads. Traffic control and flagging will be required - The new line will cross (4) CSX Railroads. Crossing permits and flagging will be required. - The new line will cross (4) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new line crosses through (5) wetlands and (3) parks. Environmental considerations and special coordination may be required. - The new line will cross (1) 500kV, (5) 138kV, and (3) 34.5kV transmission lines multiple times. - Crosses DNR state owned land in WV/VA. Licensing and permitting of new ROW on state DNR land could take 24 months and may need to be approved by the state's legislature. - Crosses the Shenandoah and Potomac rivers in sections designated as state scenic rivers. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crosses the Appalachian Trail National Park and the C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete.
Environmental impacts	- The new line crosses through (5) wetlands and (3) parks. Environmental considerations and special coordination may be required. - Crosses DNR state owned land in WV/VA. Licensing and permitting of new ROW on state DNR land could take 24 months and may need to be approved by the state's legislature. - Crosses the Shenandoah and Potomac rivers in sections designated as state scenic rivers. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crosses the Appalachian Trail National Park and the C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete. - Road Bonds are required. - Environmental Filming (Documentation of Existing roads) is 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.
Tower characteristics	- This new line will be constructed on single circuit 500 kV tubular steel monopole structures with an average span length of 1200 ft. - The new structures will utilize custom 500 kV V-string and double I-string suspension and dead-end insulator assemblies. - New single circuit structures will have an average height of 150 ft.
Construction responsibility	Company specific
Benefits/Comments	- This new 500 kV Line will provide an additional and much shorter electrical path between Meadow Brook and Doubs linking the Black Oak-Bedington corridor with the 'AP South' corridor. - Greenfield construction is assumed due to outage constraints, but existing rights-of-way and corridors to rebuild lower voltage lines will be considered where applicable.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary

Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$460,601,488.00
Component cost (in-service year)	$519,274,823.00

Greenfield Transmission Line Component

Component title	Meadow Brook - Pruntytown 500 kV Line
Project description	Construct approximately (50.8) miles of new 500 kV line from Pruntytown Substation to Structure #5 on the Meadow Brook - Mount Storm #529 500 kV Line (located adjacent to Mt Storm Substation). Cut the existing Meadow Brook - Mount Storm #529 500 kV Line from the Mt. Storm line terminal and connect the new 500 kV line from Pruntytown Substation. This will eliminate the Meadow Brook - Mt Storm 500 kV Line and create the new Meadow Brook - Pruntytown 500 kV Line. Install fiber and splice into the existing Meadow Brook - Mount Storm #529 500 kV Line fiber. The construction of this new line will require the acquisition of 50.8 miles of new right-of-way, forestry clearing, permitting, and access road construction. This new transmission line will require Proposal Component 5 (Pruntytown Substation - Expand 500 kV) to be completed.
Point A	Pruntytown (235112)
Point B	Meadow Brook (235110)
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	5840.000000	6730.000000
Winter (MVA)	5847.000000	7081.000000
Conductor size and type	3x 1113 KCMIL 54/19 ACSS rated at 392°F	

Nominal voltage	AC
Nominal voltage	500
Line construction type	Overhead
General route description	- This new 500 kV line will be constructed in Maryland and West Virginia. Full Applications will be required in each state. - It is assumed that the new line will parallel existing ROW for approximately (14.5) miles and require (36.3) miles of new ROW not adjacent to existing ROW. It is assumed that no existing lines will be overbuilt with double circuit structures, but existing line rebuilds will be considered where applicable. - Approximately (170) parcels will be affected by the line route. Assumed 3% condemnation (5 parcels).
Terrain description	- The terrain for this line is hilly/mountainous with state lands, national parks, and rivers along the proposed route of this new line. Traditional access and construction may be affected. Alternative access and construction may need to be considered.
Right-of-way width by segment	- The right-of-way width is assumed to be 200 ft. This width is based on the widest ROW needed for 500 kV and does not account for structure configuration or span lengths. Widths needed can vary upon final design.
Electrical transmission infrastructure crossings	See information below. Each crossing will not be listed as the route is subject to change.
Civil infrastructure/major waterway facility crossing plan	- The new Meadow Brook-Pruntytown 500 kV Line will cross (9) major roads. Traffic control and flagging will be required. - The new Meadow Brook-Pruntytown 500 kV Line will cross (3) CSX & Appalachian and Ohio Railroads. Crossing permits and flagging will be required. - The new Meadow Brook-Pruntytown 500 kV Line will cross (3) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new Meadow Brook-Pruntytown 500 kV Line crosses through (6) wetlands and (2) parks: the Monongahela National Forest and State Park Land. Environmental considerations and special coordination may be required. Licensing and permitting of new ROW in these areas could take 24 months. - The new Meadow Brook-Pruntytown 500 kV Line will cross (2) 500kV, (4) 138kV, and (3) 34.5kV transmission lines multiple times.
Environmental impacts	- The new Meadow Brook-Pruntytown 500 kV Line will cross (3) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new Meadow Brook-Pruntytown 500 kV Line crosses through (6) wetlands and (2) parks: the Monongahela National Forest and State Park Land. Environmental considerations and special coordination may be required. Licensing and permitting of new ROW in these areas could take 24 months. - Road Bonds are required. - Environmental Filming (Documentation of Existing roads) is 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.

Tower characteristics	- This new line will be constructed on single circuit 500 kV tubular steel monopole structures with an average span length of 1200 ft. - The new structures will utilize custom 500 kV V-string and double I-string suspension and dead-end insulator assemblies. - New single circuit structures will have an average height of 150 ft.
Construction responsibility	Company specific
Benefits/Comments	This new transmission line will provide an additional electrical path for power to flow from Pruntytown Substation into Doubs Substation, Meadow Brook Substation, and to the Dominion Zone. This project will also provide future expansion capability with a potential to re-network the 500 kV lines emanating from Mt. Storm Substation for increased reliability benefit. - Greenfield construction is assumed due to outage constraints, but existing rights-of-way and corridors to rebuild lower voltage lines will be considered where applicable.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$418,587,195.00
Component cost (in-service year)	$473,990,145.00

Substation Upgrade Component

Component title	Black Oak Substation - Install Redundant Relaying
Project description	Install relaying at Black Oak substation to ensure there is redundancy for 500 kV and 138 kV bus & stuck breaker faults to avoid remote-end clearing to resolve TPL-001-5 identified violations. This project will resolve all P5 contingencies at Black Oak Substation.

Substation name	Black Oak (235446)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Extend the No 3 500/138 kV Transformer backup HU differential to the bus side of the BO3 138kV breaker to provide redundant protection for the 138 kV low side leads. - Adjust existing relaying as necessary at Black Oak Substation. - Testing and commissioning.

Transformer Information

None

New equipment description	New equipment will not affect the ratings of any line terminals or transformers. This project serves to resolve P5 contingencies at Black Oak Substation.
Substation assumptions	- The existing SCADA transport at Black Oak Substation is sufficient for additional SCADA telemetry. This project assumes the completion of the following projects: - Install online battery monitors in at Black Oak Substation. - Replace Black Oak A 138 kV Bus Differential Relays with Primary and backup SEL-487B's. - Replace BO3 138 kV Breaker at Black Oak Substation. - Replace the line relays, breaker, line trap, tuner and CCVT and install PCM 5350 and Smartgap on the Black Oak and Cross School terminals of the Black Oak - Cross School 138 kV Line. - Replace the line relays, breaker, line trap, tuner and CCVT and install PCM 5350 and Smartgap on the Black Oak and Cumberland terminals of the Black Oak - Cumberland 138 kV Line. - Replace the line relays, breaker, line trap, tuner and CCVT and install PCM 5350 and Smartgap on the Black Oak and Junction terminals of the Black Oak - Junction 138 kV Line.
Real-estate description	N/A - No real estate or right-of-way acquisition is necessary.
Construction responsibility	Company specific
Benefits/Comments	This project serves to resolve P5 contingencies at Black Oak Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary

Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$168,399.00
Component cost (in-service year)	$190,897.00

Substation Upgrade Component

Component title	Reid Substation - Install Redundant Relaying
Project description	Install relaying at Reid Substation to ensure there is redundancy for 138 kV bus & stuck breaker faults to avoid remote-end clearing and resolve identified TPL-001-5 violations. This will resolve all P5 contingencies at Reid Substation.
Substation name	Reid (235503)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Replacement of the existing CA-16 A & B 138 kV bus differential schemes with dual SEL-487B relays. - Installation of an online station battery monitor with the capability of reporting voltage and open circuit alarms to the System Control Center. - Installation of a second trip coil on the Paramount No 1 REI and the Guilford RGU GCBs. - Relay setting revisions. - Testing and commissioning.

Transformer Information

None

New equipment description	New equipment will not affect the ratings of any line terminals or transformers. This project serves to resolve P5 contingencies at Reid Substation.
Substation assumptions	- Assumed that the existing SCADA transport at Reid Substation is sufficient for additional SCADA telemetry. This project assumes the completion of the following projects: - Replace the line relays, breaker, line trap, tuner and CCVT and install PCM 5350 and Smartgap on the following lines: Antietam - Reid 138 kV, Bedington - Reid 138 kV, and Ringgold - Reid 138 kV. - Replace the 138 kV bus tiebreaker at Reid Substation.
Real-estate description	N/A - No real estate or right-of-way acquisition is necessary.

Construction responsibility	Company specific
Benefits/Comments	This project serves to resolve P5 contingencies at Reid Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$1,021,429.00
Component cost (in-service year)	$1,161,122.00

Substation Upgrade Component

Component title	Pruntytown - Install Redundant Relaying
Project description	Install relaying at Pruntytown Substation to ensure there is redundancy for 500 kV and 138 kV bus & stuck breaker faults to avoid remote-end clearing and resolve identified TPL-001-5 violations. This will resolve all P5 contingencies at Pruntytown Substation.
Substation name	Pruntytown (235112)
Substation zone	APS (Area 201, Zone 1201)
Substation upgrade scope	- Install a second set of SEL-587Z relays and associated CTs to provide redundant North & South 138 kV bus differential schemes. - Install a second trip coil and install a redundant set of CTs for bus protection to the P1, B2, B3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, and P20 circuit breakers. - Relay setting revisions. - Testing and commissioning.

Transformer Information

None

New equipment description	New equipment will not affect the ratings of any line terminals or transformers. This project serves to resolve P5 contingencies at Pruntytown Substation.
Substation assumptions	- The existing SCADA transport at Pruntytown Substation is sufficient for additional SCADA telemetry. This project assumes the completion of the following projects: - Replacement of the Pruntytown 138 kV bus differential relays. - Install online battery monitors at Pruntytown Substation. - Replace Pruntytown 138 kV breakers P17, P18, and P19.
Real-estate description	N/A - No real estate or right-of-way acquisition is necessary.
Construction responsibility	Company specific
Benefits/Comments	This project serves to resolve P5 contingencies at Pruntytown Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$5,460,530.00
Component cost (in-service year)	$6,285,945.00

Substation Upgrade Component

Component title	Junction - Install Redundant Relaying

Project description	Install relaying at Junction Substation to ensure there is redundancy for 138 kV bus & stuck breaker faults to avoid remote-end clearing and resolve identified TPL-001-5 violations. This will resolve all P5 contingencies at Junction Substation.
Substation name	Junction (235479)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Installation of dual SEL-487B relays. - Installation of an online station battery monitor with the capability of reporting voltage and open circuit alarms to the System Control Center. - Replace the No 1 138-34.5kV Transformer 138 kV breaker. - Relay setting revisions. - Testing and commissioning.

Transformer Information

None

New equipment description	New equipment will not affect the ratings of any line terminals or transformers. This project serves to resolve P5 contingencies at Junction Substation.
Substation assumptions	- The existing SCADA transport at Junction Substation is sufficient for additional SCADA telemetry. This project assumes the completion of the following projects: - Replacement of line relaying on the Junction - Hardy 138 kV Line. - Replacement of line relaying on the Junction - Parr Run 138 kV Line. - Replacement of the JBO 138 kV Breaker at Junction Substation.
Real-estate description	N/A - No real estate or right-of-way acquisition is necessary.
Construction responsibility	Company specific
Benefits/Comments	This project serves to resolve P5 contingencies at Junction Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary

Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$1,623,259.00
Component cost (in-service year)	$1,855,887.00

Substation Upgrade Component

Component title	Doubs 500 kV - Overduty Breaker Replacements
Project description	Replace eight over duty 500 kV breakers at Doubs Substation. Terminal equipment to be upgraded as well. These breakers were identified as overduty due to this proposal. Depending on the selected proposals, a new short circuit analysis will be required to confirm this upgrade is necessary.
Substation name	Doubs (235105)
Substation zone	APS (Area 201, Zone 1203)
Substation upgrade scope	- Install foundations, conduit, and grounding for new equipment. - Install (8) 500 kV circuit breakers. - Install (20) 500kV MOAB disconnect switch, 5000 A, SCADA Controlled. - Install (1) lot of steel structures, cables, rigid bus, and grounding for new equipment. - Install (4) line relay panels. - Install (2) bus relay panels. - Install (1) lot of control cables.

Transformer Information

None

New equipment description	All new equipment to be rated 5000 A or higher and have an interrupting capability of 63 kA.
Substation assumptions	- It is assumed the control house has adequate space. - It is assumed the new breakers can be installed without rebuilding the bus work.
Real-estate description	Land acquisition and substation fence expansion are not required.
Construction responsibility	Company specific
Benefits/Comments	This will alleviate the overduty breaker concern at Doubs Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary

Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$43,358,354.00
Component cost (in-service year)	$50,351,658.00

Substation Upgrade Component

Component title	Pruntytown - Rebuild 138 kV Switchyard Due to Over Duty Breakers
Project description	Rebuild the 138 kV switchyard of the Pruntytown Substation due to short circuit over-duty of the breakers, the buses and the ground grid. The 138 kV breakers and switchyard facilities were identified as over dutied due to this proposal. Depending on the selected proposals, a new short circuit analysis will be required to confirm this upgrade is necessary.
Substation name	Pruntytown (235391)
Substation zone	APS (Area 201, Zone 1201)
Substation upgrade scope	- Rebuild the Pruntytown 138 kV Substation with 80 kA breakers. This will include replacing (20) 138 kV breakers and associated equipment, along with new bus construction and termination of the existing (9) 138 kV lines.

Transformer Information

None

New equipment description	All new equipment will be rated at 80 kA.
Substation assumptions	It is assumed that a new substation yard will be required, located adjacent to the existing substation.

Real-estate description	There will be no real estate acquisition as the substation property is adequate for the new switchyard. Land clearing and development may be required.
Construction responsibility	Company specific
Benefits/Comments	This will alleviate the over duty breaker violations at Pruntytown 138 kV Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$72,971,950.00
Component cost (in-service year)	$83,638,899.00

Transmission Line Upgrade Component

Component title	Doubs - Goose Creek 500 kV Rebuild
Project description	NOTE: The proposing entity has worked closely with other PJM TOs in developing a transmission solution and this component as well as the overall proposal should be reviewed in conjunction with proposal 2022-W3-129 and proposal 2023-W3-660. Rebuild the Doubs - Goose Creek 500 kV Line. The existing corridor encompasses the Doubs - Goose Creek 500 kV Line, the Doubs - Dickerson 230 kV Line, the Doubs - Aqueduct 230 kV Line, the Aqueduct - Dickerson 230 kV Line, and the Dickerson - Pleasant View 230 kV Line (PEPCO). The Doubs - Goose Creek 500 kV Line will be rebuilt and the Doubs - Dickerson 230 kV will be relocated and underbuilt on the same structure. Install fiber and re-terminate all lines.
Impacted transmission line	Doubs - Goose Creek 500 kV

Point A	Doubs (235105)
Point B	Goose Creek (314939)
Point C	
Terrain description	The terrain is hilly.

Existing Line Physical Characteristics

Operating voltage	500 kV
Conductor size and type	2x 2049.5 AAAC 61 Rated at 200 Degrees F
Hardware plan description	No existing hardware will be utilized. This existing line will be demolished and rebuilt.
Tower line characteristics	The existing line is constructed on single circuit steel lattice tower structures.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	500.000000	500.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	4357.000000	4357.000000
Winter (MVA)	5155.000000	5155.000000
Conductor size and type	3x 1351.5 ACSR (45/7) “DIPPER” @ 110 Degrees C	
Shield wire size and type	N/A	
Rebuild line length	15.3 mi	

Rebuild portion description	- The 500 kV and 230 kV corridor rebuild will follow the same route as the existing Doubs - Goose Creek 500 kV Line. - The new 500 & 230 kV line crosses the Aqueduct-Lime Kiln 34.5 kV Line, Doubs-Dickerson 230 kV Line, and the Aqueduct-Dickerson 230 kV Lines (1) time each. - The new 500 & 230 kV line crosses the PEPCO-owned six-wired Dickerson H-Quince Orchard 230 kV Line, Dickerson D-Quince Orchard 230 kV Line, and the six-wire Dickerson D-Pleasant View 230 kV Line (1) time each. - The new 500 & 230 kV line will parallel the other new 500 and 230 kV line for approximately (15.1) miles. - The new 500 & 230 kV line crosses minor roads (13) times. Traffic control and flagging may be required. - The new 500 & 230 kV line crosses through the Dickerson Conservation Park for approximately (0.4) miles and parallels the Chesapeake and Ohio Canal National Historical Park for approximately (2.0) miles. - The Doubs-Goose Creek 500 kV line crosses the Monocacy and Potomac River (1) time each. - The POI with Dominion Energy is assumed to be structure #1841. Structure #1841 is the first structure across the Potomac River inside the state of Virginia. Coordination with Dominion during project development, engineering, and construction will be required. - It is assumed that the new double circuit structures will have an average height of 180 ft. It is assumed that the double circuit 2-pole and single circuit structures will have an average height of 150 ft.
Right of way	No new right of way will be required for this rebuild.
Construction responsibility	Company specific
Benefits/Comments	The rebuild of this 500 kV and 230 kV corridor will allow the construction of an additional 500 kV line from Doubs into the Dominion zone.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$87,740,544.00

Component cost (in-service year)	$99,749,023.00

Greenfield Transmission Line Component

Component title	Doubs - Aspen 500 kV Line
Project description	NOTE: The proposing entity has worked closely with other PJM TOs in developing a transmission solution and this component as well as the overall proposal should be reviewed in conjunction with proposal 2022-W3-129 and proposal 2023-W3-660. Rebuild the Doubs - Goose Creek 500 and 230 kV corridor. This existing corridor encompasses the Doubs - Goose Creek 500 kV Line, the Doubs - Dickerson 230 kV Line, the Doubs - Aqueduct 230 kV Line, the Aqueduct - Dickerson 230 kV Line, and the Dickerson - Pleasant View 230 kV Line (PEPCO). This component will construct a new Doubs - Aspen 500 kV Line. Aspen Substation is not yet constructed but is a component in Dominion's proposal 2022-W3-129. The Doubs - Aqueduct and Aqueduct - Dickerson 230 kV lines will be rebuilt and attached on the same structures. Install fiber on the new route.
Point A	Doubs (235105)
Point B	Aspen (313403)
Point C	

	Normal ratings	Emergency ratings
Summer (MVA)	4357.000000	4357.000000
Winter (MVA)	5155.000000	5155.000000

Conductor size and type	3x 1351.5 ACSR (45/7) “DIPPER” @ 110 Degrees C
Nominal voltage	AC
Nominal voltage	500 kV
Line construction type	Overhead

General route description	- The 500 kV and 230 kV corridor rebuild will follow the same route as the existing Doubs - Goose Creek 500 kV Line. - The new 500 & 230 kV line crosses the Aqueduct-Lime Kiln 34.5 kV Line, Doubs-Dickerson 230 kV Line, and the Aqueduct-Dickerson 230 kV Lines (1) time each. - The new 500 & 230 kV line crosses the PEPCO Owned six-wired Dickerson H-Quince Orchard 230 kV Line, Dickerson D-Quince Orchard 230 kV Line, and the six-wire Dickerson D-Pleasant View 230 kV Line (1) time each. - The new 500 & 230 kV line parallels the Doubs-Goose Creek 500 kV line for approximately (15.1) miles. - The new 500 & 230 kV line crosses minor roads (13) times. Traffic control and flagging may be required. - The new 500 & 230 kV line crosses through the Dickerson Conservation Park for approximately (0.4) miles and parallels the Chesapeake and Ohio Canal National Historical Park for approximately (2.0) miles. - The new 500 and 230 kV line will cross the Monocacy and Potomac River (1) time each. - The POI with Exelon is assumed to be near Dickerson Substation. Coordination with Exelon during project development, engineering, and construction will be required. - It is assumed that the new double circuit structures will have an average height of 180 ft. It is assumed that the double circuit two-pole and single circuit structures will have an average height of 150 ft.
Terrain description	The terrain is hilly.
Right-of-way width by segment	- The right-of-way width is assumed to be 200 ft. but will share part of the right-of-way with the existing Doubs-Goose Creek 500 kV Line. This width is based on the widest ROW needed for 500 kV and does not account for structure configuration or span lengths. Widths needed can vary upon final design. - Right of way acquisition is not necessary.
Electrical transmission infrastructure crossings	the Doubs-Dickerson 230 kV Line, and the Aqueduct-Dickerson 230 kV Lines (1) time each, The new 500 & 230 kV line crosses the Aqueduct-Lime Kiln 34.5 kV Line, The new 500 & 230 kV line crosses the PEPCO Owned six-wired Dickerson H-Quince Orchard 230 kV Line, Dickerson D-Quince Orchard 230 kV Line, Owned six-wire Dickerson D-Pleasant View 230 kV Line (1) time each
Civil infrastructure/major waterway facility crossing plan	- The new 500 & 230 kV line crosses the Aqueduct-Lime Kiln 34.5 kV Line, Doubs-Dickerson 230 kV Line, and the Aqueduct-Dickerson 230 kV Lines (1) time each. - The new 500 & 230 kV line crosses the PEPCO Owned six-wired Dickerson H-Quince Orchard 230 kV Line, Dickerson D-Quince Orchard 230 kV Line, Owned six-wire Dickerson D-Pleasant View 230 kV Line (1) time each. - The new 500 & 230 kV line parallels the new 500 kV line for approximately (7.5) miles. - The new 500 & 230 kV line crosses minor roads (13) times. Traffic control and flagging may be required. - The new 500 & 230 kV line crosses through the Dickerson Conservation Park for approximately (0.4) miles and parallels the Chesapeake and Ohio Canal National Historical Park for approximately (2.0) miles. - The new 500 and 230 kV line crosses the Monocacy and Potomac River (1) time each. - The POI with Exelon is assumed to be near Dickerson Substation. Coordination with Exelon during project development, engineering, and construction will be required.

Environmental impacts	- The new 500 & 230 kV line crosses through the Dickerson Conservation Park for approximately (0.4) miles and parallels the Chesapeake and Ohio Canal National Historical Park for approximately (2.0) miles. - The new 500 and 230 kV line crosses the Monocacy and Potomac River (1) time each. - Road Bonds are required. - Environmental Filming (Documentation of Existing roads) is 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.
Tower characteristics	- It is assumed the new double circuit structures will have an average height of 180 ft. It is assumed the double circuit 2-pole and single circuit structures will have an average height of 150 ft.
Construction responsibility	Company specific
Benefits/Comments	The rebuild of this 500 kV and 230 kV corridor will allow the construction of this additional 500 kV line from Doubs into the Dominion zone.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$115,635,838.00
Component cost (in-service year)	$131,873,150.00

Transmission Line Upgrade Component

Component title	Rebuild the Germantown - Carroll 138 kV Line to 230 kV double circuit construction

Project description	Note: Components 18-30 are all a single project. Rebuild the Germantown - Carroll 138 kV Line to 230 kV double circuit construction
Impacted transmission line	Germantown - Carroll 138 kV Line
Point A	Germantown
Point B	Carroll
Point C	Taneytown
Terrain description	Terrain is hilly. Project will utilize existing right-of-way.

Existing Line Physical Characteristics

Operating voltage	138 kV
Conductor size and type	556.5 kcmil 26/7 ACSR
Hardware plan description	Single circuit wood H-Frame structures are to be replaced with double circuit steel monopole suspension structures. 13.8 miles of OPGW 48-fiber SFSJ-J-6641 to be installed.
Tower line characteristics	Existing structures being replaced to meet standards for double circuit construction.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	230.000000	138.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	425.000000	522.000000
Winter (MVA)	483.000000	619.000000
Conductor size and type	1590 KCMIL 45/7 ACSR	
Shield wire size and type	OPGW 48-fiber SFSJ-J-6641	
Rebuild line length	13.8 miles	

Rebuild portion description	13.8 miles to be rebuilt. Single circuit wood H-Frame structures are to be replaced with double circuit steel monopole suspension structures. Assuming structure for structure replacement, and existing ROW. The Scope is as follows: Assuming a structure for structure replacement: -(15) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(45) Suspension Insulator Assemblies -(1) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft foundations -(3) Suspension Insulator Assemblies -(2) 230 kV Double Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(12) Deadend Insulator Assemblies -(1) 138 kV Single Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft foundation -(3) 138 kV Substation Assemblies -Install (2.8) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ shielded by (1) OPGW 48-fiber SFSJ-J-6641 -Approximately (0.7) miles of 7#8 Alumoweld.
Right of way	All work is assumed to be performed within existing ROW and no new ROW will be required.
Construction responsibility	Company specific
Benefits/Comments	
Component Cost Details - In Current Year $	
Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$47,306,977.77
Component cost (in-service year)	$55,449,152.40

Substation Upgrade Component

Component title	Taneytown Substation terminal upgrade

Project description	Install conduit for fiber. Note: Components 18-30 are all a single project.
Substation name	Taneytown
Substation zone	APS (Area 201)
Substation upgrade scope	Install conduit for fiber.

Transformer Information

None

New equipment description	SEL-2506 DTT Relaying for both Carroll and Germantown terminals.
Substation assumptions	SEL-2506 DTT relaying and patch panel needed, Existing DC system and SCADA RTU are adequate, Adequate space in existing panel for the new relays.
Real-estate description	N/A - Work to be performed in existing substation.
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$527,018.33
Component cost (in-service year)	$634,969.93

Substation Upgrade Component

Component title	Carroll 230 kV Substation Expansion
Project description	Expand Carroll 230 kV Substation for new circuit. Add a ring bus configuration and new terminal for new 230 kV line and existing 230 kV facilities. Note: Components 18-30 are all a single project.
Substation name	Carroll
Substation zone	APS (Area 201)
Substation upgrade scope	Add ring bus configuration to Carroll 230 kV Substation. Add a new 230 kV line terminal for the new Carroll - Hunterstown 230 kV Line. Upgrade / Add relays for existing and new equipment.

Transformer Information

None

New equipment description	230 kV three-breaker ring bus and associated disconnects. New Relays. all 230 kV equipment expected to meet or exceed 709 / 869 / 805 / 1031 MVA SN / SE / WN / WE. Below Grade -Install foundation, trench, conduit, and grounding for new equipment. -Install fencing, stoning, grading, access road, and ground grid for substation expansion. -Install conduit for fiber. Above Grade -Install (3) 230 kV, 3000 A, 63 kAIC circuit breakers. -Install (6) 230 kV, 2000 A GOAB disconnect switches. -Install (2) 230 kV, 2000 A MOAB disconnect switches. -Install (6) 230 kV CVTs, three each for the Hunterstown and Mt. Airy line terminals. -Install (6) 230 kV surge arresters, three each for the Hunterstown and Mt. Airy line terminals. -Install (1) 230 kV, 2000 A wide band wave trap, line tuner and coax for the Mt. Airy line terminal. -Install (3) 230 kV H-frames. -Install (1) 230 kV SSVT. -Install (1) medium control building. -Install (1) lot of cables, rigid and strain bus, fittings, steel structures, and grounding as shown in the attached layout. Relay & Control -Revise relay settings for the 138 kV Germantown line terminal relays. -Install (1) standard relaying panel for the 230 kV Hunterstown line terminal containing (1) SEL-421 and (1) SEL-411L. -Install (3) breaker control panels containing (1) SEL-451 and (1) SATEC meter. -Install (1) SCADA RTU and (1) HMI panel, including RTAC and GPS clock. -Install (1) fiber patch panel. -Install (1) ATS. -Install (1) lot of control cables, SEL cables, and fiber.
Substation assumptions	-Backup station service will be from local distribution. -Execution engineer to conduct AC/DC system, lightning, and grounding studies. -Property to the west of current Carroll Substation is available. -Property purchase, clearing, grading, and access road are required. -There may be a need for lead abatement and asbestos removal, but neither are included in this estimate.
Real-estate description	Land will need to be acquired for this expansion.
Construction responsibility	Company specific

Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$7,618,026.50
Component cost (in-service year)	$9,121,917.03

Transmission Line Upgrade Component

Component title	Rebuild the Germantown - Lincoln 115 kV Line for 230 kV double circuit construction
Project description	Rebuild the Germantown - Lincoln 115 kV Line for 230 kV double circuit construction Note: Components 18-30 are all a single project.
Impacted transmission line	Germantown - Lincoln 115 kV Line
Point A	Germantown
Point B	Lincoln
Point C	Straban
Terrain description	Terrain is hilly. Project will use existing ROW.

Existing Line Physical Characteristics

Operating voltage	115 kV
Conductor size and type	556.5 kcmil 26/7 ACSR
Hardware plan description	Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. 7.5 miles of OPGW 48-fiber SFSJ-J-6641 to be installed.
Tower line characteristics	Existing structures are being replaced to meet standards for double circuit construction.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	230.000000	115.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	355.000000	435.000000
Winter (MVA)	403.000000	515.000000
Conductor size and type	1590 KCMIL 45/7 ACSR	
Shield wire size and type	OPGW 48-fiber SFSJ-J-6641	
Rebuild line length	7.5 miles	
Rebuild portion description	7.5 miles of 115 kV line to be rebuilt. Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. Assuming structure for structure replacement. Assume a structure for structure rebuild -(41) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(3) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(2) 230 kV Double Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(2) 230 kV Double Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(1) 230 kV Triple Circuit Tubular Steel Monopole Loop Structure on Drilled Shaft Foundations -(12) Deadend Insulator Assemblies -(2) 115 kV Single Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(1) 115 kV Single Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(12) 115 kV Substation Insulator Assemblies -Install (7.5) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ shielded by (1) OPGW 48-fiber SFSJ-J-6641	
Right of way	All work is assumed to be performed within existing ROW and no new ROW will be required.	

Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$30,099,573.04
Component cost (in-service year)	$35,535,340.94

Transmission Line Upgrade Component

Component title	Rebuild the Hunterstown- Lincoln 115 kV Line for 230 kV double circuit construction
Project description	Rebuild the Hunterstown- Lincoln 115 kV Line for 230 kV double circuit construction. Note: Components 18-30 are all a single project.
Impacted transmission line	Hunterstown - Lincoln 115 kV Line
Point A	Hunterstown
Point B	Lincoln
Point C	
Terrain description	Terrain is hilly. Project will use existing ROW.

Existing Line Physical Characteristics

Operating voltage	115 kV
Conductor size and type	795 kcmil 26/7 ACSR
Hardware plan description	Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. 2.6 miles of OPGW 48-fiber SFSJ-J-6641 to be installed.
Tower line characteristics	Existing structures being replaces to meet standards for double circuit construction.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	230.000000	115.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	355.000000	435.000000
Winter (MVA)	403.000000	515.000000
Conductor size and type	1590 KCMIL 45/7 ACSR	
Shield wire size and type	OPGW 48-fiber SFSJ-J-6641	
Rebuild line length	2.6 miles	
Rebuild portion description	2.6 miles of 115 kV line to be rebuilt. Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. Assuming a structure for structure replacement: -(13) 230 kV Double Circuit Tubular Steel Suspension Structure on Drilled Shaft Foundations -(4) 230 kV Double Circuit Tubular Steel Suspension Structure on Drilled Shaft Foundations -(1) 230 kV Double Circuit Tubular Steel Deadend Structure on Drilled Shaft Foundations -(3) 115 kV Single Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(2) 115 kV Single Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(1) 115 kV Single Circuit Tubular Steel 3-Pole Deadend Structure -(1) 115 kV Single Circuit Tubular Steel H-Frame Suspension Structure on Drilled Shaft Foundations. -(6) 115 kV Substation Deadend Assemblies -(6) 115 kV Deadend Assemblies -Install (2.6) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ shielded by (1) OPGW 48-fiber SFSJ-J-6641	
Right of way	All work is assumed to be performed within existing ROW and no new ROW will be required.	

Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$11,475,570.19
Component cost (in-service year)	$13,368,189.33

Greenfield Transmission Line Component

Component title	Construct New 230 kV Hunterstown - Carroll Line (MAIT section)
Project description	Build new 230 kV line between Hunterstown (ME) and Carroll (APS-PE) substations (13.1 miles) along existing 115/138kV corridor on double circuit steel structures. Note: Components 18-30 are all a single project.
Point A	Hunterstown
Point B	Carroll
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	709.000000	869.000000

Winter (MVA)	805.000000	1031.000000
Conductor size and type	1590 KCMIL 45/7 ACSR	
Nominal voltage	AC	
Nominal voltage	230 kV	
Line construction type	Overhead	
General route description	The new 230kV Hunterstown - Carroll will follow the existing ROW of the 115/138kV path from Hunterstown - Lincoln - Germantown - Carroll substations.	
Terrain description	Terrain is Hilly. Project will use existing ROW.	
Right-of-way width by segment	The segments will use existing ROW.	
Electrical transmission infrastructure crossings	None	
Civil infrastructure/major waterway facility crossing plan	None	
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements.	
Tower characteristics	New towers for this segment will be single circuit tubular steel monopole suspension structures. Structures Installed -(2) 230 kV Single Circuit Tubular Steel Monopole Suspension Structure (TR-230310) on Drilled Shaft Foundations -(4) 230 kV Single Circuit Tubular Steel Monopole Angle Structure on Drilled Shaft Foundations -(3) 230 kV Single Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(1) 230 kV Single Circuit Tubular Steel 3-Pole Deadend Structure on Drilled Shaft Foundations -(1) 230 kV Single Circuit Tubular Steel 3-Pole Deadend Structure on Drilled Shaft Foundations -(2) 230 kV Single Circuit Tubular Steel H-Frame Suspension Structure (Similar to TR-230045) on Drilled Shaft Foundations -(231) 230 kV Suspension Insulator Assemblies -(48) 230 kV Deadend Insulator Assemblies -(3) 230 kV Substation Assemblies -Approximately (13.1) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ shielded by (1) OPGW 48-fiber SFSJ-J-6641 -Approximately (1.2) miles of 7#8 Alumoweld.	
Construction responsibility	Company specific	
Benefits/Comments		

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary

Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$17,370,010.64
Component cost (in-service year)	$20,301,682.47

Transmission Line Upgrade Component

Component title	Rebuild the Germantown - Carroll 138 kV Line for 230 kV double circuit construction (MAIT)
Project description	Rebuild the Germantown - Carroll 138 kV Line for 230 kV double circuit construction (MAIT). Note: Components 18-30 are all a single project.
Impacted transmission line	Germantown - Carroll 138 kV Line
Point A	Germantown
Point B	Carroll
Point C	Taneytown
Terrain description	Terrain is hilly. Existing ROW to be used.

Existing Line Physical Characteristics

Operating voltage	138 kV
Conductor size and type	556.5 kcmil 26/7 ACSR
Hardware plan description	Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. 2.8 miles of OPGW 48-fiber SFSJ-J-6641 to be installed.

Tower line characteristics	Existing structures being replaced to meet standards for double circuit construction.

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	230.000000	138.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	425.000000	522.000000
Winter (MVA)	483.000000	619.000000

Conductor size and type	1590 KCMIL 45/7 ACSR
Shield wire size and type	OPGW 48-fiber SFSJ-J-6641
Rebuild line length	2.8 miles
Rebuild portion description	2.8 miles to be rebuilt. Single circuit wood structures are to be replaced with double circuit steel monopole suspension structures. Assuming a structure for structure replacement: -(15) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft Foundations -(1) 230 kV Double Circuit Tubular Steel Monopole Suspension Structure on Drilled Shaft foundations -(2) 230 kV Double Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft Foundations -(1) 138 kV Single Circuit Tubular Steel Monopole Deadend Structure on Drilled Shaft foundation -(3) 138 kV Substation Assemblies -Install (2.8) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ shielded by (1) OPGW 48-fiber SFSJ-J-6641 -Approximately (0.7) miles of 7#8 Alumoweld.
Right of way	All work is assumed to be performed within existing ROW and no new ROW will be required.
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary

Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$12,160,267.60
Component cost (in-service year)	$14,189,329.51

Substation Upgrade Component

Component title	Revise Relay Settings at Germantown Substation
Project description	Install conduit for fiber and revise relay settings for 115 kV 998 line and 115/138 kV 999 line. Note: Components 18-30 are all a single project.
Substation name	Germantown
Substation zone	ME
Substation upgrade scope	Install conduit for fiber, Revise relay settings for 115 kV 998 line and 115/138 kV 999 line. Upgrade relay equipment.

Transformer Information

None

New equipment description	New fiber. Relay setting changes.
Substation assumptions	Existing relays for 998 and 999 will be reused.
Real-estate description	N/A
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$474,000.75
Component cost (in-service year)	$572,899.92

Substation Upgrade Component

Component title	Install new 230 kV line terminal at Hunterstown Substation
Project description	Install 230 kV line terminal equipment at Hunterstown Substation for new 230 kV line. Note: Components 18-30 are all a single project.
Substation name	Hunterstown
Substation zone	ME
Substation upgrade scope	Install 230 kV CB and associated disconnects, CVTs, surge arresters, structures, and relays. Below Grade -Install foundation, conduit, and grounding for new equipment. -Install conduit for fiber. Above Grade -Install (1) 230 kV, 3000A, 63 kAIC circuit breaker. -Install (1) 230 kV, 2000 A MOAB disconnect switch. -Install (2) 230 kV, 2000 A GOAB disconnect switches. -Install (3) 230 kV CVTs. -Install (3) 230 kV surge arresters. -Install (1) 230 kV H-frame. -Install (1) lot of cables, steel structures, rigid bus, fittings, and grounding as shown in the attached layout. Relay & Control -Revise relay settings for the 115 kV Hunterstown-Lincoln 962 line and SEL-352 for B2 breaker failure relaying. -Install (1) standard relay panel for the new 230 kV Carroll line terminal containing (1) SEL-421, (1) SEL-411L, and (1) SEL-451 BFT. -Install (1) lot of control cables, SEL cables, and fiber.

Transformer Information

None

New equipment description	New 230 kV CB and associated disconnects. ratings are to meet or exceed 709 / 869 / 805 / 1031 MVA SN / SE / WN / WE Below Grade -Install foundation, conduit, and grounding for new equipment. -Install conduit for fiber. Above Grade -Install (1) 230 kV, 3000 A, 63 kAIC circuit breaker. -Install (1) 230 kV, 2000 A MOAB disconnect switch. -Install (2) 230 kV, 2000 A GOAB disconnect switches. -Install (3) 230 kV CVTs. -Install (3) 230 kV surge arresters. -Install (1) 230 kV H-frame. -Install (1) lot of cables, steel structures, rigid bus, fittings, and grounding as shown in the attached layout. Relay & Control -Revise relay settings for the 115 kV Hunterstown-Lincoln 962 line and SEL-352 for B2 breaker failure relaying. -Install (1) standard relay panel for the new 230 kV Carroll line terminal containing (1) SEL-421, (1) SEL-411L, and (1) SEL-451 BFT. -Install (1) lot of control cables, SEL cables, and fiber.
Substation assumptions	Existing AC/DC systems and SCADA RTU are adequate. Related existing relays to be reused. Adequate space in control house for the new panel.
Real-estate description	N/A
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$2,306,685.28

Component cost (in-service year)	$2,776,386.44

Substation Upgrade Component

Component title	Revise Relay Settings at Lincoln Substation
Project description	Install conduit for fiber and revise relay settings for 115 kV 998 line to Germantown and the 962 line to AD1-020. Note: Components 18-30 are all a single project.
Substation name	Lincoln
Substation zone	ME
Substation upgrade scope	Install conduit for fiber and revise relay settings for 115 kV 998 line to Germantown and the 962 line to AD1-020. Upgrade relay equipment.

Transformer Information

None

New equipment description	New fiber. Relay setting changes.
Substation assumptions	Existing relays for 998 and 962 lines will be reused.
Real-estate description	N/A
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary

Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$306,713.30
Component cost (in-service year)	$370,187.80

Substation Upgrade Component

Component title	Install DTT relaying at Straban Substation
Project description	Install DTT relaying for Lincoln and Germantown line terminals. Note: Components 18-30 are all a single project.
Substation name	Straban
Substation zone	ME
Substation upgrade scope	Install DTT relaying for Lincoln and Germantown line terminals, and fiber patch panel.

Transformer Information

None

New equipment description	New SEL-2506 DTT relaying for Lincoln and Germantown line terminals.
Substation assumptions	Existing DC system and SCADA RTU are adequate. Adequate space in existing panel for new DTT relays.
Real-estate description	N/A
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary

Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$668,530.58
Component cost (in-service year)	$804,260.89

Substation Upgrade Component

Component title	Network Upgrades at Carroll Substation
Project description	Design, install, and test/commission MPLS Equipment for SCADA transport in the 138 kV and 230 kV control houses at Carroll Substation. Note: Components 18-30 are all a single project.
Substation name	Carroll
Substation zone	APS (Area 201)
Substation upgrade scope	Design, install, and test/commission MPLS Equipment for SCADA transport in the 138 kV and 230 kV control houses at Carroll Substation.

Transformer Information

None

New equipment description	Network Upgrades
Substation assumptions	New MPLS Equipment
Real-estate description	N/A
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$425,560.77
Component cost (in-service year)	$476,628.06

Greenfield Transmission Line Component

Component title	Construct New 230 kV Hunterstown - Carroll Line (APS-PE section)
Project description	Build new 230 kV line between Hunterstown Substation (ME) and Carroll Substation (APS-PE) (11.2 miles) along existing 115/138kV corridor on double circuit steel structures. Note: Components 18-30 are all a single project.
Point A	Hunterstown
Point B	Carroll
Point C	

	Normal ratings	**Emergency ratings**
Summer (MVA)	709.000000	869.000000
Winter (MVA)	805.000000	1031.000000
Conductor size and type	1590 KCMIL 45/7 ACSR	

Nominal voltage	AC
Nominal voltage	230 kV
Line construction type	Overhead
General route description	The new 230 kV Hunterstown - Carroll line will follow the existing ROW of the 115/138kV path from Hunterstown - Lincoln - Germantown - Carroll substations.
Terrain description	Terrain is Hilly. Existing ROW to be used.
Right-of-way width by segment	The segments will use existing ROW.
Electrical transmission infrastructure crossings	None
Civil infrastructure/major waterway facility crossing plan	None
Environmental impacts	An environmental review will be required to identify any additional construction constraints or additional permitting requirements.
Tower characteristics	New towers for this segment will be single circuit tubular steel monopole suspension structures. Tower Characteristics identified in the other line rebuild components. Additional Structures are as follows: Structures Installed -(2) 230 kV Single Circuit Steel Monopole Deadend Structure -(240) 230 kV Suspension Insulators Assemblies -(30) 230 kV Deadend Insulator Assemblies -(3) 230 kV Substation Assemblies -Install (11.2) miles of 1590 kcmil 45/7 ACSR ‘Lapwing’ (1) OPGW 48-fiber SFSJ-J-6641 -Approximately (0.1) miles of 7#8 Alumoweld.
Construction responsibility	Company specific
Benefits/Comments	

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary

Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$6,708,410.79
Component cost (in-service year)	$7,832,824.63

Substation Upgrade Component

Component title	Fort Martin Substation - Expand 500 kV
Project description	Expand Fort Martin 500 kV Substation by installing a new 500 kV breaker string with three breakers and associated equipment. This will require the 500 kV Bus N & S to be extended to the west, along with a fence expansion, and relay installations. No land acquisition should be needed. This upgrade will only be required for the construction of the Fort Martin - Doubs #2 500 kV Line (Component 32).
Substation name	Fort Martin (235106)
Substation zone	APS (Area 201, Zone 1201)
Substation upgrade scope	- Install foundation, conduit, and grounding for new equipment. - Install fencing and stoning for substation expansion. - Install (3) 500kV circuit breakers. - Install (6) 500kV GOAB disconnect switches. - Install (2) 500kV MOAB disconnect switches. - Install (6) 500kV surge arresters. - Install (6) 500 CVTs. - Install (2) H-frames. - Install (1) lot of rigid bus, cables, grounding, and fittings. - Install (2) line relaying panel including BFT.

Transformer Information

None

New equipment description	All new equipment to be rated at 5000 A or higher.
Substation assumptions	- There is adequate space in the existing control house for the new panels. - Land does not need to be purchased. Expansion is on existing substation property.
Real-estate description	Fort Martin 500 kV Substation will require a fence expansion, but no property acquisition is required. There are no identified wetlands to the west of Fort Martin Substation, where the expansion is proposed. There is a wide stream valley to the east and channels to the south of Fort Martin Substation, which would require wetland mitigation if the substation is expanded in those directions. The terrain is hilly.

Construction responsibility	Company specific
Benefits/Comments	This 500 kV expansion at Fort Martin Substation will allow two additional 500 kV lines to be terminated at Fort Martin Substation.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$30,334,428.00
Component cost (in-service year)	$35,306,215.00

Greenfield Transmission Line Component

Component title	Fort Martin - Doubs 500 kV #2 Line
Project description	Construct ~158 miles of new double circuit 500 kV line from Fort Martin Substation to Doubs Substation. Terminate the new transmission line and revise relay settings at Doubs and Fort Martin substations. Install fiber along the new route. The construction of this new line will require the acquisition of 158 miles of new right-of-way, forestry clearing, permitting, and access road construction. Re-terminate the Bismark 500 kV line at Doubs Substation. Aerial LiDAR will be required. This new transmission line will require Proposal Components 1 (Doubs Substation - Install 500 kV Breaker), 2 (Doubs Substation - Expand 500 kV), 4 (Fort Martin Substation - Install 500 kV Breaker), 7 (Doubs - Fort Martin 500 kV Line #1), and 31 (Fort Martin - Expand 500 kV) to be completed. Note: This component includes the cost of Proposal Component 7.
Point A	Fort Martin (235106)

Point B	Doubs (235105)	
Point C		
	Normal ratings	**Emergency ratings**
Summer (MVA)	4625.000000	5670.000000
Winter (MVA)	5252.000000	6724.000000
Conductor size and type	3x 1590 KCMIL 45/7 ACSR rated at 212°F	
Nominal voltage	AC	
Nominal voltage	500	
Line construction type	Overhead	
General route description	- This new 500 kV line will be constructed in West Virginia, Virginia, and Maryland. Full Applications will be required in each state. - It is assumed that the new 500 kV line will parallel existing ROW for approximately (85.6) miles and require (74.4) miles of new ROW not adjacent to existing ROW. It is assumed that no existing lines will be overbuilt with double circuit structures, but existing line rebuilds will be considered where applicable. - Approximately (695) parcels will be affected by the line route. Assumed 5% condemnation (35 parcels).	
Terrain description	- The terrain for this line is hilly/mountainous with state lands, national parks, and rivers along the proposed route of this new line. Traditional access and construction may be affected. Alternative access and construction may need to be considered.	
Right-of-way width by segment	- The right-of-way width is assumed to be 200 ft. This width is based on the widest ROW needed for 500 kV and does not account for structure configuration or span lengths. Widths needed can vary upon final design.	
Electrical transmission infrastructure crossings	See information below. Each crossing will not be listed as the route is subject to change.	

Civil infrastructure/major waterway facility crossing plan	- The new 500 kV line will cross (23) major roads. Traffic control and flagging will be required. - The new 500 kV line will cross (4) CSX Railroads, (1) Norfolk Southern Railroad, and parallels railroad ROW for (3.2) miles. Crossing permits and flagging will be required. - The new 500 kV line will cross (14) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new 500 kV line crosses through (9) wetlands and (5) parks. Environmental considerations and special coordination may be required. - The new 500 kV line will cross (2) 500kV, (25) 138kV, (1) 115kV, and (9) 34.5kV transmission lines multiple times. - Crosses DNR owned land in WV/MD/VA. Licensing and permitting of new ROW with either state's DNR could take 24 months and may need to be approved by the state's legislature. - Crosses the Youghiogheny River, a state designated scenic river. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crossing of large wetland complexes in WV and MD could result in lengthier permitting 12-18 months and increased mitigation cost. - Crosses C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete.
Environmental impacts	- The new 500 kV line will cross (14) rivers or other bodies of water. Crossing permits and FAA coordination may be required. - The new 500 kV line crosses through (9) wetlands and (5) parks. Environmental considerations and special coordination may be required. - Crosses DNR owned land in WV/MD/VA. Licensing and permitting of new ROW with either state's DNR could take 24 months and may need to be approved by the state's legislature. - Crosses the Youghiogheny River, a state designated scenic river. Permitting of new ROW over a scenic river is estimated to be 12-18 months. - Crossing of large wetland complexes in WV and MD could result in lengthier permitting 12-18 months and increased mitigation cost. - Crosses C&O Canal National Park. Licensing and permitting of new ROW with National Park Service could take 24 months to complete. - Road Bonds are required. - Environmental Filming (Documentation of Existing roads) is 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.
Tower characteristics	- The new Fort Martin-Doubs #2 500 kV line will be constructed on double circuit 500 kV tubular steel monopole and two-pole structures. - The average span length is 1200 ft. - It is assumed that the new double circuit monopole structures will have an average height of 180 ft. Final structure heights will need to be determined during project development. FAA filing and application will be required. - The new structures will utilize custom 500 kV V-string and double I-string suspension and dead-end insulator assemblies.
Construction responsibility	Company specific
Benefits/Comments	- This new 500 kV line provides a direct connection from the west side of the system to the east side. - This new line route will provide the opportunity to loop the Fort Martin - Doubs 500 kV Line into Bedington and/or Black Oak substations in the future, if necessary for reliability or resiliency. - Greenfield construction is assumed due to outage constraints, but existing rights-of-way and corridors to rebuild lower voltage lines will be considered where applicable.

Component Cost Details - In Current Year $

Engineering & design	This information is considered confidential and proprietary
Permitting / routing / siting	This information is considered confidential and proprietary
ROW / land acquisition	This information is considered confidential and proprietary
Materials & equipment	This information is considered confidential and proprietary
Construction & commissioning	This information is considered confidential and proprietary
Construction management	This information is considered confidential and proprietary
Overheads & miscellaneous costs	This information is considered confidential and proprietary
Contingency	This information is considered confidential and proprietary
Total component cost	$1,927,594,834.00
Component cost (in-service year)	$2,177,283,110.00

Congestion Drivers

None

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S779	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-N1-ST95	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST96	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST97	235503	01REID	235505	01RINGLD	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST98	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S1657	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S1658	314084	6SULLY	314035	6DISCOVR	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S1659	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST89	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S166	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST90	235101	01BEDNGT	235445	01BEDNGT	2	500/138	201/201	Summer N-1 Thermal	Included
2022W3-GD-S70	235503	01REID	235505	01RINGLD	1	138	201	Summer Gen Deliv	Included
2022W3-N1-ST91	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S166	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST92	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-GD-S73	223938	DICKH230	223937	DICK 230	1	230	233	Summer Gen Deliv	Included
2022W3-N1-ST93	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-GD-S72	223938	DICKH230	223937	DICK 230	2	230	233	Summer Gen Deliv	Included
2022W3-N1-ST94	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-GD-S201	314041	6GLEBE	314185	6RADNOR	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S84	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S85	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-N1-ST106	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1 Thermal	Included
2022W3-N1-ST107	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST108	313752	6TAKEOFF	313774	6LINC PRK	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S780	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S76	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Summer Gen Deliv	Included
2022W3-N1-ST99	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S78	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Summer Gen Deliv	Included
2022W3-N1-ST100	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S166	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST101	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Summer N-1 Thermal	Included
2022W3-GD-S166	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST102	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1 Thermal	Included
2022W3-GD-S166	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST103	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S166	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-N1-ST104	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Summer N-1 Thermal	Included
2022W3-GD-S83	314041	6GLEBE	314185	6RADNOR	1	230	345	Summer Gen Deliv	Included
2022W3-N1-ST105	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1 Thermal	Included
2022W3-GD-S167	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-GD-S94	235523	01BETHEL+	235507	01RIVERT	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S95	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S96	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-N1-ST119	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST117	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST118	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-S166	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-N1-ST109	221092	FIVE.FOR	221096	ROCKRGE1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-GD-S166	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-N1-ST110	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S88	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST111	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S89	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST112	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S167	314749	6CHARLVL	314772	6PROFFIT	1	230	345	Summer Gen Deliv	Included
2022W3-N1-ST113	235101	01BEDNGT	235445	01BEDNGT	4	500/138	201/201	Summer N-1 Thermal	Included
2022W3-GD-S91	223938	DICKH230	223937	DICK 230	1	230	233	Summer Gen Deliv	Included
2022W3-N1-ST114	314039	6GALLOWS A	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S90	223938	DICKH230	223937	DICK 230	2	230	233	Summer Gen Deliv	Included
2022W3-N1-ST115	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST116	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST129	221092	FIVE.FOR	221096	ROCKRGE1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-N1-ST130	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT138	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST128	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT139	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT140	313752	6TAKEOFF	313774	6LINC PRK	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-S97	207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-N1-ST120	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S167	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST121	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S167	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-N1-WT132	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST122	313815	6SPRINGH	314079	6RESTON	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S167	313904	6GOOSECRK	314006	6ASHBURA	1	230	345	Summer Gen Deliv	Included
2022W3-N1-WT133	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST123	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S103	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-N1-WT134	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST124	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S104	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-N1-ST125	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST126	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST127	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST139	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST140	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included
2022W3-N1-ST141	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT142	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Winter N-1 Thermal	Included
2022W3-N1-ST131	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST132	314035	6DISCOVR	313774	6LINC PRK	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST133	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT143	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST134	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST135	235503	01REID	235505	01RINGLD	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST136	235187	01GRANDP	235180	01FAYETT	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST137	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST138	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST149	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST150	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT163	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST151	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT162	242514	05J.FERR	242684	05J.FERR	3	765/138	205/205	Winter N-1 Thermal	Included
2022W3-N1-ST152	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT160	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST142	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT153	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST143	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT154	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Winter N-1 Thermal	Included
2022W3-N1-ST144	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST145	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT156	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST146	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST147	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST148	313805	6SHELLHORN1	314098	6GREENWAY1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT159	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST159	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST160	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST161	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST162	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W956	214084	COOPER	220964	GRACETON	1	230	230/232	Winter Gen Deliv	Included
2022W3-N1-ST163	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST153	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT162	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST154	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST155	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT163	235471	01GORE	235512	01STONEW	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST156	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT164	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST157	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT165	207922	BRIS	204515	27YORKANA	1	230/230	229/227	Winter N-1 Thermal	Included
2022W3-N1-ST158	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT166	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST169	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST170	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST171	314039	6GALLOWS A	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST172	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST173	313743	6INTERCONNEC	313733	6NIMBUS	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST174	314039	6GALLOWS A	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W159	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-N1-ST164	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W147	313399	6MARS	313746	6SOJOURNER	1	230	345	Winter Gen Deliv	Included
2022W3-N1-ST165	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST166	235503	01REID	235505	01RINGLD	1	138/138	201/201	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST167	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W139	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-N1-ST168	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT179	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W960	242802	05SMITHMTN	242701	05LEESVI	1	138	205	Winter Gen Deliv	Included
2022W3-GD-W156	200762	26GARRETT	235470	01GARRET	1	115	226/201	Winter Gen Deliv	Included
2022W3-N1-WNC11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W977	204515	27YORKANA	208048	OTCR	1	230	227/229	Winter Gen Deliv	Included
2022W3-N1-WNC5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST175	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST176	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W168	314004	6ASHBURN	314010	6BEAMEAD	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WNC7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST178	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-WNC9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W140	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WNC10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W174	235120	01ALBRIG	235492	01MTZION	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W173	235120	01ALBRIG	235492	01MTZION	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WNC11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W100	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WNC23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W987	200065	PCHBTM2S	200064	PCHBTM1S	Z2	500	230	Winter Gen Deliv	Included
2022W3-N1-WNC16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W991	242701	05LEESVI	314667	4ALTVSTA	1	138	205/345	Winter Gen Deliv	Included
2022W3-N1-WNC18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W995	200065	PCHBTM2S	200064	PCHBTM1S	Z1	500	230	Winter Gen Deliv	Included
2022W3-N1-WNC19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W999	242701	05LEESVI	314667	4ALTVSTA	1	138	205/345	Winter Gen Deliv	Included
2022W3-N1-WNC31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W190	235469	01GARRET	235449	01CARLOS	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WNC33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W102	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-N1-WNC34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S181	313805	6SHELLHORN1	313841	6ENTERPRIS	1	230	345	Summer Gen Deliv	Included
2022W3-N1-WNC35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W192	313805	6SHELLHORN1	314098	6GREENWAY1	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WNC36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S361	235105	01DOUBS	235459	01DOUBS	1	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W102	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Winter Gen Deliv	Included
2022W3-N1-WNC37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W102	223938	DICKH230	223937	DICK 230	1	230	233	Winter Gen Deliv	Included
2022W3-N1-WNC27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W1002	223938	DICKH230	223937	DICK 230	2	230	233	Winter Gen Deliv	Included
2022W3-N1-WNC28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W189	314991	8VALLEY SC	314926	8VALLEY	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WNC30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W1033	313440	8VINTHIL	314125	6VINTHIL	2	500/230	345	Winter Gen Deliv	Included
2022W3-GD-W191	235469	01GARRET	235449	01CARLOS	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WNC41	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC42	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S1812	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-N1-WNC45	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W1531	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WNC46	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S862	235105	01DOUBS	235459	01DOUBS	2	500/230	201	Summer Gen Deliv	Included
2022W3-N1-WNC47	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W7983	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Winter Gen Deliv	Included
2022W3-GD-S372	244446	05SOAPSTONE	242792	05SCOTSV	1	138	205	Summer Gen Deliv	Included
2022W3-N1-WNC48	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W7983	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Winter Gen Deliv	Included
2022W3-GD-S1814	314918	8NO ANNA	314911	8LADYSMITH	1	500	345	Summer Gen Deliv	Included
2022W3-N1-WNC38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC40	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S1813	314068	6OX	314039	6GALLOWS A	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S1812	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-S384	314138	6MINE RD	314137	6FREDBRG	1	230	345	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT1820	235463	01TANEY	235450	01CARROL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT1826	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT1920	204530	27GERMANTN	235463	01TANEY	1	138/138	227/201	Winter N-1 Thermal	Included
2022W3-N1-WT1926	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WNC49	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-S1820	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Summer Gen Deliv	Included
2022W3-N1-WNC50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-GD-W79	223938	DICKH230	223937	DICK 230	2	230	233	Winter Gen Deliv	Included
2022W3-GD-S212	314138	6MINE RD	314137	6FREDBRG	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S382	314138	6MINE RD	314137	6FREDBRG	1	230	345	Summer Gen Deliv	Included
2022W3-N1-WT1825	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W3	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-WT3	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT1923	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Winter N-1 Thermal	Included
2022W3-GD-W746	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-WT4	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W748	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT2023	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Winter N-1 Thermal	Included
2022W3-GD-W4	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT1923	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Winter N-1 Thermal	Included
2022W3-N1-WT7	235471	01GORE	235512	01STONEW	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT2023	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Winter N-1 Thermal	Included
2022W3-GD-W751	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT8	235471	01GORE	235512	01STONEW	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT2023	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Winter N-1 Thermal	Included
2022W3-N1-WT1920	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT1920	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT1920	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT19	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-WT19	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Winter N-1 Thermal	Included
2022W3-N1-WT19	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Winter N-1 Thermal	Included
2022W3-N1-WT12	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W769	235187	01GRANDP	235180	01FAYETT	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT13	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W12	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Winter Gen Deliv	Included
2022W3-N1-WT14	235101	01BEDNGT	235445	01BEDNGT	2	500/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W11	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S105	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W15	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-N1-WT15	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W11	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S110	207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD-W16	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-N1-WT16	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W11	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S167	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W773	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT17	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W13	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S168	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W19	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-N1-WT18	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W15	235504	01RIDGLY	235484	01MESSCK	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S168	313399	6MARS	313805	6SHELLHORN1	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W775	235105	01DOUBS	235459	01DOUBS	1	500/230	201	Winter Gen Deliv	Included
2022W3-N1-WT19	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W314	235504	01RIDGLY	235484	01MESSCK	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT11	235471	01GORE	235512	01STONEW	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W752	235592	01HAMPS1	235471	01GORE	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT202	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Winter N-1 Thermal	Included
2022W3-N1-WT10	235471	01GORE	235512	01STONEW	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT202	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Winter N-1 Thermal	Included
2022W3-GD-W136	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WT202	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Winter N-1 Thermal	Included
2022W3-GD-W23	235050	AD2-180 TAP	235501	01PARRN	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT23	204530	27GERMANTN	235463	01TANEY	1	138/138	227/201	Winter N-1 Thermal	Included
2022W3-GD-S81N	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W786	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-WT24	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-S1684	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD-W790	235503	01REID	235505	01RINGLD	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT25	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-LLT50	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load N-1	Included
2022W3-GD-S1182	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1682	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-N1-WT26	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-S1213	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S1682	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-N1-WT27	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-LLT52	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S1418	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-S114	235101	01BEDNGT	235445	01BEDNGT	2	500/138	201	Summer Gen Deliv	Included
2022W3-GD-W793	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT28	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S123	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S168	223938	DICKH230	223937	DICK 230	1	230	233	Summer Gen Deliv	Included
2022W3-GD-W794	235101	01BEDNGT	235445	01BEDNGT	2	500/138	201	Winter Gen Deliv	Included
2022W3-N1-WT29	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-LLT54	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST244	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1	Included
2022W3-GD-S168	223938	DICKH230	223937	DICK 230	1	230	233	Summer Gen Deliv	Included
2022W3-GD-W28	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-WT30	235492	01MTZION	235518	01WESTVA	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-LLT53	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S146	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-N1-WT21	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT22	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-S168	204514	27TMI	204502	27JACKSON	1	230	227	Summer Gen Deliv	Included
2022W3-GD-W780	235592	01HAMPS1	235471	01GORE	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT20	204530	27GERMANTN	235463	01TANEY	1	138/138	227/201	Winter N-1 Thermal	Included
2022W3-GD-W806	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Winter Gen Deliv	Included
2022W3-GD-W781	235187	01GRANDP	235180	01FAYETT	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W319	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W22	235050	AD2-180 TAP	235501	01PARRN	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S76N	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S168	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S42N	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W35	235446	01BLACKO	235103	01BLACKO	3	138/500	201	Winter Gen Deliv	Included
2022W3-N1-ST249	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Summer N-1	Included
2022W3-GD-S169	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-GD-W38	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S119	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W39	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Winter Gen Deliv	Included
2022W3-N1-LLT61	242524	05CLOVRD	242519	05CLOVRD	16	345/500	205/205	Light Load N-1	Included
2022W3-N1-ST253	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Summer N-1	Included
2022W3-GD-S203	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W40	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W41	204544	27LINCOLN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-LLT63	244446	05SOAPSTONE	242792	05SCOTSV	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST253	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Summer N-1	Included
2022W3-GD-S169	314006	6ASHBURA	314010	6BEAMEAD	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W806	235101	01BEDNGT	235445	01BEDNGT	4	500/138	201	Winter Gen Deliv	Included
2022W3-N1-LLT62	244446	05SOAPSTONE	242792	05SCOTSV	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST253	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Summer N-1	Included
2022W3-GD-S125	204529	27GERMANTN	204530	27GERMANTN	1	115/138	227	Summer Gen Deliv	Included
2022W3-GD-W42	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-LLT65	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST253	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1	Included
2022W3-GD-S169	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W43	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-LLT64	244446	05SOAPSTONE	242792	05SCOTSV	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST254	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1	Included
2022W3-GD-W36	235446	01BLACKO	235103	01BLACKO	3	138/500	201	Winter Gen Deliv	Included
2022W3-GD-S168	223938	DICKH230	223937	DICK 230	2	230	233	Summer Gen Deliv	Included
2022W3-GD-W29	235463	01TANEY	235450	01CARROL	1	138	201	Winter Gen Deliv	Included
2022W3-N1-ST246	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1	Included
2022W3-GD-S169	223938	DICKH230	223937	DICK 230	2	230	233	Summer Gen Deliv	Included
2022W3-GD-W31	204550	27ORRTANNA	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-LLT55	244446	05SOAPSTONE	242792	05SCOTSV	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-ST245	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S169	214084	COOPER	220964	GRACETON	1	230	230/232	Summer Gen Deliv	Included
2022W3-N1-ST24	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1	Included
2022W3-GD-S169	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W81	204544	27LINCOLN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-ST25	314316	6LOCKS	314314	3LOCKS	2	230/115	345/345	Summer N-1	Included
2022W3-GD-S135	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W81	235503	01REID	235505	01RINGLD	1	138	201	Winter Gen Deliv	Included
2022W3-N1-ST25	314316	6LOCKS	314314	3LOCKS	2	230/115	345/345	Summer N-1	Included
2022W3-GD-S169	235518	01WESTVA	237506	01CROSSCHOOL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W49	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD_118	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Light Load Gen Deliv	Included
2022W3-GD-S169	235518	01WESTVA	237506	01CROSSCHOOL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W82	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-N1-ST25	314316	6LOCKS	314314	3LOCKS	2	230/115	345/345	Summer N-1	Included
2022W3-GD-S170	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W82	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S170	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W50	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD_117	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Light Load Gen Deliv	Included
2022W3-GD-S136	235101	01BEDNGT	235445	01BEDNGT	4	500/138	201	Summer Gen Deliv	Included
2022W3-GD-W51	214084	COOPER	220964	GRACETON	1	230	230/232	Winter Gen Deliv	Included
2022W3-GD-S139	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W136	314041	6GLEBE	314185	6RADNOR	1	230	345	Winter Gen Deliv	Included
2022W3-GD-W45	235592	01HAMPS1	235471	01GORE	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W46	235592	01HAMPS1	235471	01GORE	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S127	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-W44	204550	27ORRTANNA	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-N1-LLT67	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load N-1	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_128	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Light Load Gen Deliv	Included
2022W3-GD-S1692	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-N1-LLT66	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load N-1	Included
2022W3-GD_122	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Light Load Gen Deliv	Included
2022W3-GD-S1698	314290	6EDFERRY	313911	6TWINCREEKS	1	230	345	Summer Gen Deliv	Included
2022W3-N1-LLT69	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT68	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S1704	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W55	235518	01WESTVA	237506	01CROSSCHOOL	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1705	314072	6PL VIEW	314004	6ASHBURN	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W56	235518	01WESTVA	237506	01CROSSCHOOL	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1472	213869	PCHBTMTP	214087	COOPER2	1	230	230	Summer Gen Deliv	Included
2022W3-GD-W831	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S1708	314009	6BRADOCK	314052	6IDYLWOD	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W832	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S1707	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W57	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S152	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S155	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-W58	204538	27STRABAN	204529	27GERMANTN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S2038	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-W829	314041	6GLEBE	314185	6RADNOR	1	230	345	Winter Gen Deliv	Included
2022W3-GD-W53	235492	01MTZION	235518	01WESTVA	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S141	235453	01CHERYR	235517	01HARMNY	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W52	235492	01MTZION	235518	01WESTVA	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1702	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S1703	314035	6DISCOVR	313774	6LINC PRK	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S1712	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W843	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S164	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W59	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S165	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W60	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S204	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W61	237310	01DANSMTN	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S171	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W62	237310	01DANSMTN	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S171	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W849	204538	27STRABAN	204529	27GERMANTN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S167	242563	05BOXWD	242603	05CLIFFR	1	138	205	Summer Gen Deliv	Included
2022W3-GD-S171	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-W840	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-W137	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S171	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W841	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W842	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S170	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-S204	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-S171	235503	01REID	235505	01RINGLD	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S205	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S172	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S172	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S172	313399	6MARS	313805	6SHELLHORN1	1	230	345	Summer Gen Deliv	Included
2022W3-GD-S171	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Summer Gen Deliv	Included
2022W3-GD-S171	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S171	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S172	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S172	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S172	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S188	214084	COOPER	220964	GRACETON	1	230	230/232	Summer Gen Deliv	Included
2022W3-GD-S190	242563	05BOXWD	242603	05CLIFFR	1	138	205	Summer Gen Deliv	Included
2022W3-GD-S205	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S172	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-LLT1.2	242651	05GLENL2	242749	05PETERM	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S172	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S172	313815	6SPRINGH	314079	6RESTON	1	230	345	Summer Gen Deliv	Included
2022W3-N1-LLT1.2	242651	05GLENL2	242749	05PETERM	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT1.2	242651	05GLENL2	242749	05PETERM	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S173	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-GD-S201	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-N1-LLT1.2	242638	05FIELDALE1	242831	05THORNT	1	138/138	205/205	Light Load N-1	Included
2022W3-GD-S202	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-S214	214084	COOPER	220964	GRACETON	1	230	230/232	Summer Gen Deliv	Included
2022W3-GD-S172	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-LLT1.2	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load N-1	Included
2022W3-GD-S200	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-N1-LLT1.2	242651	05GLENL2	242749	05PETERM	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT1.2	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load N-1	Included
2022W3-N1-LLT1.2	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load N-1	Included
2022W3-GD-S173	313399	6MARS	313746	6SOJOURNER	1	230	345	Summer Gen Deliv	Included
2022W3-LD-SNC2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S221	214084	COOPER	220964	GRACETON	1	230	230/232	Summer Gen Deliv	Included
2022W3-LD-SNC1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S222	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-LD-SNC4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S1739	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-LD-SNC3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-LD-SNC5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S1734	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1735	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Summer Gen Deliv	Included
2022W3-GD-S1736	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Summer Gen Deliv	Included
2022W3-GD-S1737	314004	6ASHBURN	314010	6BEAMEAD	1	230	345	Summer Gen Deliv	Included
2022W3-LD-ST10	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Load Deliverability	Included
2022W3-LD-ST5	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Load Deliverability	Included
2022W3-LD-ST4	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Load Deliverability	Included
2022W3-LD-ST7	223937	DICK 230	314290	6EDFERRY	1	230/230	233/345	Load Deliverability	Included
2022W3-LD-ST6	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Load Deliverability	Included
2022W3-LD-ST9	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Load Deliverability	Included
2022W3-LD-ST8	223937	DICK 230	314290	6EDFERRY	1	230/230	233/345	Load Deliverability	Included
2022W3-N1-ST183	314912	8LEXNGTN	314856	6LEXNGT2	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST184	208071	SAHA34TP	208069	PPL-BGE TIE	1	230/230	229/229	Summer N-1 Thermal	Included
2022W3-N1-ST185	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST186	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST187	314039	6GALLOWS A	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST179	314039	6GALLOWS A	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST180	314919	8OX	314068	6OX	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST181	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST182	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST194	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST195	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST196	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST197	235105	01DOUBS	235459	01DOUBS	3	500/230	201/201	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST198	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST189	204538	27STRABAN	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST190	235187	01GRANDP	235180	01FAYETT	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST191	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST193	313746	6SOJOURNER	313822	6RUNWAY	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST205	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST206	313399	6MARS	313746	6SOJOURNER	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST207	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST208	313746	6SOJOURNER	313822	6RUNWAY	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST199	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST200	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST201	223937	DICK 230	314290	6EDFERRY	1	230/230	233/345	Summer N-1 Thermal	Included
2022W3-N1-ST202	213846	NOTTREAC	213869	PCHBTMTP	1	230/230	230/230	Summer N-1 Thermal	Included
2022W3-N1-ST203	213844	NOTTNGHM	213846	NOTTREAC	1	230/230	230/230	Summer N-1 Thermal	Included
2022W3-N1-ST204	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST216	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST217	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST218	235105	01DOUBS	235459	01DOUBS	3	500/230	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST209	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-ST210	235105	01DOUBS	235459	01DOUBS	3	500/230	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST211	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-ST212	221090	GLENARM2	221089	WINDYED1	1	115/115	232/232	Summer N-1 Thermal	Included
2022W3-N1-ST213	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST214	314912	8LEXNGTN	314854	6LEXNGT1	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST215	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST229	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC57	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST227	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WNC58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST228	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC59	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC60	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST219	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST220	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WNC51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST221	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST222	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC53	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST223	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST224	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST225	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WNC56	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST226	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST239	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST240	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-WNC68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST238	314290	6EDFERRY	313911	6TWINCREEKS	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC69	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-WNC61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST231	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Summer N-1 Thermal	Included
2022W3-N1-WNC62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST232	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WNC63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST232	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WNC64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST234	208071	SAHA34TP	208069	PPL-BGE TIE	1	230/230	229/229	Summer N-1 Thermal	Included
2022W3-N1-WNC65	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST235	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WNC66	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST236	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-WNC67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST237	208069	PPL-BGE TIE	220964	GRACETON	1	230/230	229/232	Summer N-1 Thermal	Included
2022W3-N1-SNC6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST9	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-SNC8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST7	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST8	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WNC71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST241	200512	26LEWISTWN	200519	26REED TAP	1	115/115	226/226	Summer N-1 Thermal	Included
2022W3-N1-WNC72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Winter N-1 Non Converge	Included
2022W3-N1-ST242	313815	6SPRINGH	314079	6RESTON	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST243	313805	6SHELLHORN1	313841	6ENTERPRIS	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-SNC1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST3	235105	01DOUBS	235459	01DOUBS	3	500/230	201/201	Summer N-1 Thermal	Included
2022W3-N1-SNC2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST4	235105	01DOUBS	235459	01DOUBS	1	500/230	201/201	Summer N-1 Thermal	Included
2022W3-N1-SNC3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-SNC4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST6	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-SNC5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST19	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD_L11	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-N1-ST20	204530	27GERMANTN	235463	01TANEY	1	138/138	227/201	Summer N-1 Thermal	Included
2022W3-GD_L12	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-N1-ST18	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST10	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-SNC9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST11	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-SNC10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST12	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-SNC11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Summer N-1 Non Converge	Included
2022W3-N1-ST13	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST14	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST15	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST16	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-ST17	314084	6SULLY	314035	6DISCOVR	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD_L269	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-GD_L309	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-N1-ST29	235471	01GORE	235512	01STONEW	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-GD_L311	235105	01DOUBS	235459	01DOUBS	3	500/230	201/201	Light Load Gen Deliv	Included
2022W3-N1-ST30	235471	01GORE	235512	01STONEW	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT41	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST31	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT39	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT40	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT31	235101	01BEDNGT	235445	01BEDNGT	4	500/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST21	204530	27GERMANTN	235463	01TANEY	1	138/138	227/201	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_L35	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-N1-WT32	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST22	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD_L36	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-N1-WT33	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST23	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT34	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST24	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT35	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST25	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT36	235518	01WESTVA	237506	01CROSSCHOOL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST26	314010	6BEAMEAD	313743	6INTERCONNEC	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT37	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST27	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT38	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST28	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST39	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST40	204544	27LINCOLN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT51	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST41	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT52	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST42	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT50	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT42	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST32	235471	01GORE	235512	01STONEW	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT43	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST33	235471	01GORE	235512	01STONEW	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT44	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-ST34	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-GD_L81	242563	05BOXWD	242603	05CLIFFR	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-N1-WT45	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST35	235463	01TANEY	235450	01CARROL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT46	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST36	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT47	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST37	235463	01TANEY	235450	01CARROL	1	138/138	201/201	Summer N-1 Thermal	Included
2022W3-N1-WT48	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST38	314084	6SULLY	314035	6DISCOVR	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT49	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST49	314035	6DISCOVR	313774	6LINC PRK	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST50	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST51	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT62	235463	01TANEY	235450	01CARROL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST52	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT63	235101	01BEDNGT	235445	01BEDNGT	1	500/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST53	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT53	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST43	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT54	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST44	313393	8MARS	313399	6MARS	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT55	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST45	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT56	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST46	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT57	314010	6BEAMEAD	313743	6INTERCONNEC	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST47	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT58	204544	27LINCOLN	204538	27STRABAN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST48	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT59	235101	01BEDNGT	235445	01BEDNGT	3	500/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT60	235463	01TANEY	235450	01CARROL	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST59	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST60	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT71	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST61	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT72	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST62	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W850	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W851	213846	NOTTREAC	213869	PCHBTMTP	1	230	230	Winter Gen Deliv	Included
2022W3-N1-WT74	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST64	223938	DICKH230	223937	DICK 230	2	230/230	233/233	Summer N-1 Thermal	Included
2022W3-N1-WT64	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST54	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-WT65	204550	27ORRTANNA	204544	27LINCOLN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST55	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST56	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT67	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST57	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT68	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST58	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-WT70	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-ST69	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST70	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST71	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-N1-ST72	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W73	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-ST73	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W74	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-ST74	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-W871	235490	01MORGAN	235453	01CHERYR	1	138	201	Winter Gen Deliv	Excluded
2022W3-N1-WT85	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W63	204514	27TMI	204502	27JACKSON	1	230	227	Winter Gen Deliv	Included
2022W3-N1-WT75	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST65	223938	DICKH230	223937	DICK 230	1	230/230	233/233	Summer N-1 Thermal	Included
2022W3-GD-W64	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Winter Gen Deliv	Included
2022W3-N1-WT76	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST66	314009	6BRADOCK	314052	6IDYLWOD	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W65	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-N1-WT77	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST67	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W68	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-WT78	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-ST68	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W67	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-N1-WT79	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W861	235101	01BEDNGT	235445	01BEDNGT	3	500/138	201	Winter Gen Deliv	Included
2022W3-GD-W72	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W71	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT92	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W78	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-N1-WT93	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W80	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT94	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Winter N-1 Thermal	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W79	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT95	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Winter N-1 Thermal	Included
2022W3-GD-W880	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-N1-WT96	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W872	235101	01BEDNGT	235445	01BEDNGT	1	500/138	201	Winter Gen Deliv	Included
2022W3-N1-WT86	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W873	235490	01MORGAN	235453	01CHERYR	1	138	201	Winter Gen Deliv	Excluded
2022W3-N1-ST77	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W75	313399	6MARS	313805	6SHELLHORN1	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WT88	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-N1-ST78	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-W875	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-N1-WT89	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W76	313904	6GOOSECRK	314006	6ASHBURA	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WT90	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W77	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-W879	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-N1-WT103	313393	8MARS	313399	6MARS	1	500/230	345/345	Winter N-1 Thermal	Included
2022W3-N1-WT102	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W86	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-N1-WT101	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W88	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Winter Gen Deliv	Included
2022W3-N1-WT104	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W90	235501	01PARRN	235479	01JUNCTN	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W89	235501	01PARRN	235479	01JUNCTN	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT100	204538	27STRABAN	204529	27GERMANTN	1	115/115	227/227	Winter N-1 Thermal	Included
2022W3-GD-W887	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-GD-W81	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-WT97	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W83	204515	27YORKANA	208048	OTCR	1	230	227/229	Winter Gen Deliv	Included
2022W3-GD-W84	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-N1-WT108	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W883	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-GD-W85	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-N1-WT112	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-N1-WT112	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W894	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-W895	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S1742	235187	01GRANDP	235180	01FAYETT	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W93	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-N1-WT112	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-S2062	221090	GLENARM2	221089	WINDYED1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-W94	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-N1-WT112	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-S1741	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Summer Gen Deliv	Included
2022W3-GD-W899	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-GD-S1742	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W95	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-N1-WT112	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1 Thermal	Included
2022W3-GD-W138	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-W92	314006	6ASHBURA	314010	6BEAMEAD	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WT109	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W891	208071	SAHA34TP	208069	PPL-BGE TIE	1	230	229	Winter Gen Deliv	Included
2022W3-N1-WT113	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-GD-W892	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-GD-W1240	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S236	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W102	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S237	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W101	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-LD-ST15	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-GD-W103	314072	6PL VIEW	314004	6ASHBURN	1	230	345	Winter Gen Deliv	Included
2022W3-N1-WT127	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Winter N-1 Thermal	Included
2022W3-LD-ST14	200064	PCHBTM1S	200004	CNASTONE	1	500/500	230/232	Load Deliverability	Included
2022W3-GD-S240	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W903	207922	BRIS	204515	27YORKANA	1	230	227/229	Winter Gen Deliv	Included
2022W3-LD-ST17	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-W904	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-LD-ST16	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-S174	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W96	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-S174	235592	01HAMPS1	235471	01GORE	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W900	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-GD-S174	235592	01HAMPS1	235471	01GORE	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W97	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S231	242603	05CLIFFR	242613	05COLLEEN SS	1	138	205	Summer Gen Deliv	Included
2022W3-GD-W98	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Winter Gen Deliv	Included
2022W3-GD-S232	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Summer Gen Deliv	Included
2022W3-GD-S175	204529	27GERMANTN	204530	27GERMANTN	1	115/138	227	Summer Gen Deliv	Included
2022W3-GD-W107	235468	01FROSTB	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S175	208395	FARO FF	208393	FARO DC TIE	2	69/115	229	Summer Gen Deliv	Included
2022W3-GD-W106	235468	01FROSTB	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-LD-ST24	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Load Deliverability	Included
2022W3-GD-S247	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W108	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S249	235504	01RIDGLY	235484	01MESSCK	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W91	213869	PCHBTMTP	214087	COOPER2	1	230	230	Winter Gen Deliv	Included
2022W3-LD-ST26	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Load Deliverability	Included
2022W3-GD-S1763	314068	6OX	314039	6GALLOWS A	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W110	235490	01MORGAN	235453	01CHERYR	1	138	201	Winter Gen Deliv	Excluded
2022W3-LD-ST25	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Load Deliverability	Included
2022W3-GD-S252	235504	01RIDGLY	235484	01MESSCK	1	138	201	Summer Gen Deliv	Included
2022W3-GD-W111	235490	01MORGAN	235453	01CHERYR	1	138	201	Winter Gen Deliv	Excluded
2022W3-LD-ST28	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Load Deliverability	Included
2022W3-GD-S260	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-LD-ST27	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345/345	Load Deliverability	Included
2022W3-GD-S2062	221090	GLENARM2	221089	WINDYED1	1	115	232	Summer Gen Deliv	Included
2022W3-GD-W906	208069	PPL-BGE TIE	220964	GRACETON	1	230	229/232	Winter Gen Deliv	Included
2022W3-LD-ST19	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-S1758	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-LD-ST18	200004	CNASTONE	200003	BRIGHTON	1	500/500	232/233	Load Deliverability	Included
2022W3-GD-S1756	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1757	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Summer Gen Deliv	Included
2022W3-LD-ST20	208047	PPL-BGE TIE	220963	CONASTON	1	230/230	229/232	Load Deliverability	Included
2022W3-GD-S1762	208395	FARO FF	208393	FARO DC TIE	1	69/115	229	Summer Gen Deliv	Included
2022W3-LD-ST23	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Load Deliverability	Included
2022W3-LD-ST22	208048	OTCR	208047	PPL-BGE TIE	1	230/230	229/229	Load Deliverability	Included
2022W3-GD-W912	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S827	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-S1765	313805	6SHELLHORN1	314098	6GREENWAY1	1	230	345	Summer Gen Deliv	Included
2022W3-LD-SNC7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S1768	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-W116	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Winter Gen Deliv	Included
2022W3-LD-SNC6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W117	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-LD-SNC9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S176	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W118	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-LD-SNC8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S270	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138	205	Summer Gen Deliv	Included
2022W3-GD-W920	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-LD-SNC11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S176	314939	8GOOSE CREEK	313904	6GOOSECRK	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W121	200519	26REED TAP	200522	26SHADE GP	1	115	226	Winter Gen Deliv	Included
2022W3-LD-SNC10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W114	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Winter Gen Deliv	Included
2022W3-GD-S176	242563	05BOXWD	242603	05CLIFFR	1	138	205	Summer Gen Deliv	Included
2022W3-GD-W112	237506	01CROSSCHOOL	235446	01BLACKO	1	138	201	Winter Gen Deliv	Included
2022W3-LD-ST30	313911	6TWINCREEKS	314072	6PL VIEW	1	230/230	345/345	Load Deliverability	Included
2022W3-GD-W113	237506	01CROSSCHOOL	235446	01BLACKO	1	138	201	Winter Gen Deliv	Included
2022W3-LD-ST29	314072	6PL VIEW	314004	6ASHBURN	1	230/230	345/345	Load Deliverability	Included
2022W3-GD-S262	235180	01FAYETT	235271	01WWAYNE	1	138	201	Summer Gen Deliv	Included
2022W3-LD-ST32	314006	6ASHBURA	314010	6BEAMEAD	1	230/230	345/345	Load Deliverability	Included
2022W3-GD-S264	242603	05CLIFFR	242613	05COLLEEN SS	1	138	205	Summer Gen Deliv	Included
2022W3-LD-ST31	313911	6TWINCREEKS	314072	6PL VIEW	1	230/230	345/345	Load Deliverability	Included
2022W3-LD-ST33	314004	6ASHBURN	314010	6BEAMEAD	1	230/230	345/345	Load Deliverability	Included
2022W3-GD-W123	204544	27LINCOLN	204538	27STRABAN	1	115	227	Winter Gen Deliv	Included
2022W3-LD-SNC16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S280	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W928	235334	01GLENFL	235349	01HARR T	1	138	201	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S177	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-W124	313399	6MARS	313805	6SHELLHORN1	1	230	345	Winter Gen Deliv	Included
2022W3-LD-SNC18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W931	214084	COOPER	220964	GRACETON	1	230	230/232	Winter Gen Deliv	Included
2022W3-LD-SNC17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S177	314759	6HOLLYMD	314734	6CASHSCORNER	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W125	200519	26REED TAP	200522	26SHADE GP	1	115	226	Winter Gen Deliv	Included
2022W3-LD-SNC20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S281	200065	PCHBTM2S	200064	PCHBTM1S	Z1	500	230	Summer Gen Deliv	Included
2022W3-GD-W126	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included
2022W3-LD-SNC19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W129	313393	8MARS	313399	6MARS	1	500/230	345	Winter Gen Deliv	Included
2022W3-LD-SNC22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W130	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-LD-SNC21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W122	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-GD-S828	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W138	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-LD-SNC13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-S276	204514	27TMI	204502	27JACKSON	1	230	227	Summer Gen Deliv	Included
2022W3-LD-SNC12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-LD-SNC15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-LD-SNC14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Load Deliverability	Included
2022W3-GD-W942	214084	COOPER	220964	GRACETON	1	230	230/232	Winter Gen Deliv	Included
2022W3-GD-S177	314197	6LDYSMITH CT	313837	6SUMMIT	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W138	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S177	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-W138	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_L330	242524	05CLOVRD	242519	05CLOVRD	16	345/500	205/205	Light Load Gen Deliv	Included
2022W3-GD-S299	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W125	200519	26REED TAP	200522	26SHADE GP	1	115	226	Winter Gen Deliv	Included
2022W3-GD_L310	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-GD-S300	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-W949	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Winter Gen Deliv	Included
2022W3-GD_L82	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S177	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-W139	314749	6CHARLVL	314772	6PROFFIT	1	230	345	Winter Gen Deliv	Included
2022W3-GD_L331	235105	01DOUBS	235459	01DOUBS	1	500/230	201/201	Light Load Gen Deliv	Included
2022W3-GD-S178	314901	8BATH CO	314991	8VALLEY SC	1	500	345	Summer Gen Deliv	Included
2022W3-GD-W955	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Winter Gen Deliv	Included
2022W3-GD_L89	242603	05CLIFFR	242613	05COLLEEN SS	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-S304	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138	205	Summer Gen Deliv	Included
2022W3-GD_L83	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W132	200065	PCHBTM2S	200064	PCHBTM1S	Z2	500	230	Winter Gen Deliv	Included
2022W3-GD-W133	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Winter Gen Deliv	Included
2022W3-GD-S177	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included
2022W3-GD-S177	235483	01MDWBRK	235444	01BART 1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S177	235483	01MDWBRK	235444	01BART 1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S178	314039	6GALLOWS A	314052	6IDYLWOD	1	230	345	Summer Gen Deliv	Included
2022W3-GD_L104	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-S178	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD-S178	314925	8PL VIEW	314072	6PL VIEW	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD_L109	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-S178	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-GD_L15	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S326	208048	OTCR	208047	PPL-BGE TIE	1	230	229	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_L116	237310	01DANSMTN	235504	01RIDGLY	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S2088	314316	6LOCKS	314314	3LOCKS	2	230/115	345	Summer Gen Deliv	Included
2022W3-GD_L115	237310	01DANSMTN	235504	01RIDGLY	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S329	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138	205	Summer Gen Deliv	Included
2022W3-GD_L359	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-GD-S1791	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Summer Gen Deliv	Included
2022W3-GD_L276	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-GD-S1782	314991	8VALLEY SC	314926	8VALLEY	1	500	345	Summer Gen Deliv	Included
2022W3-GD-S312	208047	PPL-BGE TIE	220963	CONASTON	1	230	229/232	Summer Gen Deliv	Included
2022W3-GD-S1783	314734	6CASHSCORNER	314758	6GORDNVL	1	230	345	Summer Gen Deliv	Included
2022W3-GD_L92	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD_L91	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S1792	221092	FIVE.FOR	221096	ROCKRGE1	1	115	232	Summer Gen Deliv	Included
2022W3-GD_L374	242632	05EDAN 2	242549	05BANSTR	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W1302	200747	26PENN-MAR	200762	26GARRETT	1	115	226	Winter Gen Deliv	Included
2022W3-GD-W1210	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included
2022W3-GD-S333	314010	6BEAMEAD	313743	6INTERCONNEC	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W1270	200762	26GARRETT	235470	01GARRET	1	115	226/201	Winter Gen Deliv	Included
2022W3-GD-S1798	220962	NWEST311	220972	GRANITE1	1	230	232	Summer Gen Deliv	Included
2022W3-GD_L127	242632	05EDAN 2	242549	05BANSTR	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD_L386	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W1080	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Winter Gen Deliv	Included
2022W3-GD-S1797	313746	6SOJOURNER	313822	6RUNWAY	1	230	345	Summer Gen Deliv	Included
2022W3-GD_L360	314041	6GLEBE	314185	6RADNOR	1	230/230	345/345	Light Load Gen Deliv	Included
2022W3-GD-W1052	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Winter Gen Deliv	Included
2022W3-GD-S336	235486	01MILLVL	235597	01LOVETT	1	138	201	Summer Gen Deliv	Included
2022W3-GD_L132	270193	AC1-083 TAP	242802	05SMITHMTN	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W1012	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_L390	235503	01REID	235505	01RINGLD	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W99N	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Winter Gen Deliv	Included
2022W3-GD-S179	235479	01JUNCTN	235467	01FRNCHM	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S330	235101	01BEDNGT	235445	01BEDNGT	3	500/138	201	Summer Gen Deliv	Included
2022W3-GD-W11	200532	26ROXBURY	235188	01GREENE	1	138	226/201	Winter Gen Deliv	Included
2022W3-GD-S179	204515	27YORKANA	208048	OTCR	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD-W12	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Winter Gen Deliv	Included
2022W3-GD_L126	244446	05SOAPSTONE	242792	05SCOTSV	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W11	200004	CNASTONE	200003	BRIGHTON	1	500	233/232	Winter Gen Deliv	Included
2022W3-GD-S340	204515	27YORKANA	208048	OTCR	1	230	227/229	Summer Gen Deliv	Included
2022W3-GD_L137	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W96N	235446	01BLACKO	235103	01BLACKO	3	138/500	201	Winter Gen Deliv	Included
2022W3-GD_L134	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W124	235188	01GREENE	235557	01LETTER	1	138	201	Winter Gen Deliv	Included
2022W3-GD_L147	235446	01BLACKO	235103	01BLACKO	3	138/500	201/201	Light Load Gen Deliv	Included
2022W3-GD-W114	235463	01TANEY	235450	01CARROL	1	138	201	Winter Gen Deliv	Included
2022W3-GD_L138	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W112	235463	01TANEY	235450	01CARROL	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S210	314039	6GALLOWS A	314052	6IDYLWOD	1	230	345	Summer Gen Deliv	Included
2022W3-GD_L152	242651	05GLENL2	242749	05PETERM	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W102	235468	01FROSTB	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S180	314934	8SPOTSYL	314916	8MORRSVL	1	500	345	Summer Gen Deliv	Included
2022W3-GD_L148	235446	01BLACKO	235103	01BLACKO	3	138/500	201/201	Light Load Gen Deliv	Included
2022W3-GD-W116	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Winter Gen Deliv	Included
2022W3-GD_L391	235503	01REID	235505	01RINGLD	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD_L119	237310	01DANSMTN	235504	01RIDGLY	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W118	235469	01GARRET	235449	01CARLOS	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W97N	235050	AD2-180 TAP	235501	01PARRN	1	138	201	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD_L133	235479	01JUNCTN	235467	01FRNCHM	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W1263	235120	01ALBRIG	235492	01MTZION	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1799	314749	6CHARLVL	314772	6PROFFIT	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W1293	235050	AD2-180 TAP	235501	01PARRN	1	138	201	Winter Gen Deliv	Included
2022W3-GD_L18	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD_L17	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-S1802	200512	26LEWISTWN	200519	26REED TAP	1	115	226	Summer Gen Deliv	Included
2022W3-GD_L142	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W98N	235518	01WESTVA	237506	01CROSSCHOOL	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1806	242603	05CLIFFR	242613	05COLLEEN SS	1	138	205	Summer Gen Deliv	Included
2022W3-GD_L141	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W1103	235501	01PARRN	235479	01JUNCTN	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W1003	237310	01DANSMTN	235504	01RIDGLY	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W1193	235592	01HAMPS1	235471	01GORE	1	138	201	Winter Gen Deliv	Included
2022W3-GD_L143	235504	01RIDGLY	235593	01HAMPS2	1	138/138	201/201	Light Load Gen Deliv	Included
2022W3-GD-W1073	237506	01CROSSCHOOL	235446	01BLACKO	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S1804	313393	8MARS	313399	6MARS	1	500/230	345	Summer Gen Deliv	Included
2022W3-GD-S1805	313837	6SUMMIT	314138	6MINE RD	1	230	345	Summer Gen Deliv	Included
2022W3-GD-W1133	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S3462	200065	PCHBTM2S	200066	PCHBTM1N	2	500	230	Summer Gen Deliv	Included
2022W3-GD-W1033	235471	01GORE	235512	01STONEW	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S3473	313440	8VINTHIL	314913	8LOUDOUN	1	500	345	Summer Gen Deliv	Included
2022W3-GD-W1063	235492	01MTZION	235518	01WESTVA	1	138	201	Winter Gen Deliv	Included
2022W3-GD-S3482	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138	205	Summer Gen Deliv	Included
2022W3-GD_L153	242638	05FIELDALE1	242831	05THORNT	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-GD-W1203	235483	01MDWBRK	235444	01BART 1	1	138	201	Winter Gen Deliv	Included
2022W3-GD-W7982	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Winter Gen Deliv	Included
2022W3-GD-W1602	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Winter Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-LLT6	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-GD-W7948	223938	DICKH230	223937	DICK 230	1	230	233	Winter Gen Deliv	Included
2022W3-N1-LLT5	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-GD-W7992	223937	DICK 230	314290	6EDFERRY	1	230	233/345	Winter Gen Deliv	Included
2022W3-N1-LLT8	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT7	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-GD-W7952	223938	DICKH230	223937	DICK 230	1	230	233	Winter Gen Deliv	Included
2022W3-N1-LLT9	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-GD_L192	242831	05THORNT	242642	05FRANKLIN	1	138/138	205/205	Light Load Gen Deliv	Included
2022W3-N1-WT1835	235483	01MDWBRK	235444	01BART 1	1	138/138	201/201	Winter N-1	Included
2022W3-N1-LLT19	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT10	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT13	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT12	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT26	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Excluded
2022W3-N1-LLT28	242603	05CLIFFR	242613	05COLLEEN SS	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT27	242603	05CLIFFR	242613	05COLLEEN SS	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT29	242603	05CLIFFR	242613	05COLLEEN SS	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT20	235490	01MORGAN	235453	01CHERYR	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT22	242563	05BOXWD	242603	05CLIFFR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT21	242563	05BOXWD	242603	05CLIFFR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT24	242563	05BOXWD	242603	05CLIFFR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT23	242563	05BOXWD	242603	05CLIFFR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT37	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT36	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT39	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT38	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT31	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load N-1	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-N1-LLT30	242613	05COLLEEN SS	244423	05JAMES RIVR	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT33	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load N-1	Included
2022W3-N1-LLT32	314820	6BALLSTN	314120	6CLRNDNC	1	230/230	345/345	Light Load N-1	Included
2022W3-N1-LLT35	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT49	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT40	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT42	235471	01GORE	235512	01STONEW	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT41	244423	05JAMES RIVR	244446	05SOAPSTONE	1	138/138	205/205	Light Load N-1	Included
2022W3-N1-LLT44	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT43	235467	01FRNCHM	235592	01HAMPS1	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT46	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load N-1	Included
2022W3-N1-LLT45	235592	01HAMPS1	235471	01GORE	1	138/138	201/201	Light Load N-1	Included
2022W3-GD-S2	235490	01MORGAN	235453	01CHERYR	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S6	235471	01GORE	235512	01STONEW	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S7	235471	01GORE	235512	01STONEW	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S8	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1642	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1	235490	01MORGAN	235453	01CHERYR	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S1643	204550	27ORRTANNA	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1644	235463	01TANEY	235450	01CARROL	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S17	235105	01DOUBS	235459	01DOUBS	1	500/230	201	Summer Gen Deliv	Included
2022W3-GD-S10	235105	01DOUBS	235459	01DOUBS	3	500/230	201	Summer Gen Deliv	Included
2022W3-GD-S13	235484	01MESSCK	235490	01MORGAN	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S14	235484	01MESSCK	235490	01MORGAN	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S1641	204530	27GERMANTN	235463	01TANEY	1	138	227/201	Summer Gen Deliv	Included
2022W3-GD-S1642	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S15	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S35	235592	01HAMPS1	235471	01GORE	1	138	201	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2022W3-GD-S39	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S41	235592	01HAMPS1	235471	01GORE	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S1642	204550	27ORRTANNA	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S23	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1648	204544	27LINCOLN	204538	27STRABAN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S34	235467	01FRNCHM	235592	01HAMPS1	1	138	201	Summer Gen Deliv	Included
2022W3-GD-S1652	213844	NOTTNGHM	213846	NOTTREAC	1	230	230	Summer Gen Deliv	Included
2022W3-GD-S2016	314916	8MORRSVL	313440	8VINTHIL	1	500	345	Summer Gen Deliv	Included
2022W3-N1-ST84	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S1652	204539	27HUNTRSTN	205912	AD1-020 TAP	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST85	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST86	313399	6MARS	313805	6SHELLHORN1	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST87	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-N1-ST88	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S1649	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S47	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-GD-S1650	204538	27STRABAN	204529	27GERMANTN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST79	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-S1651	200064	PCHBTM1S	200004	CNASTONE	1	500	232/230	Summer Gen Deliv	Included
2022W3-N1-ST80	314916	8MORRSVL	313440	8VINTHIL	1	500/500	345/345	Summer N-1 Thermal	Included
2022W3-GD-S49	235503	01REID	235505	01RINGLD	1	138	201	Summer Gen Deliv	Included
2022W3-N1-ST81	314068	6OX	314039	6GALLOWS A	1	230/230	345/345	Summer N-1 Thermal	Included
2022W3-GD-S1653	207922	BRIS	204515	27YORKANA	1	230	227/229	Summer Gen Deliv	Included
2022W3-N1-ST82	205912	AD1-020 TAP	204544	27LINCOLN	1	115/115	227/227	Summer N-1 Thermal	Included
2022W3-GD-S1654	205912	AD1-020 TAP	204544	27LINCOLN	1	115	227	Summer Gen Deliv	Included
2022W3-N1-ST83	313904	6GOOSECRK	314006	6ASHBURA	1	230/230	345/345	Summer N-1 Thermal	Included

New Flowgates

None

Financial Information

Capital spend start date	10/2023
Construction start date	10/2027
Project Duration (In Months)	80

Additional Comments

Financial workbook has two versions. The redacted version is the public version. Also, the *.dxt files have been renamed as *.txt files in the zipped modeling files. Contact Larre Hozempa at lhozemp@firstenergycorp.com or 724.454.8617 with any follow-up questions.