ATSI 138kV Rebuild + Substation Terminal Upgrades

General Information

Proposing entity name	Confidential Information
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	Confidential Information
Company proposal ID	Confidential Information
PJM Proposal ID	605
Project title	ATSI 138kV Rebuild + Substation Terminal Upgrades
Project description	Rebuild/reconductor ten 138 kV lines in the ATSI transmission zone to resolve thermal overloads. Upgrade terminal equipment on the Beaver - Davis Besse 345 kV Line at Bayshore Substation, Davis Besse Substation, and Beaver Substation. Reconfigure the 345 kV line terminals at Beaver Substation.
Email	Confidential Information
Project in-service date	06/2029
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	Confidential Information

Project Components

1. Beaver - Johnson 138 kV Line
2. Ottawa - Lakeview 138 kV Line
3. Greenfield - Lakeview 138 kV Line
4. Avery - Shinrock 138 kV Line

5. Avery - Hayes 138 kV Line
6. Greenfield - Beaver 138 kV Corridor
7. Beaver Substation 345 kV Terminal Re-Arrangement
8. Beaver - Davis Besse 345 kV Line Terminal Upgrades
9. Davis Besse - Bayshore 345 kV Line Terminal Upgrades

Transmission Line Upgrade Component

Component title	Beaver - Johnson 138 kV Line
Project description	Confidential Information
Impacted transmission line	Beaver - Johnson 138 kV Line
Point A	Beaver (Bus # 238570)
Point B	Johnson (Bus # 238845)
Point C	
Terrain description	The terrain for the Beaver - Johnson 138 kV Line is flat/hilly, crossing major roads a total of three times, minor roads a total of 14 times, railroads a total of four times, and freshwater ponds a total of two times.
Existing Line Physical Characteristics	
Operating voltage	138 kV
Conductor size and type	336.4 kcmil 16/7 ACSS/TW (Type 23), 605 kcmil 24/7 ACSR, 795 kcmil 26/7 ACSR, 954 kcmil 54/7 ACSR
Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.
Tower line characteristics	The existing structures cannot accommodate the new transmission line conductor, which will require the line to be rebuilt.
Proposed Line Characteristics	

	Designed	Operating

Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	448.000000	516.000000
Winter (MVA)	448.000000	543.000000
Conductor size and type	795 kcmil 26/7 ACSS	
Shield wire size and type	OPGW-SEPOC SFSJ-J-6641 - 48 Fiber 58.0kA2·s 20,753Lbf - DIA 0.504	
Rebuild line length	9.51	
Rebuild portion description	The Beaver - Johnson 138 kV Line is 12.19 miles, but only 9.51 miles need to be rebuilt since the remaining 2.68 miles have enough capacity.	
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year $		
Engineering & design	Confidential Information	
Permitting / routing / siting	Confidential Information	
ROW / land acquisition	Confidential Information	
Materials & equipment	Confidential Information	
Construction & commissioning	Confidential Information	
Construction management	Confidential Information	
Overheads & miscellaneous costs	Confidential Information	
Contingency	Confidential Information	

Total component cost	$28,800,633.00
Component cost (in-service year)	$31,673,865.00

Transmission Line Upgrade Component

Component title	Ottawa - Lakeview 138 kV Line
Project description	Confidential Information
Impacted transmission line	Ottawa - Lakeview 138 kV Line
Point A	Ottawa (Bus # 239030)
Point B	Lakeview (Bus # 238874)
Point C	
Terrain description	The terrain is primarily flat.
Existing Line Physical Characteristics	
Operating voltage	138
Conductor size and type	795 kcmil 26/7 ACSS
Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.
Tower line characteristics	Structures #111.5 and #1467 will be replaced by a new steel monopole dead-end structure.
Proposed Line Characteristics	

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	491.000000	566.000000
Winter (MVA)	491.000000	595.000000

Conductor size and type	954 kcmil 45/7 ACSS
Shield wire size and type	The shield wire will not be replaced.
Rebuild line length	500 ft.
Rebuild portion description	Reconductor 1 span from Ottawa Substation to Structure 111.5 (250 ft). Reconductor 1 span from Lakeview Substation to Structure 1467 (250 ft).
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$1,411,405.00
Component cost (in-service year)	$1,516,889.00

Transmission Line Upgrade Component

Component title	Greenfield - Lakeview 138 kV Line

Project description	Confidential Information
Impacted transmission line	Greenfield - Lakeview 138 kV Line
Point A	Greenfield (Bus # 238768)
Point B	Lakeview (Bus # 238874)
Point C	
Terrain description	The terrain is flat and crosses major roads a total of 6 times, minor roads a total of 10 times, railroads a total of 4 times, and the Sandusky Bay a total of 1 time.

Existing Line Physical Characteristics

Operating voltage	138 kV
Conductor size and type	2 x 336.4 kcmil 26/7 ACSR
Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.
Tower line characteristics	The existing structures cannot accommodate the new transmission line conductor, which will require the line to be rebuilt.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	448.000000	516.000000
Winter (MVA)	448.000000	543.000000
Conductor size and type	795 kcmil 26/7 ACSS	
Shield wire size and type	OHGW ALUMOWELD - 7#8 - 0.385 DIA: 39388.80 lf	
Rebuild line length	13.45 miles	

Rebuild portion description	The Greenfield - Lakeview 138 kV Line is 14.31 miles, but only 13.45 miles need to be rebuilt since the remaining 0.86 miles have enough capacity.
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$59,689,293.00
Component cost (in-service year)	$66,582,003.00

Transmission Line Upgrade Component

Component title	Avery - Shinrock 138 kV Line
Project description	Confidential Information
Impacted transmission line	Avery - Shinrock 138 kV Line
Point A	Avery (Bus # 238549)

Point B	Shinrock (Bus # 239108)
Point C	
Terrain description	The terrain is flat/hilly, crossing major roads a total of 2 times, minor roads a total of 7 times, railroads a total of 1 time, and the Huron River a total of 1 time.

Existing Line Physical Characteristics

Operating voltage	138
Conductor size and type	605 kcmil 24/7 ACSR
Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.
Tower line characteristics	The existing structures cannot accommodate the new transmission line conductor, which will require the line to be rebuilt.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	448.000000	516.000000
Winter (MVA)	448.000000	543.000000
Conductor size and type	795 kcmil 26/7 ACSS	
Shield wire size and type	OHGW ALUMOWELD - 7#8 - 0.385 DIA: 39388.80 lf	
Rebuild line length	7.46	
Rebuild portion description	The entire 7.46 miles of line will be rebuilt.	
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.	

Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$15,200,480.00
Component cost (in-service year)	$16,512,183.00

Transmission Line Upgrade Component

Component title	Avery - Hayes 138 kV Line
Project description	Confidential Information
Impacted transmission line	Avery - Hayes 138 kV Line
Point A	Avery (Bus # 238549)
Point B	Hayes (Bus # 239290)
Point C	
Terrain description	The terrain is mostly flat.

Existing Line Physical Characteristics		
Operating voltage	138 kV	
Conductor size and type	605 kcmil 26/7 ACSR	
Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.	
Tower line characteristics	The existing structures cannot accommodate the new transmission line conductor, which will require the line to be rebuilt.	
Proposed Line Characteristics		
	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	448.000000	516.000000
Winter (MVA)	448.000000	543.000000
Conductor size and type	795 kcmil 26/7 ACSS	
Shield wire size and type	7#8 Alumoweld shield wire	
Rebuild line length	6.5 miles	
Rebuild portion description	The entire 6.5 miles of line will be rebuilt.	
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.	
Construction responsibility	Confidential Information	
Benefits/Comments	Confidential Information	
Component Cost Details - In Current Year $		
Engineering & design	Confidential Information	

Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$11,017,292.00
Component cost (in-service year)	$11,754,588.00

Transmission Line Upgrade Component

Component title	Greenfield - Beaver 138 kV Corridor
Project description	Confidential Information
Impacted transmission line	See multiple lines above
Point A	Greenfield (Bus # 238768)
Point B	Beaver (Bus # 238570)
Point C	
Terrain description	The terrain is mostly flat, crossing major roads a total of seven times, minor roads a total of 39 times, railroads a total of five times, the Vermillion River a total of nine times, and the Huron River a total of nine times.
Existing Line Physical Characteristics	
Operating voltage	138 kV
Conductor size and type	336.4 kcmil 26/7 ACSR, 795 kcmil 26/7 ACSR, 477 kcmil 26/7 ACSR

Hardware plan description	Due to the increased maximum operating temperature (MOT), all new insulator clamps will need to be high-temperature and all new dead-end clamps will need to be compression fittings.
Tower line characteristics	The existing structures cannot accommodate the new transmission line conductor, which will require the line to be rebuilt.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	138.000000	138.000000
	Normal ratings	Emergency ratings
Summer (MVA)	448.000000	516.000000
Winter (MVA)	448.000000	543.000000

Conductor size and type	795 kcmil 26/7 ACSS
Shield wire size and type	OPGW-SEPOC SFSJ-J-6641 - 48 Fiber 58.0kA2·s 20,753Lbf - DIA 0.504: 5227.2 lf
Rebuild line length	32 miles
Rebuild portion description	The entire 32 mile corridor will be rebuilt.
Right of way	All work will be within the existing right of way and no additional right of way is required. The permitting, routing, siting, ROW, and land acquisition costs below are due to activities related to land agents, public outreach, and property restoration.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information

Component Cost Details - In Current Year $

Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information

Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$131,433,946.00
Component cost (in-service year)	$147,592,315.00

Substation Upgrade Component

Component title	Beaver Substation 345 kV Terminal Re-Arrangement
Project description	Confidential Information
Substation name	Beaver (Bus # 238569)
Substation zone	202
Substation upgrade scope	At Beaver Substation: -Replace the limiting 3000 AAC substation conductor on the existing Carlisle 345 kV terminal (future AC2-103 terminal) -Install (1) 345 kV 3000 A Line Trap and Tuner on the existing Carlisle 345 kV terminal (future AC2-103 terminal) -Remove (1) Phase 1 Line Trap and Tuner (On the present Davis Besse 345 kV Terminal) Relaying & Control: -Install (1) 4C#10 CT cable (CT cables to connect the Davis Besse Carrier equipment and relay panels) -Revise relay settings

Transformer Information

None

New equipment description	- Replace (4) structures on the Beaver-Carlisle 345 kV Line to allow for the line to cross the Beaver-Davis Besse 345 kV Line, to accommodate the re-arrangement of line terminals at Beaver Substation. - Install (3) new structures on the Beaver-Carlisle 345 kV Line to allow for the line to cross the Beaver-Davis Besse 345 kV Line, to accommodate the re-arrangement of line terminals at Beaver Substation. - Install (2) new single circuit tubular steel monopole dead-end structures on the Beaver-Hayes 345 kV Line due to structure removals needed for the re-arrangement of line terminals at Beaver Substation.

Substation assumptions	- The existing AC/DC systems are adequate. - The Line Trap and Tuner will be new. - The existing SCADA transport at Beaver Substation is sufficient for additional SCADA telemetry.
Real-estate description	- All substation work will take place within Beaver Substation and not require expansion. - Approximately 0.15 miles of new ROW will be required for the Beaver - Davis Besse 345 kV Line.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$10,389,332.00
Component cost (in-service year)	$11,345,599.00

Substation Upgrade Component

Component title	Beaver - Davis Besse 345 kV Line Terminal Upgrades
Project description	Confidential Information
Substation name	Beaver (Bus # 238569), Davis Besse (Bus # 238654)
Substation zone	202

Substation upgrade scope	At Beaver Substation: -Replace (2) 345 kV circuit breakers (B182 & B185) with (2) 345 kV, 3000 A, 63 kAIC circuit breakers. -Replace (4) 345 kV disconnect switches (D181, D183, D184, & D186). -Replace limiting conductors. -Install (1) lot of cables and grounding for new equipment. -Revise relay settings At Davis Besse Substation: -Replace (2) 345 kV (D41 & D42) disconnect switches, with (2) 345 kV, 3000 A disconnect switches. -Replace (1 Lot) of limiting conductor from the terminal to the line dead-end. -Revise Relay Settings.

Transformer Information

None

New equipment description	At Beaver Substation: -Replace (2) 345 kV circuit breakers (B182 & B185) with (2) 345 kV, 3000 A, 63 kAIC circuit breakers. -Replace (4) 345 kV disconnect switches (D181, D183, D184, & D186). -Replace limiting conductors. -Install (1) lot of cables and grounding for new equipment. -Revise relay settings At Davis Besse Substation: -Replace (2) 345 kV (D41 & D42) disconnect switches, with (2) 345 kV, 3000 A disconnect switches. -Replace (1 Lot) of limiting conductor from the terminal to the line dead-end. -Revise Relay Settings.
Substation assumptions	- The existing SCADA transport at Beaver Substation is sufficient for additional SCADA telemetry. - The existing switch steel structures are adequate.
Real-estate description	No real estate or right of way acquisition is needed, as the scope of work is contained within Beaver and Davis Besse substations.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information

Component Cost Details - In Current Year $

Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information

Contingency	Confidential Information
Total component cost	$4,736,651.00
Component cost (in-service year)	$5,157,734.00

Substation Upgrade Component

Component title	Davis Besse - Bayshore 345 kV Line Terminal Upgrades
Project description	Confidential Information
Substation name	Davis Besse (Bus # 238654), Bayshore Substation (Bus # 238563)
Substation zone	202
Substation upgrade scope	At Bayshore Substation: -Replace (2) 345 kV, 2000 A motor operated disconnect switches (D34544W and D34544E) with (2) 345 kV, 3000 A motor operated disconnect switches. -Replace (2) 345 kV, 2000 A disconnect switches (D34545N and D34545S) with (2) 345 kV, 3000 A disconnect switches. -Replace (1) lot of 3500 SAC limiting conductor -Install grounding for the new disconnect switches. -Replace (1) lot of EHV connectors. -Replace two (2) line traps. -Revise relay settings. At Davis Besse Substation: -Replace (1) lot of 1024.5 ACAR, 1033.5 AAC, and 3500 SAC limiting conductor -Install conduits and grounding for the new disconnect switches. -Replace (1) lot of control cables. -Replace (1) lot of EHV connectors. -Replace (2) line traps. -Revise relay settings.

Transformer Information

None

New equipment description	At Bayshore Substation: -Replace (2) 345 kV, 2000 A motor operated disconnect switches (D34544W and D34544E) with (2) 345 kV, 3000 A motor operated disconnect switches. -Replace (2) 345 kV, 2000 A disconnect switches (D34545N and D34545S) with (2) 345 kV, 3000 A disconnect switches. -Replace (1) lot of 3500 SAC limiting conductor -Install grounding for the new disconnect switches. -Replace (1) lot of EHV connectors. -Replace two (2) line traps. -Revise relay settings. At Davis Besse Substation: -Replace (1) lot of 1024.5 ACAR, 1033.5 AAC, and 3500 SAC limiting conductor -Install conduits and grounding for the new disconnect switches. -Replace (1) lot of control cables. -Replace (1) lot of EHV connectors. -Replace (2) line traps. -Revise relay settings.
Substation assumptions	Bayshore Substation: - New switches can be installed on the existing structures and do not require conduit or control cable replacement. Davis Besse Substation: - New switches can be installed on the existing structures. - New conduits and control cables are required.

Real-estate description	No real estate or right of way acquisition is needed, as the scope of work is contained within Bayshore and Davis Besse Substations.
Construction responsibility	Confidential Information
Benefits/Comments	Confidential Information
Component Cost Details - In Current Year $	
Engineering & design	Confidential Information
Permitting / routing / siting	Confidential Information
ROW / land acquisition	Confidential Information
Materials & equipment	Confidential Information
Construction & commissioning	Confidential Information
Construction management	Confidential Information
Overheads & miscellaneous costs	Confidential Information
Contingency	Confidential Information
Total component cost	$2,477,455.00
Component cost (in-service year)	$2,659,740.00

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
2024W1-IPD-LL23	238570	02BEAVER	238981	02NASA	1	138	202	Light Load IPD	Included
2024W1-IPD-S313	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S314	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-IPD-LL22	238768	02GRNFLD	238981	02NASA	1	138	202	Light Load IPD	Included
2024W1-GD-S864	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S358	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S359	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S356	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S357	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S362	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S360	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S361	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S317	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S318	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S315	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-IPD-S316	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S321	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S354	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S322	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S355	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S319	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S320	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S353	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-GD-LL8	238768	02GRNFLD	238981	02NASA	1	138	202	Light Load Gen Deliv	Included
2024W1-N1-ST33	238768	02GRNFLD	238981	02NASA	1	138/138	202/202	Summer Thermal	Included
2024W1-IPD-S324	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-GD-LL12	238590	02BRWELL	238728	02FORD	1	138	202	Light Load Gen Deliv	Included
2024W1-N1-ST34	238768	02GRNFLD	238981	02NASA	1	138/138	202/202	Summer Thermal	Included
2024W1-IPD-S325	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-GD-LL9	238981	02NASA	238570	02BEAVER	1	138	202	Light Load Gen Deliv	Included
2024W1-GD-LL10	238974	02N DEPT	238590	02BRWELL	1	138	202	Light Load Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-IPD-S323	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S369	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S370	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S367	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S368	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S371	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S372	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-GD-S400	241877	AC2-103 TAP	238569	02BEAVER	1	345	202	Summer Gen Deliv	Excluded
2024W1-IPD-S328	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-GD-LL5	238768	02GRNFLD	238981	02NASA	1	138	202	Light Load Gen Deliv	Included
2024W1-IPD-S329	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S326	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S327	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S332	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-IPD-S365	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S366	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S330	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-IPD-S363	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S331	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S364	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-N1-ST38	238874	02LAKVEW	238768	02GRNFLD	1	138/138	202/202	Summer Thermal	Included
2024W1-N1-ST39	238981	02NASA	238570	02BEAVER	1	138/138	202/202	Summer Thermal	Included
2024W1-IPD-S336	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S337	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S301	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S334	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-IPD-S302	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S335	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-IPD-S340	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S341	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S338	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S339	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-N1-ST37	238981	02NASA	238570	02BEAVER	1	138/138	202/202	Summer Thermal	Included
2024W1-IPD-S300	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S333	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-GD-S897	239030	02OTTAWA	238874	02LAKVEW	1	138	202	Summer Gen Deliv	Included
2024W1-GD-LL29	238768	02GRNFLD	238974	02N DEPT	1	138	202	Light Load Gen Deliv	Included
2024W1-GD-LL30	238590	02BRWELL	238728	02FORD	1	138	202	Light Load Gen Deliv	Included
2024W1-GD-LL27	238974	02N DEPT	238590	02BRWELL	1	138	202	Light Load Gen Deliv	Included
2024W1-N1-ST49	238974	02N DEPT	238590	02BRWELL	1	138/138	202/202	Summer Thermal	Included
2024W1-GD-LL33	239030	02OTTAWA	238874	02LAKVEW	1	138	202	Light Load Gen Deliv	Included
2024W1-N1-ST55	238590	02BRWELL	238728	02FORD	1	138/138	202/202	Summer Thermal	Included
2024W1-N1-ST56	238590	02BRWELL	238728	02FORD	1	138/138	202/202	Summer Thermal	Included
2024W1-GD-S861	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S303	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-GD-LL31	238874	02LAKVEW	238768	02GRNFLD	1	138	202	Light Load Gen Deliv	Included
2024W1-GD-LL32	238768	02GRNFLD	238974	02N DEPT	1	138	202	Light Load Gen Deliv	Included
2024W1-IPD-S342	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-N1-ST48	238974	02N DEPT	238590	02BRWELL	1	138/138	202/202	Summer Thermal	Included
2024W1-IPD-S347	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S348	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S312	238768	02GRNFLD	238874	02LAKVEW	1	138	202	Summer IPD	Included
2024W1-IPD-S345	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S346	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S351	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S352	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-IPD-S349	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S350	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S306	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S307	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S304	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S305	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S310	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S343	238590	02BRWELL	238728	02FORD	1	138	202	Summer IPD	Included
2024W1-IPD-S311	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S344	238590	02BRWELL	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S308	238570	02BEAVER	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-IPD-S309	238768	02GRNFLD	238981	02NASA	1	138	202	Summer IPD	Included
2024W1-32GD-S19	238569	02BEAVER	239725	02LAKEAVE	2	345	202	2032 Summer Gen Deliv	Included
2024W1-N1-ST100	238549	02AVERY	239108	02SHNROK	1	138/138	202/202	Summer Thermal	Included
2024W1-32GD-S18	238563	02BAY SH	238654	02DAV-BE	1	345	202	2032 Summer Gen Deliv	Included
2024W1-GD-S851	238981	02NASA	238570	02BEAVER	1	138	202	Summer Gen Deliv	Included
2024W1-GD-S852	238981	02NASA	238570	02BEAVER	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S394	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-32GD-S23	238654	02DAV-BE	241877	AC2-103 TAP	1	345	202	2032 Summer Gen Deliv	Included
2024W1-IPD-S395	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-32GD-S22	238654	02DAV-BE	241877	AC2-103 TAP	1	345	202	2032 Summer Gen Deliv	Included
2024W1-GD-S353	238569	02BEAVER	239725	02LAKEAVE	2	345	202	Summer Gen Deliv	Included
2024W1-32GD-S21	238654	02DAV-BE	241877	AC2-103 TAP	1	345	202	2032 Summer Gen Deliv	Included
2024W1-IPD-S393	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-32GD-S20	238654	02DAV-BE	239289	02HAYES	1	345	202	2032 Summer Gen Deliv	Included
2024W1-GD-S850	238874	02LAKVEW	238768	02GRNFLD	1	138	202	Summer Gen Deliv	Included
2024W1-32GD-S26	239289	02HAYES	238569	02BEAVER	1	345	202	2032 Summer Gen Deliv	Included
2024W1-GD-S848	238768	02GRNFLD	238981	02NASA	1	138	202	Summer Gen Deliv	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-32GD-S25	238654	02DAV-BE	241877	AC2-103 TAP	1	345	202	2032 Summer Gen Deliv	Included
2024W1-GD-S849	238768	02GRNFLD	238981	02NASA	1	138	202	Summer Gen Deliv	Included
2024W1-32GD-S24	238654	02DAV-BE	241877	AC2-103 TAP	1	345	202	2032 Summer Gen Deliv	Included
2024W1-N1-ST73	238768	02GRNFLD	238974	02N DEPT	1	138/138	202/202	Summer Thermal	Included
2024W1-N1-ST76	238768	02GRNFLD	238974	02N DEPT	1	138/138	202/202	Summer Thermal	Included
2024W1-N1-ST103	239290	02HAYES	238549	02AVERY	1	138/138	202/202	Summer Thermal	Included
2024W1-GD-S855	238590	02BRWELL	238728	02FORD	1	138	202	Summer Gen Deliv	Included
2024W1-N1-ST104	239290	02HAYES	238549	02AVERY	1	138/138	202/202	Summer Thermal	Included
2024W1-GD-S856	238974	02N DEPT	238590	02BRWELL	1	138	202	Summer Gen Deliv	Included
2024W1-N1-ST101	238549	02AVERY	239108	02SHNROK	1	138/138	202/202	Summer Thermal	Included
2024W1-GD-S853	238974	02N DEPT	238590	02BRWELL	1	138	202	Summer Gen Deliv	Included
2024W1-GD-S858	238590	02BRWELL	238728	02FORD	1	138	202	Summer Gen Deliv	Included
2024W1-GD-S885	238570	02BEAVER	238845	02JONSON	1	138	202	Summer Gen Deliv	Included
2024W1-GD-S866	238549	02AVERY	239108	02SHNROK	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S380	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S381	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S378	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S379	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S382	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-GD-S865	238549	02AVERY	239108	02SHNROK	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S373	238768	02GRNFLD	238974	02N DEPT	1	138	202	Summer IPD	Included
2024W1-IPD-S376	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S377	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S374	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S375	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-32GD-S128	241877	AC2-103 TAP	238569	02BEAVER	1	345	202	N/A	Excluded
2024W1-IPD-S391	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S392	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2024W1-GD-S872	239290	02HAYES	238549	02AVERY	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S389	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S390	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S383	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S384	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-GD-S868	239290	02HAYES	238549	02AVERY	1	138	202	Summer Gen Deliv	Included
2024W1-IPD-S387	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S388	238549	02AVERY	239108	02SHNROK	1	138	202	Summer IPD	Included
2024W1-IPD-S385	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included
2024W1-IPD-S386	238549	02AVERY	239290	02HAYES	1	138	202	Summer IPD	Included

New Flowgates

Confidential Information

Financial Information

Capital spend start date	03/2025
Construction start date	06/2026
Project Duration (In Months)	51

Additional Comments

Please call or email with any questions.