Goalders Creek 230kV/115kV Switching Station

General Information

Proposing entity name	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Does the entity who is submitting this proposal intend to be the Designated Entity for this proposed project?	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Company proposal ID	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
PJM Proposal ID	525
Project title	Goalders Creek 230kV/115kV Switching Station
Project description	Construct 230/115kV switching at the future Goalders Creek 115kV substation and install a 299 MVA, 230/115kV transformer. Add a new bay position on the 115kV side, utilizing a four-breaker ring bus configuration to accommodate the 230/115kV transformer. Cut the existing Line #2016 from Lanexa to Harmony Village near the Goalders Creek substation. A three-breaker ring bus arrangement will be required on the 230kV side to accommodate the 230/115kV transformer and the 230kV line terminations. The terminal ends should be upgraded as needed to not limit the conductor rating.
Email	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Project in-service date	01/2029
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Project Components

1. Line 2016 Cut-in to Goalders Creek 230kV Substation
2. Goalders Creek Substation Expansion

3. Harmony Village Relay Reset

4. Lanexa Relay Reset

Transmission Line Upgrade Component

Component title	Line 2016 Cut-in to Goalders Creek 230kV Substation
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Impacted transmission line	Line 2016
Point A	Lanexa
Point B	Goalders Creek
Point C	Harmony Village
Terrain description	NA
Existing Line Physical Characteristics	
Operating voltage	230
Conductor size and type	1033.5 ACSS (45/7) 90°C MOT
Hardware plan description	New hardware will be used for the cut-in.
Tower line characteristics	Goalders Creek is being installed under project GITAC1065C and has not yet been constructed as of revision zero of this scope. The scope of work included on this project seeks to minimize impacts to recently constructed transmission assets.

Proposed Line Characteristics

	Designed	Operating
Voltage (kV)	230.000000	230.000000
	Normal ratings	Emergency ratings
Summer (MVA)	1573.000000	1573.000000

Winter (MVA)	1648.000000	1648.000000
Conductor size and type	2-768.2 ACSS/TW/HS (20/7) 250°C MOT	
Shield wire size and type	DNO-11410 OPGW	
Rebuild line length	0.23 Miles	
Rebuild portion description	EXISTING FACILITIES TO BE REMOVED: 1. Remove approx. 0.23 miles of line 2016 1033.5 ACSS 3-phase conductor from 2016/121 (85/121) to 2016/123 (1060/123). 2. Remove approx. 0.23 miles of 7#7 Alumoweld shield wire covering the South side of lines 85 and 2016 from 2016/121 (85/121) to 2016/123 (85/123). MODIFICATIONS TO EXISTING FACILITIES: 1. Install (3) 230kV crossing strain assemblies, (3) 230kV jumper loops, (1) OPGW strain assembly, and (1) OPGW catch assembly on the following (2) strs.: a. Strs. 2016/121 (85/121) and 2XX1/123 (1060/123) i. 2XX1/123 is the renumbered existing 2016/123. 2. Transfer (6) spans of 7#7 Alumoweld shield wire as follows: a. The existing substation shielding connecting 85/122A to 85/122 (1060/122) will be transferred to 2016/122A b. The existing substation shielding connecting 85/122B to 85/122 (1060/122) will be transferred to 2016/122A c. The two existing spans over line 1060 connecting 1060/122 (85/122) to 1060/123 (2XX1/123) will be transferred on both the ahead and back span of 1060/122A. 3. Transfer (2) spans of line 1060 1033.5 ACSS 3-phase conductor connecting 1060/122 (85/122) to 1060/123 (2XX1/123) to both the ahead and back span of 1060/122A. 4. Renumber ninety-one (91) existing strs. on line 2016 from 2016/123 (1060/123) to 2016/213 with line 2XX1 IDs. PERMANENT FACILITIES TO BE INSTALLED: 1. Install (1) 230kV double circuit deadend backbone structure on foundations as follows: a. Str. 2016/122A b. A double circuit backbone is being proposed to avoid blocking the line position within the 115kV station where this str. will be located. The lower circuit position will be left open for a future 115kV circuit. 2. Install (2) 230kV single circuit deadend backbone strs. on foundations as follows: a. Strs. 2016/122 (2XX1/122) and 1060/122A. b. Str. 1060/122A will block the spare line position in the proposed 230kV ring bus but it is required to mitigate blowout concerns to the adjacent str. 2016/122 (2XX1/122). 3. Install approx. 0.23 miles of 2-768 ACSS/TW/HS “Maumee” 230kV conductor as follows: a. Approx. 0.18 miles on line 2016 from 2016/121 (85/121) to 2016/122 (2XX1/122) b. Approx. 0.05 miles on line 2XX1 from 2XX1/122 (2016/122) to 2XX1/123 (1060/123) 4. Install approx. 0.23 miles of DNO-11410 OPGW covering the South side of the lines. 5. Install approx. 0.07 miles of 7#7 Alumoweld shield wire covering the North side of line 2016 from 2016/122A to 2016/122 (2XX1/122).	
Right of way	The proposed work requires approximately 1.47 acres of additional land around the station.	
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.	
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.	
Component Cost Details - In Current Year $		

Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$4,484,015.00
Component cost (in-service year)	$4,802,380.00

Substation Upgrade Component

Component title	Goalders Creek Substation Expansion
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Goalders Creek
Substation zone	345

Substation upgrade scope	Purchase & Install Substation Material: 1. (1) 115kV, 2000A, 40KA, SF6 Circuit Breaker 2. (3) 115kV, 40kA, 2000A Center Break Disconnect Switches 3. (1) 230/115kV 224 MVA transformer 4. (3) 90kV MO (S), 74kV MCOV Station Class Surge Arrester 5. (3) 18kV MO (S), 15.3kV MCOV Station Class Surge Arrester 6. (9) 180kV MO (S), 144kV MCOV Station Class Surge Arrester 7. (10) 230kV Coupling Capacitor Voltage Transformers with structures 8. (3) 230kV, 4000A, 80kA, SF6 Circuit Breaker 9. (7) 230kV, 4000A, 80kA, Double End Break Disconnect Switches 10. Approx. 1570FT of 5 IN Sch. 40Tubular Bus 11. Approx. 270FT of 3.5 IN Sch. 40Tubular Bus 12. (1) Static Pole Structure (by Transmission) 13. (1), Double Circuit Backbone Structure (by Transmission) at 230kV 14. One (1) 24’ x 40’ Control Enclosure 15. Approx. 400 FT of cable trough along with road crossing sections 16. Approx. 1100 linear FT of 12FT tall level 4 chain link fence with security features 17. Minor site preparation and grading work; gravel & equipment access road as required 18. Grounding grid for the entire station pad as per engineering standards 19. Conductors, connectors, insulators, conduits, control cables, foundations, steel structures and miscellaneous grounding material as per engineering standards Purchase & Install Relay Material: 1. (1) 1110 – Dual SEL-587Z Transmission Bus Panel 2. (1) 4200 – Bus Differential C.T. M.U. Box 3. (1) 4507 - Single Phase CCVT Potential M.U. Box 4. (1) 1217 – Dual SEL-487E Transmission Transformer w/High side CB 5. (5) 4510 - SEL-2411 Equipment Annunciator 6. (4) 1510 – Dual SEL-351 Transmission Breaker w/ Reclosing Panel 7. (2) 1340 – Dual SEL-411L DCB/PLC Line Panel 8. (3) 4506 – 3 Phase CCVT Potential M.U. Box 9. (2) 4000 – Station Service Potential M.U. Box 10. (2) 4018 – 500A Station Service AC Distribution Panel 11. (2) 4007 – 225A Outdoor Transmission Yard AC NQOD 12. (2) 4019 – 225A Three Phase Throwover Switch 13. (2) 4016 – 600 A Disconnect Switch Fused @ 500A 14. (1) 4153 – Wall Mount Station Battery Monitor 15. (1) 5618 – SEL-3555 Communications Panel 16. (1) 1255 – Station Annunciator Panel 17. (1) 5021 – SEL-2411 RTU Panel 18. (1) 5609 – Fiber Optic Management Panel 19. (1) 5202 – Digital Fault Recorder Cabinet (Verify Mfg. w/ Fault Analysis) 20. (1) 5616 – Station Security Panel 21. (1) 5616 – Station Security Fence Panel 22. (1) 5603 – Station Network Panel No. 1 23. (1) 5603 – Station Network Panel No. 2 24. (1) 4541 – Control Cable M.U. Box No. 1

Transformer Information

None

New equipment description	1. (1) 115kV, 2000A, 40KA, SF6 Circuit Breaker 2. (3) 115kV, 40kA, 2000A Center Break Disconnect Switches 3. (1) 230/115kV 224 MVA transformer 4. (3) 90kV MO (S), 74kV MCOV Station Class Surge Arrester 5. (3) 18kV MO (S), 15.3kV MCOV Station Class Surge Arrester 6. (9) 180kV MO (S), 144kV MCOV Station Class Surge Arrester 7. (10) 230kV Coupling Capacitor Voltage Transformers with structures 8. (3) 230kV, 4000A, 80kA, SF6 Circuit Breaker 9. (7) 230kV, 4000A, 80kA, Double End Break Disconnect Switches 10. Approx. 1570FT of 5 IN Sch. 40Tubular Bus 11. Approx. 270FT of 3.5 IN Sch. 40Tubular Bus 12. (1) Static Pole Structure (by Transmission) 13. (1), Double Circuit Backbone Structure (by Transmission) at 230kV 14. One (1) 24’ x 40’ Control Enclosure

Substation assumptions	1. The scope of work depicted on the drawings assumes that there is no overlap with other designs and construction activities, except if mentioned in this Project Summary. 2. 4-hole pad connections must be replaced with 6-hole pad connections to maintain 4000A ratings. 3. Relay Settings and P&C design will be revised as part of the SPE Scope of Work.
Real-estate description	
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Component Cost Details - In Current Year $	
Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$17,330,615.50
Component cost (in-service year)	$18,561,088.67

Substation Upgrade Component

Component title	Harmony Village Relay Reset
Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Harmony Village
Substation zone	345

Substation upgrade scope	Relay Reset Only

Transformer Information

None

New equipment description	N/A
Substation assumptions	1. The scope of work depicted on the drawings assumes that there is no overlap with other designs and construction activities, except if mentioned in this Project Summary.
Real-estate description	N/A
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Component Cost Details - In Current Year $	
Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$20,108.20
Component cost (in-service year)	$21,535.67

Substation Upgrade Component

Component title	Lanexa Relay Reset

Project description	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Substation name	Lanexa
Substation zone	345
Substation upgrade scope	Relay Reset Only

Transformer Information

None

New equipment description	N/A
Substation assumptions	1. The scope of work depicted on the drawings assumes that there is no overlap with other designs and construction activities, except if mentioned in this Project Summary.
Real-estate description	N/A
Construction responsibility	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Benefits/Comments	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Component Cost Details - In Current Year $

Engineering & design	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Permitting / routing / siting	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
ROW / land acquisition	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Materials & equipment	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction & commissioning	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Construction management	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Overheads & miscellaneous costs	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Contingency	The redacted information is proprietary to the Company; therefore, it is privileged and confidential.
Total component cost	$20,108.20
Component cost (in-service year)	$21,535.67

Congestion Drivers

None

Existing Flowgates

FG #	Fr Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type	Status
2025W1-ME2	314188	3WEST PT	314387	3LANEXA	1	115	345	Market Efficiency	Included

New Flowgates

The redacted information is proprietary to the Company; therefore, it is privileged and confidential.

Financial Information

Capital spend start date	10/2025
Construction start date	11/2027
Project Duration (In Months)	39

Additional Comments

None