Brewster Muni (Harmon) 69 kV - 2nd Source - Proposal #1

General Information

Proposing entity name	Information is considered confidential and proprietary.
Company proposal ID	Information is considered confidential and proprietary.
PJM Proposal ID	105
Project title	Brewster Muni (Harmon) 69 kV - 2nd Source - Proposal #1
Project description	Convert the 69 kV yard at Harmon into a six (6) breaker 69 kV ring bus. Build a new 69 kV line from Harmon to Brewster (Brewster-Harmon #2 69kV) in a different ROW and on independent structures than the existing Brewster-Harmon 69 kV line with 556 kcmil ACSR conductor, terminate the line just outside of the Brewster Muni substation at the customer dead end structure.
Project in-service date	06/2024
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. Brewster - Harmon #2 69 kV Line
2. Harmon 69 kV ring bus expansion
3. Cloverdale-Harmon No 1 69 kV Line
4. Cloverdale-Harmon No 2 69 kV Line

Greenfield Transmission Line Component

Component title	Brewster - Harmon #2 69 kV Line

Point A	Brewster Muni	
Point B	Harmon	
Point C		
	Normal ratings	**Emergency ratings**
Summer (MVA)	111.000000	134.000000
Winter (MVA)	125.000000	159.000000
Conductor size and type	556.5 kcmil 26/7 ACSR conductor	
Nominal voltage	AC	
Nominal voltage	69	
Line construction type	Overhead	
General route description	Proposed route selected for estimate is purple colored route in attached kmz file.	
Terrain description	Gently rolling. Primarily undeveloped forested or agricultural land use.	
Right-of-way width by segment	New 60' wide independent right of way. Parallel use of shared corridor where available. Assumes voluntary and timely acquisition of all rights needed for project at cost commensurate with current market. Assumes no condemnation. Two known railroad crossings permits required. See attached kmz and feasibility review files for additional details.	
Electrical transmission infrastructure crossings	None	
Civil infrastructure/major waterway facility crossing plan	See feasiblity review file for details.	
Environmental impacts	Stormwater permit required. Wetland and stream delineation will be completed. Assumes no wetland permit needed. Desktop review for sensitive habitats and cultural features. Assumes no significant findings.	
Tower characteristics	Wood monopoles primarily with steel monopoles utilized where wood pole/guying constraints have been identified.	
Construction responsibility	Information is considered confidential and proprietary.	
Additional comments	Information is considered confidential and proprietary.	

Component Cost Details - In Current Year $

Engineering & design	Information is considered confidential and proprietary.
Permitting / routing / siting	Information is considered confidential and proprietary.
ROW / land acquisition	Information is considered confidential and proprietary.
Materials & equipment	Information is considered confidential and proprietary.
Construction & commissioning	Information is considered confidential and proprietary.
Construction management	Information is considered confidential and proprietary.
Overheads & miscellaneous costs	Information is considered confidential and proprietary.
Contingency	Information is considered confidential and proprietary.
Total component cost	$8,000,231.25
Component cost (in-service year)	$8,259,100.00

Substation Upgrade Component

Component title	Harmon 69 kV ring bus expansion
Substation name	Harmon
Substation zone	ATSI
Substation upgrade scope	Convert the 69 kV yard at Harmon into a six (6) breaker 69 kV ring bus

Transformer Information

None

New equipment description	- Relocate (6) existing 69kV breakers to new locations in the ring bus. - Install (9) 69kV, 48kV MCOV surge arresters (three existing lines) - Install (2) 69kV A-frame deadends. - Install (1) lot of steel supports, rigid bus, conductor, and connectors as required per the attached layout. - Install (3) 69kV, 48kV MCOV arresters for Brewster No. 2 line exit. - Install (12) 69kV 2-winding CVTs for the transformers and Cloverdale lines. - Install (6) 69kV 3-winding CVTs for the Brewster tie lines. - Install (2) 69kV, 2000A Transformer MOABs. - Install (12) 69kV, 2000A GOAB switches for the relocated breakers. - Install (4) 69kV, 2000A line exit MOABS on the new deadends. - Install (4) sets of 69kV slip over CTs on for tie line metering. - Replace (2) SEL-551s with (2) SEL-587s (one each for TR3 and TR4) Assumptions: - 69 kV breakers can be reused - All existing 69 kV relaying can be reused with modifications - Existing relay panel has the space needed for the new relays to be installed - Slip over CTs will be installed on the 69 kV breakers for the Brewster line positions - Temporary re-routing of the existing Brewster line is required for expansion - LOR-ERs and SEL-587s can be installed in existing panels
Substation assumptions	- 204' x 42' expansion of the fence to accomodate the 69 kV ring bus. -69 kV breakers and relaying can be reused. Bus PTs will not be reused. -Disposal of spoils on-site. Less than 1/2 wetland impact associated with expansion.
Real-estate description	Assumes voluntary and timely acquisition of approximately 1 acre of additional land to the south from the adjacent property owner at cost commensurate with current market.
Construction responsibility	Information is considered confidential and proprietary.
Additional comments	Information is considered confidential and proprietary.

Component Cost Details - In Current Year $

Engineering & design	Information is considered confidential and proprietary.
Permitting / routing / siting	Information is considered confidential and proprietary.
ROW / land acquisition	Information is considered confidential and proprietary.
Materials & equipment	Information is considered confidential and proprietary.
Construction & commissioning	Information is considered confidential and proprietary.
Construction management	Information is considered confidential and proprietary.
Overheads & miscellaneous costs	Information is considered confidential and proprietary.
Contingency	Information is considered confidential and proprietary.

Total component cost	$7,185,323.00
Component cost (in-service year)	$7,592,600.00

Transmission Line Upgrade Component

Component title	Cloverdale-Harmon No 1 69 kV Line
Impacted transmission line	Cloverdale-Harmon No 1 69 kV Line
Point A	Cloverdale
Point B	Harmon
Point C	
Terrain description	Relatively Flat. Located on cleared substation property.

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	477 kcmil ACSR 24/7
Hardware plan description	Existing 6-year old hardware will be reused where feasible. No condition information available.
Tower line characteristics	N/A

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	69.000000	69.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	80.000000	96.000000
Winter (MVA)	90.000000	114.000000
Conductor size and type	477 kcmil 24/7 ACSR	

Shield wire size and type	Plan to resuse shield wire (7#8 Alumoweld)
Rebuild line length	100 feet
Rebuild portion description	Reroute the Cloverdale-Harmon No. 1 69kV line into the newly configured Harmon 69kV ring bus. The line shares (1) mutual structure with Cloverdale-Harmon No. 2 69kV, the second structure outside of Harmon Substation. This structure will be replaced as part of the reroute. The reroute will consist of the following removals: - Remove (1) single circuit wood deadend structure similar to TR-069030 - Remove approximately 100 ft of conductors and shield wire. The reroute will consist of the following installs: - Install (1) new single circuit wood delta strain structure TR-069023 - Install (1) double circuit wood light angle structure TR-069115 The reroute will consist of the following transfers: - Transfer existing conductors and shield wires to (2) new structures and to (1) new substation bay - Assumed the existing conductors and shield wire are in good condition and can be transferred to the new structures. - Assumed the adjacent structure to the newly installed structures can take the change in loading for the new configuration. - Assumed no siting is required due to line voltage.
Right of way	Company Fee Owned Property
Construction responsibility	Information is considered confidential and proprietary.
Additional comments	N/A

Component Cost Details - In Current Year $

Engineering & design	Information is considered confidential and proprietary.
Permitting / routing / siting	Information is considered confidential and proprietary.
ROW / land acquisition	Information is considered confidential and proprietary.
Materials & equipment	Information is considered confidential and proprietary.
Construction & commissioning	Information is considered confidential and proprietary.
Construction management	Information is considered confidential and proprietary.
Overheads & miscellaneous costs	Information is considered confidential and proprietary.
Contingency	Information is considered confidential and proprietary.
Total component cost	$657,052.83

Component cost (in-service year)	$677,900.00

Transmission Line Upgrade Component

Component title	Cloverdale-Harmon No 2 69 kV Line
Impacted transmission line	Cloverdale-Harmon No 2 69 kV Line
Point A	Cloverdale
Point B	Harmon
Point C	
Terrain description	Relatively Flat. Located on cleared substation property.

Existing Line Physical Characteristics

Operating voltage	69
Conductor size and type	795 kcmil ACSS 20/7
Hardware plan description	Existing structures are 6 years old. No condition information available.
Tower line characteristics	N/A

Proposed Line Characteristics

	Designed	**Operating**
Voltage (kV)	69.000000	69.000000
	Normal ratings	**Emergency ratings**
Summer (MVA)	183.000000	234.000000
Winter (MVA)	218.000000	249.000000
Conductor size and type	795 kcmil 20/7 ACSS 20/7	
Shield wire size and type	Plan to resuse shield wire (7#8 Alumoweld)	

Rebuild line length	100 feet
Rebuild portion description	Reroute the Cloverdale-Harmon No. 2 69kV line into the newly configured Harmon 69kV ring bus. The line shares (1) mutual structure with Cloverdale-Harmon No. 1 69kV, the second structure outside of Harmon Substation. This structure will be replaced as part of the reroute. The reroute will consist of the following removals: - Remove (1) single circuit wood deadend structure similar to TR-069030 - Remove approximately 30 ft of conductors and all 80 ft of shield wire between Harmon Substation and the removed deadend structure. The reroute will consist of the following installs: - Install (1) new single circuit wood deadend structure TR-069025 Structure will be within the substation. Structure grounding will need to be tied into the substation ground grid. - (1) new double circuit wood light angle structure TR-069115 will be installed. - Install approximately 100 ft of new 7#8 Alumoweld new shield wire in span from Harmon Substation to new deadend structure. The reroute will consist of the following transfers: - Transfer existing conductors to (2) new structures and to (1) new substation bay - Assumed the existing conductors are in good condition and can be transferred to the new structures. - Assumed the adjacent structures to the newly installed structures can take the change in loading for the new configuration. - Assumed the span between the new single circuit deadend structure and new double circuit angle structure can be unshielded. Shield wire will span between the Cloverdale-Harmon No. 1 69kV delta strain structure (approximately 35 ft south) and the double circuit angle structure. - Assumed no siting is required due to line voltage.
Right of way	Company Fee Owned Property.
Construction responsibility	Information is considered confidential and proprietary.
Additional comments	N/A

Component Cost Details - In Current Year $

Engineering & design	Information is considered confidential and proprietary.
Permitting / routing / siting	Information is considered confidential and proprietary.
ROW / land acquisition	Information is considered confidential and proprietary.
Materials & equipment	Information is considered confidential and proprietary.
Construction & commissioning	Information is considered confidential and proprietary.
Construction management	Information is considered confidential and proprietary.
Overheads & miscellaneous costs	Information is considered confidential and proprietary.

Contingency	Information is considered confidential and proprietary.
Total component cost	$614,053.71
Component cost (in-service year)	$633,300.00

Congestion Drivers

None

Existing Flowgates

FG #	From Bus No.	From Bus Name	To Bus No.	To Bus Name	CKT	Voltage	TO Zone	Analysis type
AMPT-O1	239767	02BREWSTR	239355	02HARMON	1	69	202	FERC 715

New Flowgates

None

Financial Information

Capital spend start date	10/2021
Construction start date	06/2023
Project Duration (In Months)	32

Additional comments

None