Brewster-Harmon 69 kV Parallel Line

General Information

Proposing entity name	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Company proposal ID	Proposal 5 (Brewster-Harmon Parallel)
PJM Proposal ID	978
Project title	Brewster-Harmon 69 kV Parallel Line
Project description	Designated Entity Statement of Intent: The Proposing Entity is not seeking consideration as the Designated Entity for the Project. The proposal assumes that the incumbent(s) would perform all work associated with the proposed solution. Project Description Info: Build a 3.73 mile greenfield 69 kV line from Harmon station to Brewster station in parallel with the existing AMPT line. Install a new 69 kV breaker at Harmon station and perform related station work to accommodate the new line. Modify the 69 kV bus at Harmon station to convert the existing breaker “B26” into a bus-tie breaker. Perform station work at Brewster to accommodate the new line. This project will satisfy AMPT’s 3.2.7 Delivery Point Exposure Criteria by connecting a second independent source to the load delivery point at Brewster station. Tie-line Impact Info: This project has no tie-line impact. The proposed greenfield 69 kV line will connect the same two PJM transmission owner zones: Area 202 ATSI (Brewster Station) and Area 202 ATSI (Harmon Station).
Project in-service date	12/2024
Tie-line impact	No
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	

Project Components

1. Greenfield 69 kV Line
2. Station Upgrade (Harmon)

Greenfield Transmission Line Component

Component title	Greenfield 69 kV Line	
Point A	Harmon Station 69 kV - 239355	
Point B	Brewster Station 69 kV - 239767	
Point C		
	Normal ratings	**Emergency ratings**
Summer (MVA)	93.000000	128.000000
Winter (MVA)	117.000000	144.000000
Conductor size and type	The new line will be constructed using 477 (26/7) ACSR Hawk conductor.	
Nominal voltage	AC	
Nominal voltage	The new line will be constructed as a 69kV AC line.	
Line construction type	Overhead	

General route description	The Proposing Entity evaluated the Proposed Route in respect to potential impacts to the surrounding communities, environment, constructability, operations and maintenance considerations, and cost effectiveness. Solutions were initially considered within a study area (see attached kmz), as the Proposed Solution utilized the existing Harmon Substation location and the existing Brewster Substation. This area was further refined based on an assessment of the existing infrastructure and the availability of property and/or suitable space. The Proposing Entity's Siting Team reviewed routes paralleling local roads, railroad lines, and parcel boundaries from the two project endpoints. Potential Routes were dismissed due to conflicts with the identified constraints in the study area. Major constraints include a U.S. Army Corps of Engineers (USACE) Levee, existing transmission lines, Fairless Schools, and several smaller constraints including cemeteries and habitable structures. Many of the identified constraints in the area were avoided or minimized by the Proposed Route. Starting at the existing Brewster Substation, the Proposed Route is approximately 3.7 miles in length and is located in mainly along agricultural parcels with scattered residential development to the existing Harmon Substation. The Proposed Route generally parallels parcel boundaries instead of overbuilding distribution lines within road ROW, which would bring the new transmission line within proximity of several habitable structures and require tree clearing along roads. The Proposed Route avoids the conflicts along Kings Hwy SE by crossing a USACE Levee perpendicularly, a known desire from USACE, and then parallels parcel boundaries until crossing over Mt. Eaton St. SW to continue north paralleling Baymere Ave SW. The Siting Team also reviewed potential routes along the USACE Levee to the north of Brewster Substation but there are several homes that would be within the proposed 60‘ ROW and building a new transmission line within USACE property would likely not be approved. After nearly 1,000 ft. along Baymere Ave. SW the Proposed Route then parallels existing rail lines and parcel boundaries until reaching the Harmon Substation.
Terrain description	The Project terrain is predominately rolling agricultural lands with scattered residential in Stark County, Ohio. Elevation along the proposed route ranges from approximately 965 to 1,062 feet above sea level, with an average elevation of 997 feet.
Right-of-way width by segment	The proposed Brewster – Harmon 69kV Line will require the acquisition of 3.73 miles of transmission line of 60’ (30’/30’) wide ROW. The project will begin at the existing Brewster Station in Stark County, Ohio and run in a northerly direction to the existing Harmon Station in Stark County, Ohio. A tabletop analysis found there were no public lands required for this Project. The private land use is predominantly agricultural and scattered residential that the tabletop analysis found and was verified through the Stark County Clerk’s Office which classified/assessed the land use as agricultural and residential. The private land requirements include acquiring 60’ (30’/30’) wide ROW in Stark County, Ohio where the land use is predominantly agricultural with scattered residential lands.

Electrical transmission infrastructure crossings	The project will involve two (2) electrical transmission infrastructure crossing under the existing Brewster - Harmon 69kV Line. The location of the first crossing is approximately: 400 42’ 21.16” N, 81 35’ 29.18”W The location of the second crossing is approximately: 400 42’ 19.70” N, 81 34’ 52.46”W The Proposed Route crosses existing transmission lines in locations to minimize impacts to the existing transmission lines (e.g. midspan for crossing over a larger voltage line and near an existing structure if crossing under an existing transmission line).
Civil infrastructure/major waterway facility crossing plan	The Project will involve one (1) electrical transmission crossing over one (1) levee belonging to the United States of America approximately 350’ east of the Incumbent’s existing Brewster Station & 400’ southwest of Kings Highway SE in Stark County, Ohio at 40deg42’-22.14”N; 81deg35’-30.30”W. The Project will involve two (2) electrical transmission crossings over existing rail lines. The first belonging to Corman (RJ Railroad Company) in Stark County, Ohio at 40deg42’-28.85”N; 81deg34’-41.88”W. The second belonging to Wheeling & Lake Erie Railroad Company in Stark County, Ohio at 40deg42’-46.02”N; 81deg34’-26.60”W.
Environmental impacts	Existing land along the route is rural, agricultural, and adjacent to roadways. Land use south of Harmon Station is undeveloped. Elm Run, its tributaries, and a very small portion of the 100-year floodplain transects the line. Tributaries of Wolf Creek and the Tuscarawas River also transect the line. Based on the National Wetland Inventory and aerial photographs, wetlands are located along the route. Physical impacts to streams within the project area are not anticipated. It is anticipated a Section 404 permit from the Army Corps of Engineers and Section 401 Water Quality Certification from Ohio EPA will be required for temporary access impacts, pole foundations within delineated wetlands, and forested wetland conversion within the new right-of-way.
Tower characteristics	The new 69kV line will require (55) tubular galvanized steel pole structures. The predominate structure type (39 structures) will be tangent monopoles with braced post insulators arranged in an alternating configuration. Additionally, the line will require (5) vertically configured running angle poles, and (11) deadend structures. The tangent pole structures will be supported by direct embedded foundations. The running angle pole structures will be supported by direct embedded foundations and guy and anchor systems. The deadend pole structures will be supported by a combination of direct embedded foundations with guy and anchor systems, and concrete pier foundations utilizing full length anchor bolts.
Construction responsibility	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Additional comments	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.

Component Cost Details - In Current Year $

Engineering & design	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.

Permitting / routing / siting	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
ROW / land acquisition	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Materials & equipment	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction & commissioning	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction management	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Overheads & miscellaneous costs	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Contingency	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Total component cost	$8,211,056.00
Component cost (in-service year)	$8,972,443.00

Substation Upgrade Component

Component title	Station Upgrade (Harmon)
Substation name	Harmon Station 69 kV - 239355
Substation zone	Area 202 ATSI – Zone 1234 FE-AK
Substation upgrade scope	At the existing First Energy – Harmon Station utilize the available breaker location in the 69KV bay which is located on the south-west corner of the station in order to install a new 69KV breaker, with corresponding line protection equipment along with a line exit that is planned to take off from the existing 69KV bay. This line exit will require a T-Line turning structure that may need to be located adjacent to the existing station fence. This proposal will not require a station expansion. This proposal will require the existing 69KV strain bus be re-configured in order to make the existing breaker B26 a 69KV bus tie breaker.

Transformer Information

None

New equipment description	Install 1 – 69kV, 2000A, 40kA CB that will require a slab foundation. Install corresponding jumpers with both sides of the breaker. Assume a total length of about 35’ for all required breaker jumpers.
Substation assumptions	At the existing First Energy – Harmon Station utilize the available breaker location in the 69KV bay which is located on the south-west corner of the station in order to install a new 69KV breaker, with corresponding line protection equipment along with a line exit that is planned to take off from the existing 69KV bay. This proposal will require the existing 69KV strain bus be re-configured in order to make the existing breaker B26 a 69KV bus tie breaker.
Real-estate description	No additional real estate will need to be purchased for the Incumbent’s existing Harmon Station for the project in Stark County, Ohio.
Construction responsibility	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Additional comments	

Component Cost Details - In Current Year $

Engineering & design	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Permitting / routing / siting	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
ROW / land acquisition	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Materials & equipment	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction & commissioning	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction management	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Overheads & miscellaneous costs	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Contingency	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.

Total component cost	$659,407.00
Component cost (in-service year)	$720,552.00

Substation Upgrade Component

Component title	Station Upgrade (Brewster)
Substation name	Brewster Station 69 kV - 239767
Substation zone	Area 202 ATSI – Zone 1234 FE-MASS
Substation upgrade scope	At the existing AMPT – Brewster Station, utilize the available T-Line arrangement on the 69kV Line and re-configure the line by removing the existing tie line connection and making the existing 69kV lines independent of each other. Install (2) sets of (3) – 69KV line CCVTs. This will require (1) individual pier foundation with each of the corresponding steel structures. Expand the station footprint onto the existing available space on the east side and install a new fence line totaling 220'. Include (3) – 20' gates. Install (2) - single 69KV CCVT to be located along the existing 69KV bus at two different locations. This installation will require a pier foundation and corresponding supporting steel for each. Existing fencing and gates on the East side of station will have to be removed.

Transformer Information

None

New equipment description	Install (2) sets of (3) – 69KV line CCVTs. This will require (1) individual pier foundation with each of the corresponding steel structures. Install (2) - single 69KV CCVT to be located along the existing 69KV bus at two different locations.
Substation assumptions	This proposal assumes that space for the proposed expansion of the station will be available along with space to install the equipment outlined in this description.
Real-estate description	The incumbent's existing Brewster Station fence will need expanding in an easterly direction on land presently owned by the incumbent. The fence expansion will not require any additional real estate to be purchased for the project in Stark County, Ohio.
Construction responsibility	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Additional comments	

Component Cost Details - In Current Year $

Engineering & design	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Permitting / routing / siting	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
ROW / land acquisition	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Materials & equipment	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction & commissioning	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Construction management	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Overheads & miscellaneous costs	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Contingency	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Total component cost	$647,713.00
Component cost (in-service year)	$707,773.00

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	01/2022
Construction start date	12/2023
Project Duration (In Months)	35

Additional comments

PLEASE NOTE – due to a “timeout” issue during upload of large zip files (~38MB), the Proposing Entity split the large “Project analysis attachments” on the General Information page, Supporting Documents section, into two attachments per recommendation of PJM staff. File 1 of 2 is in the “Project analysis attachments” location, and File 2 of 2 is in the “Market efficiency simulation modeling files” location.