

# Brewster-Alpine 69kV Greenfield 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 1 (Brewster-Alpine)
PJM Proposal ID	20
Project title	Brewster-Alpine 69kV Greenfield Line
Project description	Designated Entity Statement of Intent: The Proposing Entity seeks consideration as the Designated Entity for the Project. If selected, the Proposing Entity reserves the right to assign the Project to any of its affiliate(s) if circumstances deem appropriate. Any future assignment to affiliate(s) would be with PJM-established entities. The Proposing Entity does not foresee any potential assignment materially impacting the Project's constructability or schedule. Project Description Info: Build a 6.5 mile greenfield 69 kV line from Brewster station to the future Alpine station (herein referred to as 'proposed Alpine station' or 'Alpine station') included in AEP's proposed supplemental project to address need number AEP-2019-OH035 (Western Sub Regional RTEP: Need presented at the 06/17/2019 meeting and solution presented at the 11/20/2020). Expand Alpine station to a 5 breaker ring bus (previously proposed as a 4 breaker ring bus) to accommodate the new line from Brewster. 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: The proposed greenfield 69 kV line will connect two PJM transmission owner zones: Area 202 ATSI (Brewster Station) and Area 205 AEP (Alpine Station).
Project in-service date	06/2024
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	Yes
Additional benefits	Alpine station is in the advanced design stages since it has already been proposed in AEP's supplemental project to address need number AEP-2019-OH035. This will expedite the engineering process and could provide for a sooner in-service date.

## Project Components

1. Alpine Station Upgrade
2. Greenfield 69 kV Line
3. Brewster Station Upgrade

### Substation Upgrade Component

Component title	Alpine Station Upgrade
Substation name	Alpine Station 69 kV - 290062
Substation zone	Area 205 AEP - Zone 1256 AEP-OP-SUBT
Substation upgrade scope	The future Alpine station included in AEP's proposed supplemental project to address need number AEP-2019-OH035 was originally submitted as a 4-breaker ring bus. The scope of this project includes adding an additional breaker to make the final Alpine station a 5-breaker ring bus and all the associated station equipment to terminate the greenfield 69 kV line from Brewster station.

### Transformer Information

None

New equipment description	Expand the existing 69KV ring bus to add a new 69KV line to Brewster Station with the addition of 1-69KV, 3000A, 40KA circuit breaker; 2-69KV, 3000A group-operated CB disc. switches & steel str.; 1-set of 3-69KV line CCVTs & steel str.; 2-sets of 3-69KV bus arresters; 1-69KV, 3000A motor-operated line disc. switch & steel str.; 1-set of 3-69KV billing metering CT/PT combo units & steel str.; 1-set of 3-69KV line arresters; one (1) phase-over-phase take-off tower steel str. for the new 69KV line; two (2) H-frame style take-off tower steel str. to expand the ring bus; 2-shield wires; and associated stain bus, bus jumpers, bus tubing & dampening cable, insulators, foundations, yard lighting, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house. Remove one (1) 3-phase bus support str. & associated foundation, 3-insulators, and 84ft of bus tubing & dampening cable to accommodate the expansion of the existing 69KV ring bus.
Substation assumptions	This proposal assumes that the existing AC & DC systems will accommodate the new equipment, the existing control house has space for the new relay panels, ground grid upgrades will not be needed, the existing cable trench has space for the new control cables, ground grid resistivity test data are available, soil boring logs and geotechnical report are available, all necessary outages will be available, and space will be available to install the equipment outlined in this description.

Real-estate description	AEP's Alpine Station will need no fence or land expansion so no any additional real estate will be required to be purchased for the project in Holmes County, Ohio.
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.
<b>Component Cost Details - In Current Year \$</b>	
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	\$1,639,031.00
Component cost (in-service year)	\$1,791,014.00
<b>Greenfield Transmission Line Component</b>	
Component title	Greenfield 69 kV Line

Point A Brewster Station 69 kV - 239767

Point B Alpine Station 69 kV - 290062

Point C

	<b>Normal ratings</b>	<b>Emergency ratings</b>
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 reviewed numerous route combinations for the Proposed Solution evaluating each with 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 of 8 mi<sup>2</sup> (see attached kmz), as the Proposed Solution utilized the proposed AEP Alpine station location and the existing Brewster station. 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 along both local roads and parcel boundaries from the two project endpoints. During this process Potential Routes were dismissed due to conflicts with the identified constraints in the study area. Major constraints include a local conservation area, known as The Wilderness Center, existing gas transmission lines, 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 AEP's proposed Alpine station, the Proposed Route is approximately 6.5 miles in length and is located mainly along agricultural parcels with scattered residential development near to AMPT's Brewster station. The Proposed Route 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 substantial tree clearing along roads. Existing gas transmission lines are scattered throughout the study area but generally run east to west in the central part of the study area. In fact, a compressor station can be seen on the east side of Stone Ave. There are at least two gas transmission lines in the area which would limit ROW acquisition and provide further burden on landowners. The Proposed Route avoids the local conservation area but does cross National Wetland Inventory (NWI) identified wetlands and the Sugar Creek with several associated tributaries. The crossing locations of the streams were chosen to minimize potential impacts to NWI wetlands and tree clearing along the streams. The Proposed Route also avoids the impacts of a cemetery and commercial and residential development where U.S. Route 62 and County Route 93 intersect, in the center of Sugarcreek Township.

## Terrain description

The Proposed Route terrain is predominately rolling agricultural lands with scattered residential in Holmes, Wayne and Stark Counties, Ohio. Elevation within the Study Area ranges from approximately 960 to 1,237 feet above sea level, with an average elevation of 1,038 feet.

Right-of-way width by segment

The proposed line will require the acquisition of 6.5 miles of transmission line of 60' (30'/30') wide ROW. The project will begin at Alpine station in Holmes County, Ohio and run in a northeasterly direction to the existing Brewster Station in Stark County, Ohio. The 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 Holmes, Wayne & Stark Counties Clerk's Offices which classified/assessed the land use as agricultural and residential. The Proposing Entity will use proven land acquisition processes and approaches that have been successfully employed on projects over the years. Our initial land acquisition step is to verify current ownership by an examination of title, current property tax status, as well as document any liens, and or mortgages. We also research the status of the subsurface estate, determining whether it is severed from the surface. Once ownership is established, we negotiate with landowners based on the fair market value of the property needed for the ROW easements. Market data studies and appraisals, both general and for specific tracts, will be conducted to establish values and a basis for acquisition negotiations. We also pay for any crop damage and/or physical damage to property resulting from the construction and/or maintenance of the transmission line. Good Faith negotiations must be made with all landowners. Negotiations will be done in an ethical, non-confrontational and non-threatening manner with the landowners. The long term relationship with the landowners is paramount and will be kept in mind in all negotiations and honesty, integrity and professionalism will be displayed at all times. Negotiations will continue as long as practical to reach a voluntary agreement. If, and only if, it becomes evident that a voluntary fee purchase agreement between the company and the property owner cannot be reached, and other viable alternatives do not exist, the company may exercise the right of eminent domain to secure required property through condemnation proceedings.

Electrical transmission infrastructure crossings

The Project in Holmes, Wayne and Stark Counties, Ohio will not involve any electrical transmission infrastructure crossings.

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 in Stark County, Ohio at 40deg42'-13.74"N; 81deg35'-52.80"W. The Proposing Entity will follow standard operating procedures and guidelines set forth by the U.S. Army Corps of Engineers for routing of electrical lines over levees. Required permitting will be obtained in a timely manner in order to avoid schedule delays.

Environmental impacts

Existing land along the proposed route is rural and agricultural. Middle Fork Sugar Creek, Sugar Creek, and associated tributaries transect several locations along the line route. The 100-year floodplains for Middle Fork Sugar Creek, Sugar Creek, and Elm Run are also along the proposed route. Based on a review of the National Wetland Inventory and aerial photographs, wetlands are located along the route, primarily west of Wabash Avenue SW. To ensure appropriate due diligence is performed, detailed desktop studies and records reviews will be conducted for wetlands and streams, threatened and endangered species, and cultural and archaeological resources. Additionally, a field level delineation, habitat survey for species identified by the records review, and Phase 1 cultural/archaeological resource study will be performed. Following field studies, data will be digitized and provided to Engineering so that pole locations are sited to maximize avoidance of sensitive resources. For example, poles will be placed outside of or span wetlands, streams, and/or floodplains to the greatest extent possible. Existing access and roads will be utilized to access pole locations. If necessary, temporary access roads to pole locations will be identified and field surveyed for environmental and cultural/archaeological resources and will be adjusted to avoid or minimize impacts. For ground disturbance associated with the project, a storm water pollution prevention plan will be developed that specifies appropriate practices to manage construction storm water runoff. The project will apply for coverage under the Ohio EPA general construction storm water permit. County-level construction storm water permits will also be applied for in Stark and Wayne Counties. For temporary access and pole foundations within floodplains that cannot be avoided, an application for a floodplain permit will be made to the Holmes County Planning Commission and Stark County Soil and Water Conservation District. Physical impacts to streams within the project area are not anticipated. It's 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. Timing of construction will be executed in accordance with U.S. Fish and Wildlife Service and Ohio Department of Natural Resources criteria.

Tower characteristics

The new 69kV line will require (75) tubular galvanized steel pole pole structures. The predominate structure type (56 structures) will be tangent monopoles with braced post insulators arranged in an alternating configuration. Additionally, the line will also require (10) vertically configured running angle poles, and (9) 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. A sketch of the structures is attached.

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	\$7,764,344.00
Component cost (in-service year)	\$8,484,309.00

**Substation Upgrade Component**

Component title	Brewster Station Upgrade
Substation name	Brewster Station 69 kV - 239767
Substation zone	Area 202 ATSI – Zone 1234 FE-MASS
Substation upgrade scope	Retire portions of the existing 69 kV bus as Brewster station and install associated station equipment to terminate the greenfield 69 kV line from Alpine station into the second 69 kV breaker position.

**Transformer Information**



None

New equipment description

Install 2-sets of 3-69KV line CCVTs & steel str.; 2-69KV bus CCVTs & steel str. to be located along the existing 69KV bus at two different locations; and associated bus jumpers, foundations, control cables, conduits, and equipment grounding. Install associated relay equipment in the existing control house. Expand the station fenced area 20ft to the east including 160ft of fencing, 3-20ft gates, station stone, ground grid expansion, and fence grounding. Remove approximately 120ft of fencing and 3-gates (station East fencing/gates).

Substation assumptions

This proposal assumes that the existing AC & DC systems will accommodate the new equipment, the existing control house has space for the new relay panels, ground grid resistivity test data are available, soil boring logs and geotechnical report are available, all necessary outages will be available, and 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 in 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

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	\$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	09/2022
Project Duration (In Months)	29

## Cost Containment Commitment

Cost cap (in current year)	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Cost cap (in-service year)	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.

## Components covered by cost containment

1. Greenfield 69 kV Line - Transource

### Cost elements covered by cost containment

Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes
Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes
Additional Information	Please see the cost commitment legal language upload document for further details. This cost containment legal language document is privileged and company confidential and redacted from public view due to company confidential information.
Is the proposer offering a binding cap on ROE?	Yes
Would this ROE cap apply to the determination of AFUDC?	Yes
Would the proposer seek to increase the proposed ROE if FERC finds that a higher ROE would not be unreasonable?	No
Engineering & design	Yes
Permitting / routing / siting	Yes
ROW / land acquisition	Yes

Materials & equipment	Yes
Construction & commissioning	Yes
Construction management	Yes
Overheads & miscellaneous costs	Yes
Taxes	Yes
AFUDC	Yes
Escalation	Yes
Additional Information	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.
Is the proposer offering a Debt to Equity Ratio cap?	The redacted content contains proprietary and company confidential information the Proposing Entity requests be held from public view.

## **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.