Brewster Second Supply – Wilmot

General Information

Proposing entity name	AMPTRA
Company proposal ID	21-01
PJM Proposal ID	610
Project title	Brewster Second Supply – Wilmot
Project description	“Brewster Second Supply – Wilmot” will involve building a 5.5 mile-long 69 kV transmission line from the existing Brewster 69 kV substation to a new three breaker ring bus switchyard on the existing West Wilmot to Beartown 69 kV transmission line owned by AEP. The tap point on the West Wilmot to Beartown 69 kV transmission line will be approximately 1.3 miles from AEP’s West Wilmot 69 kV substation. No transformation is proposed at the new three breaker ring bus switchyard.
Project in-service date	05/2024
Tie-line impact	Yes
Interregional project	No
Is the proposer offering a binding cap on capital costs?	No
Additional benefits	The proposed Project will provide enhanced reliability for the Village of Brewster and enhance transmission supply capacity to supply any future load growth at the Village of Brewster.

Project Components

1. Brewster to Brewster Second Supply – Wilmot
2. Brewster Second Supply – Wilmot Switchyard
3. Brewster 69 kV Substation

Greenfield Transmission Line Component

Component title	Brewster to Brewster Second Supply – Wilmot

Point A	Brewster 69 kV	
Point B	Brewster Second Supply – Wilmot Switchyard (new)	
Point C		
	Normal ratings	**Emergency ratings**
Summer (MVA)	80.000000	108.000000
Winter (MVA)	80.000000	108.000000
Conductor size and type	336.4 MCM 26/7 ACSR	
Nominal voltage	AC	
Nominal voltage	69	
Line construction type	Overhead	
General route description	Land use along the Brewster to Wilmot route is predominately agricultural with some industrial and residential land uses near the towns of Brewster and Wilmot, Ohio.	
Terrain description	The terrain for the proposed route in this PJM Application generally cross agricultural lands with some industrial and residential land uses. The terrain crossed is that of typical northeastern Ohio which is characterized of flat to gently rolling terrain.	
Right-of-way width by segment	60 feet row width is required for all segments of the 69 kV transmission line.	
Electrical transmission infrastructure crossings	None identified	
Civil infrastructure/major waterway facility crossing plan	None identified	

Environmental impacts	South of the existing Brewster Substation, this route crosses through United State Fish and Wildlife Service (USFWS) National Wetlands Inventory mapped palustrine forested and palustrine scrub-shrub forests (Figure_1_Brewster-Wilmot_NWI.pdf) and floodplains associated with Sugar Creek and Middle Fork of Sugar Creek. The USFWS Information for Planning and Consultation website (IPaC) lists one endangered bat, the Indiana bat (Myotis sodalis), and one threatened bat, the northern long-eared bat (Myotis septentrionalis) as the federally listed species within 0.5 miles of the Brewster to Wilmot Project area (Attachment A, Brewster to Brewster Second Supply - Wilmot). Additionally, this route is within 0.6 mile of a documented eagle's nest. The Ohio Department of Natural Resources lists 11 state-listed endangered species and three state-listed threatened species for Stark County (Attachment B, Brewster to Brewster Second Supply - Wilmot). The wetlands, streams, and the forested area are likely to provide habitat for some of these state-listed species. Winter tree clearing (between October 1- March 31) will likely be required for this project to minimize impacts to state or federally listed bat species. Cultural or historic resources may be located within the Project area, requiring desktop review, field survey, and coordination with the state historic preservation office. If new property is required for a substation, a Phase I Environmental Site Assessment is recommended to confirm there are no contaminated soils on-site, prior to purchase.
Tower characteristics	Wood pole/light steel, single circuit, Delta design, 10' phase-phase distance , 9' phase - OHGW is proposed for the 69 kV transmission towers.
Construction responsibility	AMPT

Additional comments	1. AMP Transmission has estimated 30 months to complete the construction and commissioning of the proposed Project. The Project will be initiated immediately upon award. 2. It is AMP's understanding that AEP may pursue transmission related enhancements that may involve the expansion of the West Wilmot 69 kV substation or construction of another 69 kV substation or switchyard on the existing West Wilmot to Beartown 69 kV transmission line. We have no further details on where or how AEP may pursue any infrastructure expansion or buildout on the existing West Wilmot to Beartown 69 kV transmission line. However, there may be an opportunity to find mutual efficiencies with our proposal for this project and AEP's plans for infrastructure expansion or buildout on the existing West Wilmot to Beartown 69 kV transmission line. Upon award, AMP Transmission will initiate discussions with AEP to understand their plans for any upgrades or additions on the West Wilmot to Beartown 69 kV transmission line and make all efforts to find opportunities for mutual efficiencies. Such endeavor may reduce the cost of the proposed Project. 3. Additonal details on environmental impacts: Permitting Impacts to the stream and wetland resources within the project area will likely require 404 and 401 permits from the USACE. The Project would be covered under the new Nationwide Permit 57 for Electric Utility Lines and would likely require pre-construction notification. The Project is shown to be in the Ohio Environmental Protection Agency's (OEPA) "Eligible" area for 401 Water Quality Certification (WQC), so pending impacts and compliance with permit conditions, the Project is not likely to require an Individual 401 WQC (Attachment C, Brewster to Brewster Second Supply - Wilmot). However, if over 0.5 acre of wetland are impacted, a USACE Individual 404 permit and an Individual OEPA 401 permit may be required. Individual permits are more time consuming to prepare, include a six-month review period by the agencies, and require costly mitigation for stream and wetland impacts. This project is not Ohio Power Siting Board (OPSB) jurisdictional and thus OPSB permitting and approval are not required. 4. Land Acquisition AMPT will utilize a Land Acquisition Plan that has proven successful on projects over the past decade. An outline of the typical Land Acquisition Plan is included (Attachment D).
Component Cost Details - In Current Year $	
Engineering & design	Detailed cost estimates are confidential.
Permitting / routing / siting	Detailed cost estimates are confidential.
ROW / land acquisition	Detailed cost estimates are confidential.
Materials & equipment	Detailed cost estimates are confidential.
Construction & commissioning	Detailed cost estimates are confidential.
Construction management	Detailed cost estimates are confidential.
Overheads & miscellaneous costs	Detailed cost estimates are confidential.
Contingency	Detailed cost estimates are confidential.

Total component cost	$7,705,398.22
Component cost (in-service year)	$7,705,398.22

Greenfield Substation Component

Component title	Brewster Second Supply – Wilmot Switchyard
Substation name	Brewster Second Supply – Wilmot Switchyard
Substation description	The project will establish a Brewster Second Supply – Wilmot 69kV switchyard. The Brewster Second Supply – Wilmot switchyard will be configured as a three (3) 69kV breaker ring bus and will be approximately 1.3 miles from AEP's West Wilmot 69 kV substation along the existing West Wilmot to Beartown 69 kV transmission line owned by AEP. A new Brewster 69kV circuit will terminate into the new Brewster Second Supply – Wilmot switchyard. The switchyard will be located in the vicinity of the existing 69kV circuit. The existing 69kV circuit will be cut-in to the new Brewster Second Supply – Wilmot switchyard. Typical design criteria are as follows: System: • Nominal Phase-to-Phase Voltage - 69kV • Maximum Phase-to-Phase Voltage - 72.5kV • Nominal Phase-to-Ground Voltage - 39.8kV • Maximum Phase-to-Ground Voltage - 41.9kV • Basic Impulse Level (BIL) - 350kV • Continuous Current, Main Bus - 2000A • Ultimate Short Circuit - 40kA Clearance: • Metal to Metal for F to F - 2'-5" • Minimum F to Ground - 2'-2" • Station Post Insulator Height for Standard Strength - 30" • Min. Conductor Height Above Fence for Safety - 11'-7" • Vertical Clearance from Live Parts for Personnel Safety - 10'-5" • Horizontal Clearance from Live Parts for Personnel Safety - 4'-11" • Height of Conductor Over Roadway - 19'-0" Bus Spacing: • Bus Centerline, Phase to Phase - 7'-0" • Low Bus Height - 15' • High Bus Height - 20'
Nominal voltage	AC
Nominal voltage	69

Transformer Information

None

Major equipment description	Equipment: • Control Enclosure - QTY: 1, Pre-fabricated, Relay panels pre-installed • Circuit Breakers: o Qty: 3, 69kV, 350kV BIL, Dead Tank, 2000A Continuous Current, 40kA Interrupting Current, Bushing CTs 2 per bushing C800 • Instrument Transformers: o QTY: 9, Coupling Capacitor Voltage Transformers, 69kV, 350kV BIL, 350/600:1 Winding Ratio, 115/67V Secondary Voltage • Metering Transformers: Specification TBD per design, Metering Class Potential Transformers, Metering Class Current Transformers • Disconnect Switches: o QTY: 6, 72.5 kV maximum voltage, 2000 Ampere continuous current rating, 350 kV BIL, 63 kA short-time (3 sec.), 164 kA peak withstand, 100 kA momentary rated three pole aluminum live part center break V style disconnect switch. Complete with TR-278 porcelain insulators, worm gear operator, standard arcing horns, open/closed indicator • Station Service Voltage Transformer: 69kV, TBD kVA Power Rating, 120/240V Secondary Voltage, , Additional SSVT or local secondary source • Arrestors: o QTY: 9, 69kV, 350kV BIL, 48kV MCOV, 54kV Rated Voltage, Station Class • Protection and Control (Relaying): Specification TBD per design

	Normal ratings	**Emergency ratings**
Summer (MVA)	239.000000	300.000000
Winter (MVA)	239.000000	300.000000

Environmental assessment	South of the existing Brewster Substation, this route crosses through United State Fish and Wildlife Service (USFWS) National Wetlands Inventory mapped palustrine forested and palustrine scrub-shrub forests (Figure_1_Brewster-Wilmot_NWI.pdf) and floodplains associated with Sugar Creek and Middle Fork of Sugar Creek. The USFWS Information for Planning and Consultation website (IPaC) lists one endangered bat, the Indiana bat (Myotis sodalis), and one threatened bat, the northern long-eared bat (Myotis septentrionalis) as the federally listed species within 0.5 miles of the Brewster to Wilmot Project area (Attachment A, Brewster to Brewster Second Supply - Wilmot). Additionally, this route is within 0.6 mile of a documented eagle’s nest. The Ohio Department of Natural Resources lists 11 state-listed endangered species and three state-listed threatened species for Stark County (Attachment B, Brewster to Brewster Second Supply - Wilmot). The wetlands, streams, and the forested area are likely to provide habitat for some of these state-listed species. Winter tree clearing (between October 1- March 31) will likely be required for this project to minimize impacts to state or federally listed bat species. Cultural or historic resources may be located within the Project area, requiring desktop review, field survey, and coordination with the state historic preservation office. If new property is required for a substation, a Phase I Environmental Site Assessment is recommended to confirm there are no contaminated soils on-site, prior to purchase.

Outreach plan	AMPT values the input of its members, the general public, and local officials. AMPT will incorporate an outreach plan throughout the project. Pending the tie-in location selected for this project, the outreach plan will start with routing of the greenfield transmission lines and potential switch yard or substation sites. The outreach plan will include a communication plan based on constraints in the Project area and requirements of the Ohio Power Siting Board (if required). A public meeting is anticipated to communicate the project need and the alternative routes that were studied. Agency stakeholders will be notified of the project and will be included in the outreach plan from initial project announcement through construction. Input from the public will assist in the siting and routing of the project components to gather local constraints not included in publicly available data.
Land acquisition plan	AMPT will utilize a Land Acquisition Plan that has proven successful on projects over the past decade. An outline of the typical Land Acquisition Plan is included (Attachment D). Each landowner may require a different approach and our Plan provides direction on a process to successfully work with each landowner. A relationship is built between our land agent and each landowner throughout the process and remains consistent after construction during soil stabilization.
Construction responsibility	AMPT
Additional comments	Additional information on environmental impacts: Permitting Impacts to the stream and wetland resources within the project area will likely require 404 and 401 permits from the USACE. The Project would be covered under the new Nationwide Permit 57 for Electric Utility Lines and would likely require pre-construction notification. The Project is shown to be in the Ohio Environmental Protection Agency's (OEPA) "Eligible" area for 401 Water Quality Certification (WQC), so pending impacts and compliance with permit conditions, the Project is not likely to require an Individual 401 WQC (Attachment C, Brewster to Brewster Second Supply - Wilmot). However, if over 0.5 acre of wetland are impacted, a USACE Individual 404 permit and an Individual OEPA 401 permit may be required. Individual permits are more time consuming to prepare, include a six-month review period by the agencies, and require costly mitigation for stream and wetland impacts. This project is not Ohio Power Siting Board (OPSB) jurisdictional and thus OPSB permitting and approval are not required. Floodplain permits and/or floodway studies may be required if new structures are installed within the floodplain or floodway. Additional local permits will likely be required for work in or near road right-of-way, storm water pollution prevention plan review and approval, building permits, road crossing permits, and other similar local permits. The routing process will take land use and environmental resources into consideration and will attempt to avoid/minimize impacts to reduce permitting requirements and timelines.

Component Cost Details - In Current Year $

Engineering & design	Detailed cost estimates are confidential.
Permitting / routing / siting	Detailed cost estimates are confidential.
ROW / land acquisition	Detailed cost estimates are confidential.

Materials & equipment	Detailed cost estimates are confidential.
Construction & commissioning	Detailed cost estimates are confidential.
Construction management	Detailed cost estimates are confidential.
Overheads & miscellaneous costs	Detailed cost estimates are confidential.
Contingency	Detailed cost estimates are confidential.
Total component cost	$4,707,767.82
Component cost (in-service year)	$4,707,767.82

Substation Upgrade Component

Component title	Brewster 69 kV Substation
Substation name	Brewster 69 kV
Substation zone	ATSI
Substation upgrade scope	No significant upgrades to the existing substation are envisioned. The new 69 kV line will be terminated at an existing bay position and utilize an existing 69 kV circuit breaker. The following upgrades are envisioned: Line relaying upgrades Upgrades to communications and SCADA, as needed CCVT upgrade Dead end upgrade. Arrestors will be added Removal of tie bus Removal of a set of metering transformers

Transformer Information

None

New equipment description	• Instrument Transformers: o Coupling Capacitor Voltage Transformers, Qty: 3, 69kV, 350kV BIL, 350/600:1 Winding Ratio, 115/67V Secondary Voltage • Protection and Control (Relaying): Specification TBD per design o Arrestors, Qty: 3, 69kV, 350kV BIL, 48kV MCOV, 54kV Rated Voltage, Station Class
Substation assumptions	No expansion of the substation fence will be required. All work will be completed within the existing substation fence. Existing control house can support the addition of new line relaying panels.
Real-estate description	Substation expansion is not expected at Brewster 69 kV substation. Hence, no additional real estate will be required.

Construction responsibility	AMPT
Additional comments	

Component Cost Details - In Current Year $

Engineering & design	Detailed cost estimates are confidential.
Permitting / routing / siting	Detailed cost estimates are confidential.
ROW / land acquisition	Detailed cost estimates are confidential.
Materials & equipment	Detailed cost estimates are confidential.
Construction & commissioning	Detailed cost estimates are confidential.
Construction management	Detailed cost estimates are confidential.
Overheads & miscellaneous costs	Detailed cost estimates are confidential.
Contingency	Detailed cost estimates are confidential.
Total component cost	$610,070.66
Component cost (in-service year)	$610,070.66

Congestion Drivers

None

Existing Flowgates

None

New Flowgates

None

Financial Information

Capital spend start date	12/2021
Construction start date	10/2023
Project Duration (In Months)	29

Additional comments

None