Western Sub Regional RTEP:
AEP Supplemental Projects

May 15, 2026

Changes to Existing Solution

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

AEP Transmission Zone M-3 Process
South East Canton, OH

Need Number: AEP-2025-OH020

Process Stage: Solution Meeting 05/15/2026

Previously Presented: Solution Meeting 04/15/2026, Need Meeting 09/19/2025

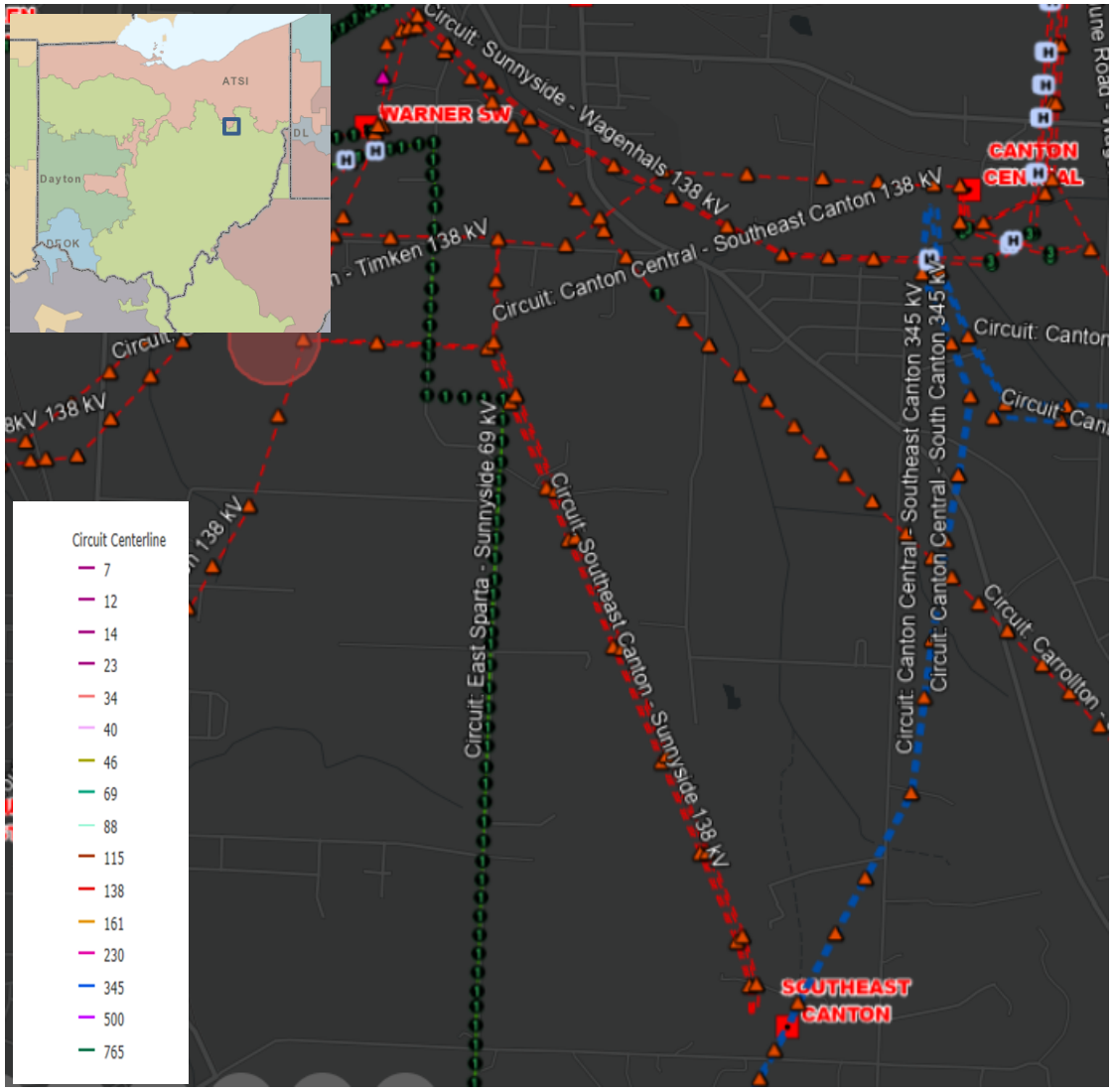
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:

A Customer has requested 138 kV transmission service at a site near AEP's existing Southeast Canton station in Canton, OH. Total demand to be served at the delivery point will be 312MW. Customer requested in-service date of 01/08/2028.



AEP Transmission Zone M-3 Process
Vettel, OH/Sunnyside, OH/Southeast Canton, OH/ South Canton, OH/Vettel Customer, OH/Torrey, OH

Need number(s): AEP-2025-OH020

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Vettel 138 kV: Construct a greenfield breaker and a half station operated as a ring bus with (6) 138 kV 3000A 63 kA circuit breakers. To accommodate the new station remote end work at South Canton, Southeast Canton, & Sunnyside will be required. Estimated Cost: $16.491 M

Vettel 138 kV Extensions: Cut into the Southeast Canton - South Canton and Southeast Canton - Sunnyside 138 kV lines with (2) ~0.36 mile double circuit lines utilizing 1033.3 KCM ACSR 54/7 Curlew (SE 822 MVA), to accommodate the greenfield Vettel Station.. Estimated Cost: $9.202 M

Vettel - Vettel Customer 138 kV: Install (2) ~0.1 mile customer feeds from Vettel station utilizing 1272 ACSR 54/19 Pheasant (SE 963).. Estimated Cost: $1.712 M

Torrey 138 kV: Expand Torrey with the installation of ~~(2)~~ (2) 138 kV 3000A 63 kA circuit breakers to allow the elimination of the Torrey Bypass; re-termination and remote end settings updates at Timken Richville & Timken Stations will be required to account for the new circuit breakers. Replace existing 138kV 40kA circuit breaker AF with 63kA unit. Sub-conductor on the Torrey 138 kV Bus Tie Branch will be replaced with 2000 KCM AAC, 91-Str. (SE 449) to accommodate the additional load flow.. Estimated Cost: ~~$4.362 M,~~ ($5.662M)

Transmission Cost Estimate: ~~$31.766 M~~ ($33.07M)

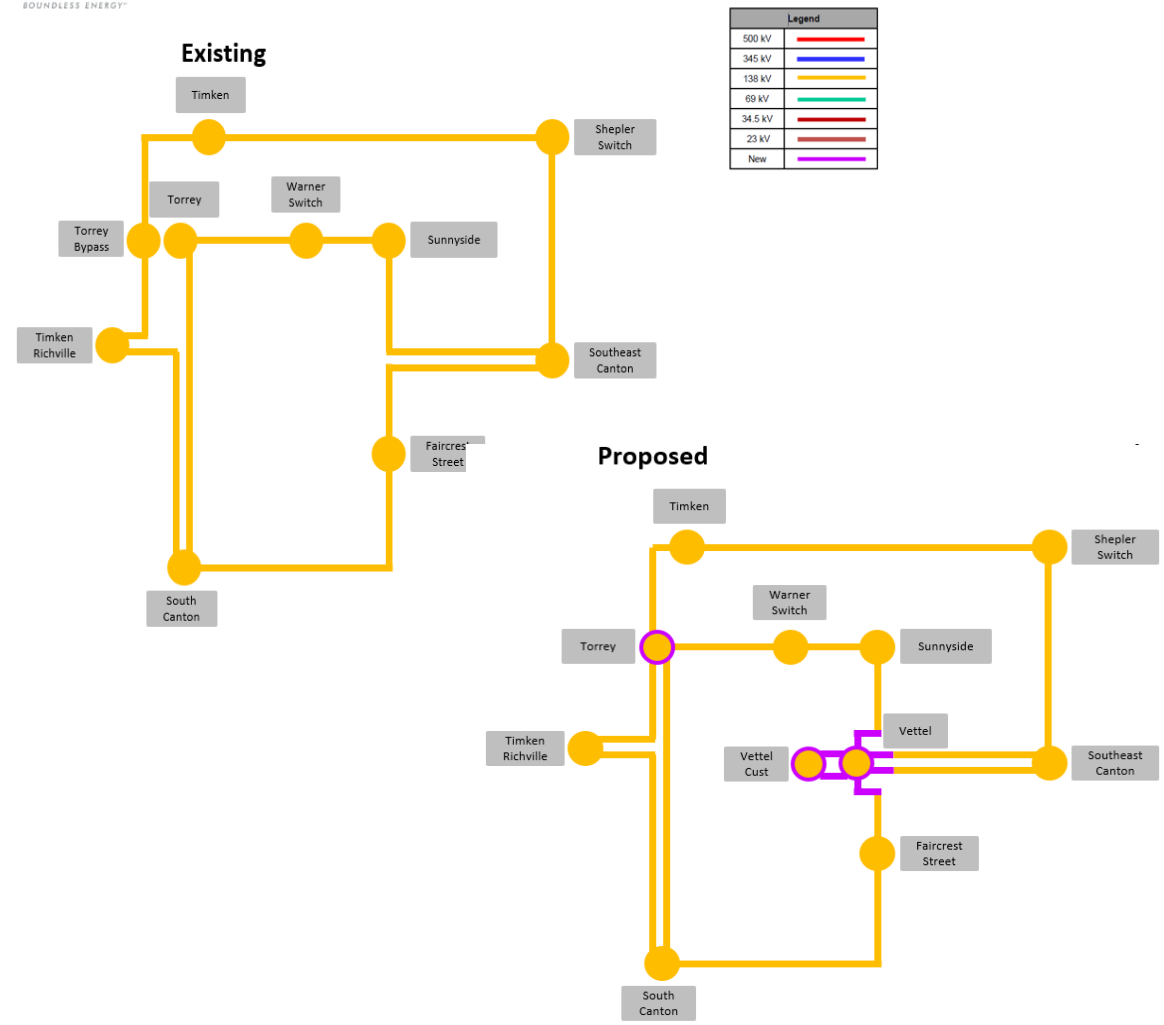
Alternatives Considered:

Considering the location of the customer facilities and timing of the request, no other viable transmission alternatives were identified.

Projected In-Service: 01/07/2028

Project Status: Engineering

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

AEP Transmission Zone M-3 Process
Falcon, KY

Need Number: AEP-2026-AP002

Process Stage: Need Meeting 05/15/2026

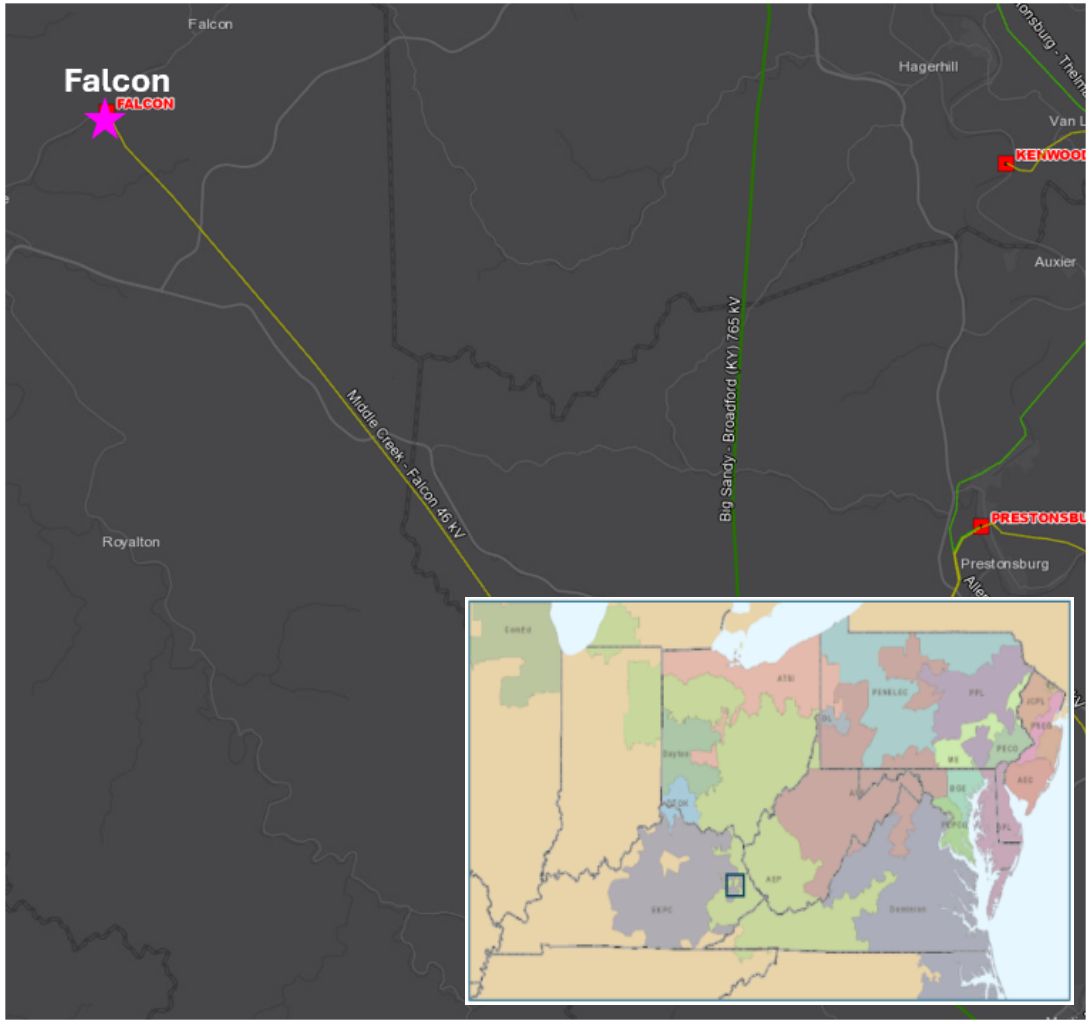
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:

Falcon Station is in Salyersville, KY. Falcon station is constructed with deteriorated wood tie foundations on the 69/46 kV and 69/12 kV transformers, wood pole structures, and does not have a control house, exposing all relaying to the elements inside the station. Additionally, there are multiple overlapping zones of protection due to no automatic sectionalizing devices on the transformers. All four 12 kV distribution circuit breakers are 1985 vintage, oil filled without containment, are in poor health, and exceeded manufacturer's designed fault operations. All 28 relays at Falcon are in need of replacement; 22 are electromagnetic which are no longer supported by the manufacturer and do not have data collection abilities that modern processer-based relays have, and the other 6 are microprocessor relays with outdated, legacy firmware. 69/46 kV transformer #1 is 1963 vintage. 69/12 kV transformer #2 is 1985 vintage, is in poor health, and historically highly loaded. Both transformers are delta high side connected so under the contingency scenario of losing the tie line to EKPC, Falcon would not have a source for ground faults on the 69 kV and is subject to poor power quality at the station.



AEP Transmission Zone M-3 Process
Kenova, WV

Need Number: AEP-2026-AP004

Process Stage: Need Meeting 05/15/2026

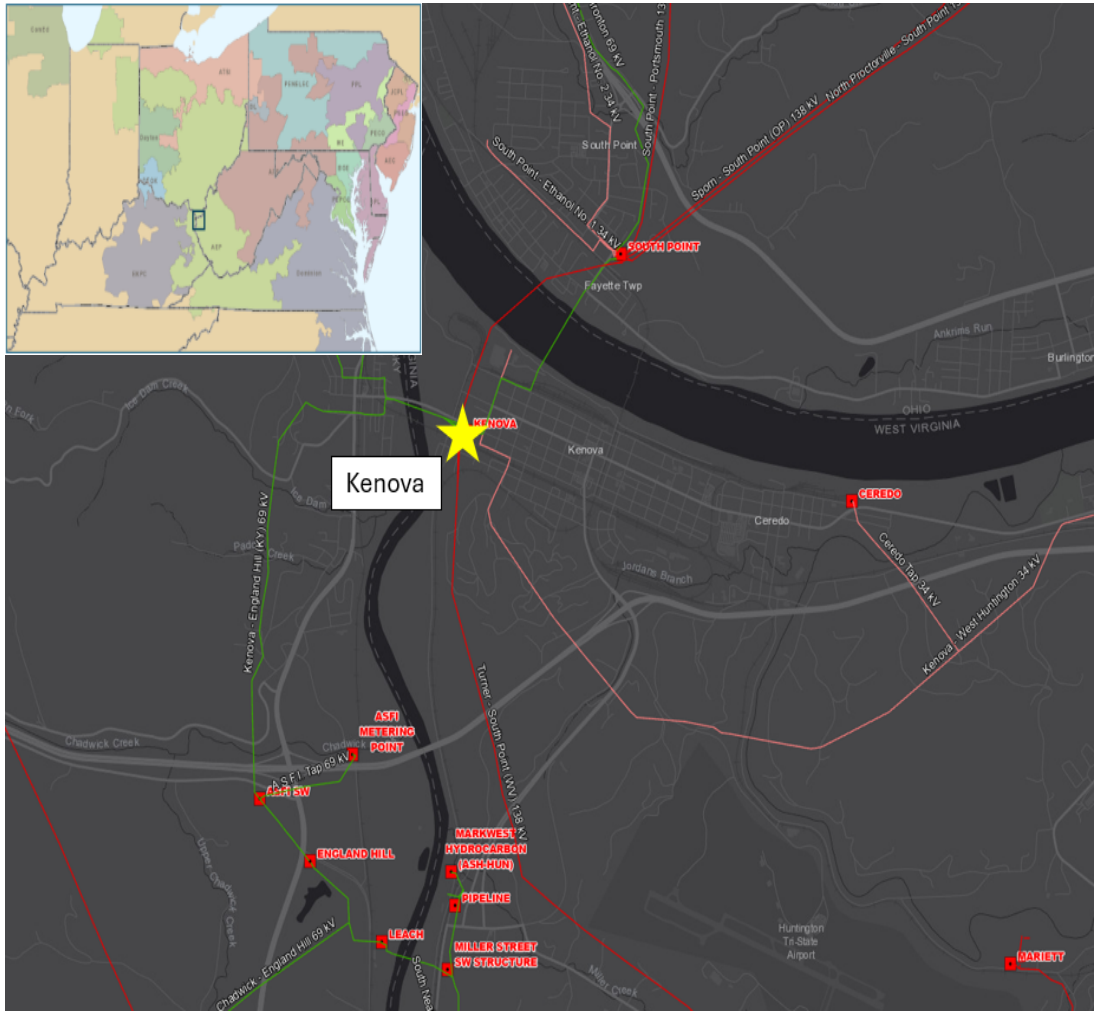
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:

A customer request was received to investigate power quality issues caused by a fault at Kenova station, resulting in lost product and material. The customer experienced voltage issues when there was an outage on the 138/69 kV transformer at Kenova Substation. AEP determined that a contributing factor of the cause of the issue was lack of transformer protection at Kenova station.



AEP Transmission Zone M-3 Process
Botetourt, VA

Need Number: AEP-2026-AP006

Process Stage: Need Meeting 05/15/2026

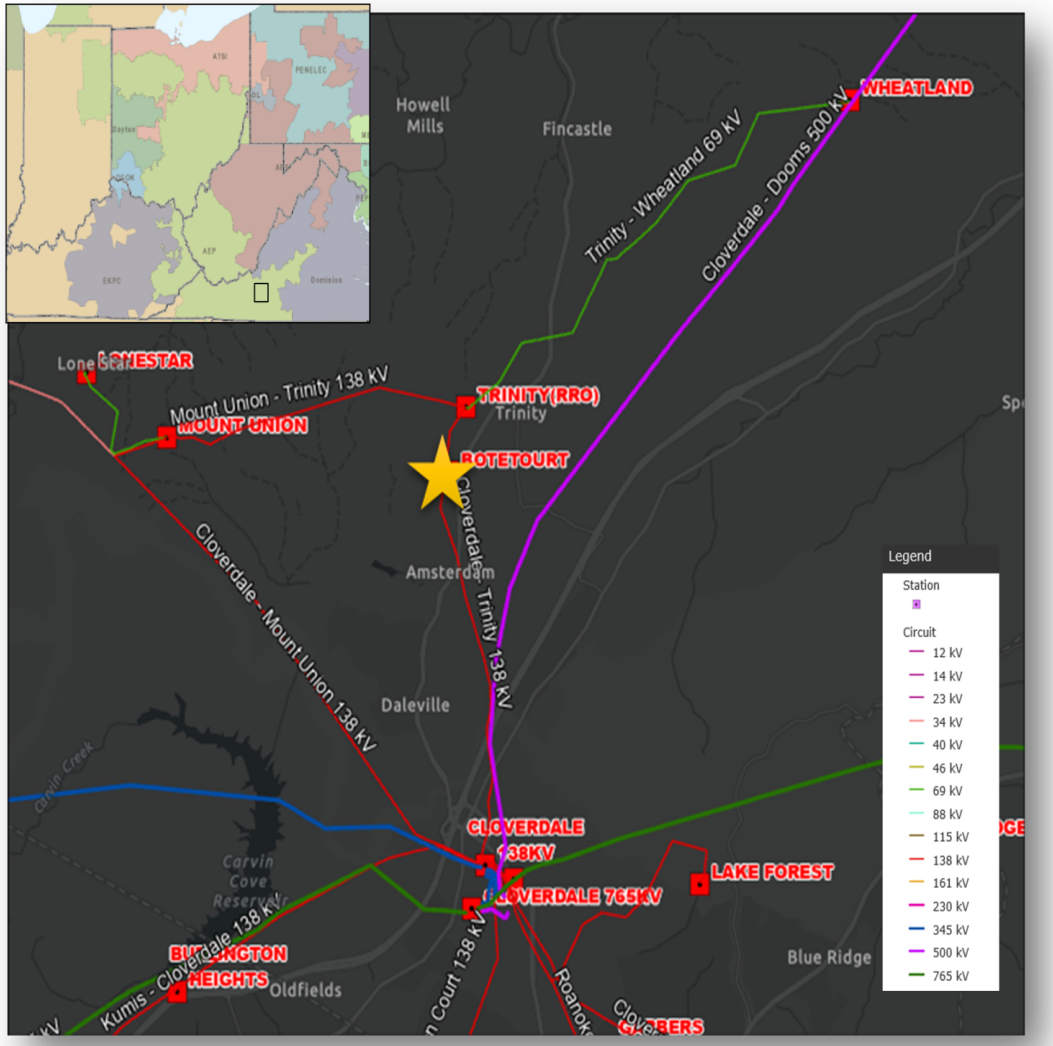
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:

A customer has requested transmission service near Botetourt Station with an initial load demand of 10 MW to begin in Q4 2027 and increase to 300 MW by Q4 2031.



Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process

AEP Transmission Zone M-3 Process
Illinois Road, IN/Gateway, IN

Need Number: AEP-2024-IM012

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 05/17/2024

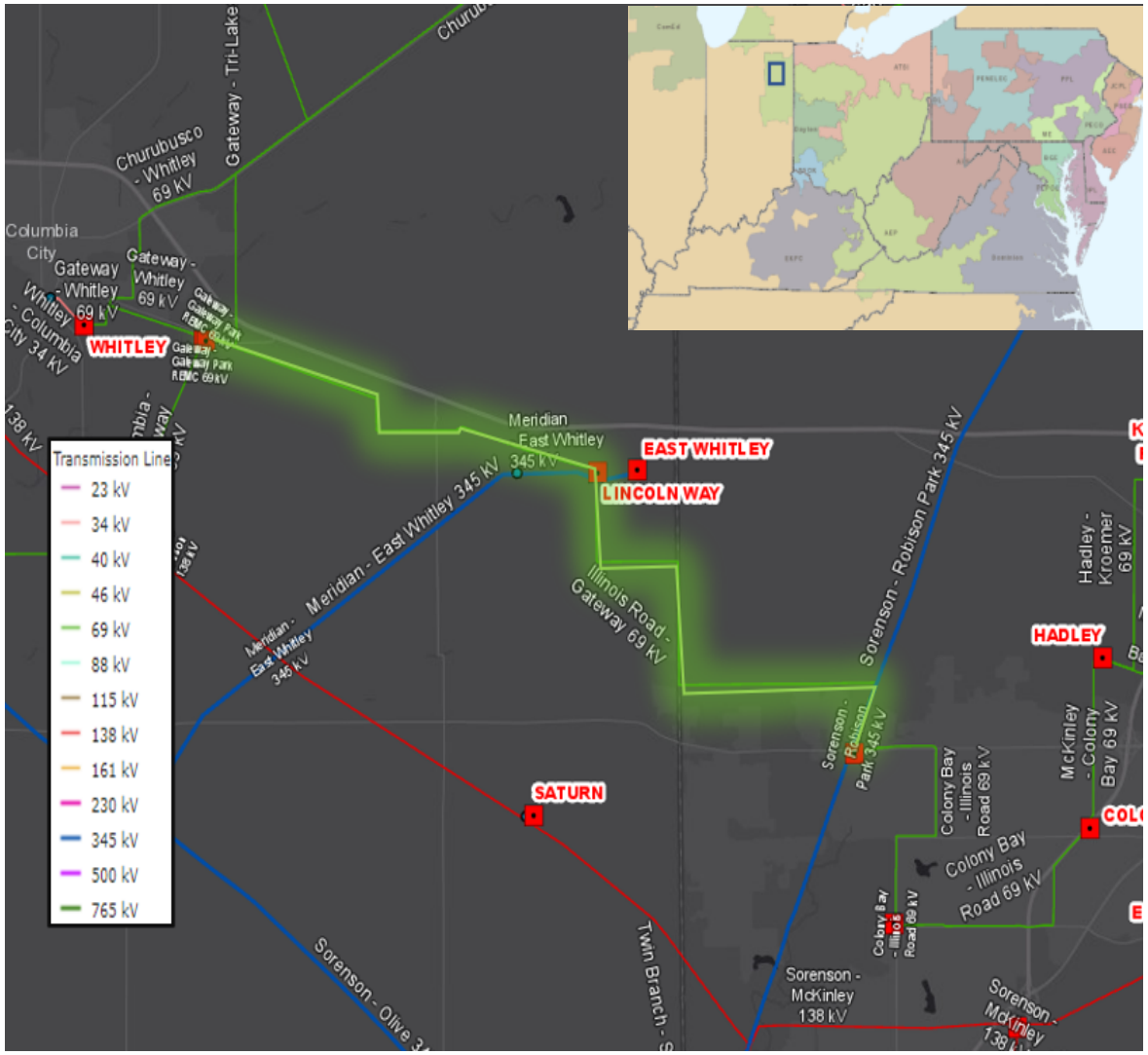
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

Problem Statement:

Illinois Road – Gateway 69kV The Illinois – Gateway 69kV line is 12.39 miles long constructed in 1973. The line consists primarily of original single circuit wood pole structures with legacy porcelain horizontal post insulators. Some pole replacements have taken place in 2015, 2018, 2021. From January 1, 2019 to December 31, 2023, there have been 6 momentary and 4 permanent outages on the Gateway – Illinois Road 69kV Circuit. The momentary outages were due to lightning, foreign interference related to other utility or distributor equipment, and a circuit switcher failure. The direct permanent outages were due to multiple broken poles during a windstorm, a relay malfunction, and a circuit switcher failure. As of January 4, 2024, there are 59 structures with at least one open structural condition, which relates to 22% of the structures on the line. Structure conditions causes: woodpecker, broken , insect damage, rot heart, rot shell, split, leaning transverse, burnt, damaged, rot top, sitting in water, strength deficiency, and unauthorized attachment, knee/vee braces broken and loose, and 1 is related to a damaged push pole. There is currently 1 open conductor condition with broken strands. There is currently 1 open shielding/grounding condition related to a disconnected ground rod. There are currently 11 open hardware conditions such as horizontal post insulators with burnt/corroded, flashed, broken, and twisted causes, and guys with an exposed guy anchor, loose guy wire, and a missing guy guard. Twenty-six structures were assessed by an aerial drone and by a ground crew. Of those structures assessed, 100% had reported conditions, and the following were the most common conditions found: The majority of wood poles have moderate wood decay that includes shell decay, insect damage, and woodpecker holes. Several poles also have heavy checking and rotted pole tops. Several structures assessed are in potential wetland areas and in most cases are very difficult and expensive to access with vehicles and equipment. Insulators are gray porcelain HP design. A few flashed insulators were found. In some locations, insulators are pulling away from the pole. Structure down-leads are aluminum on stand-off brackets and pole butt wrap.



AEP Transmission Zone M-3 Process
Gateway, IN/Illinois Road, IN/Conrail SW, IN

Need number(s): AEP-2024-IM012

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Illinois Rd - Gateway 69kV: Rebuilding 12.39 miles of the Illinois Rd - Gateway 69kV transmission line with steel poles and 556 ACSR conductor.. Estimated Cost: $53.885 M

Conrail SW: Replace the Lincolnway 3-way POP switch with a new 3-way pop switch called Conrail SW. Estimated Cost: $1.743 M

Transmission Cost Estimate: $55.628 M

Alternatives Considered:

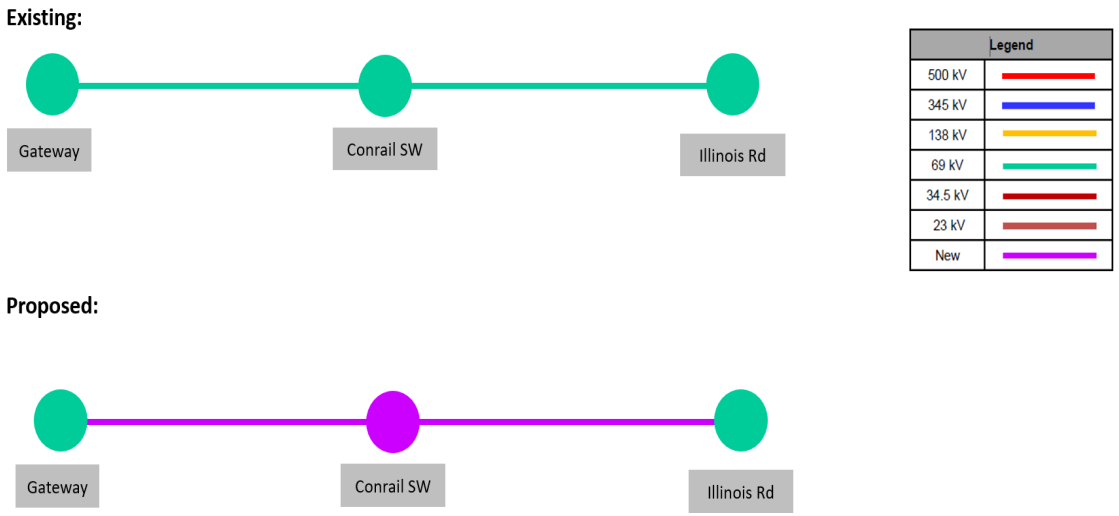
Retire Illinois-Gateway Rd 69kV and rebuild a radial from Gateway to Lincolnway switch. This would take a customer that has looped in service and degrade their current reliability by establishing radial service. This would also disconnect the western Fort Wayne 69kV network from the urban Fort Wayne 69kV network which would make the networks less redundant.

Projected In-Service: 08/15/2030

Project Status: Engineering

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)

Bubble Diagram



AEP Transmission Zone M-3 Process
Wayne County, WV

Need Number: AEP-2022-AP032

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 05/19/2022

Project Driver: Equipment Condition/Performance/Risk

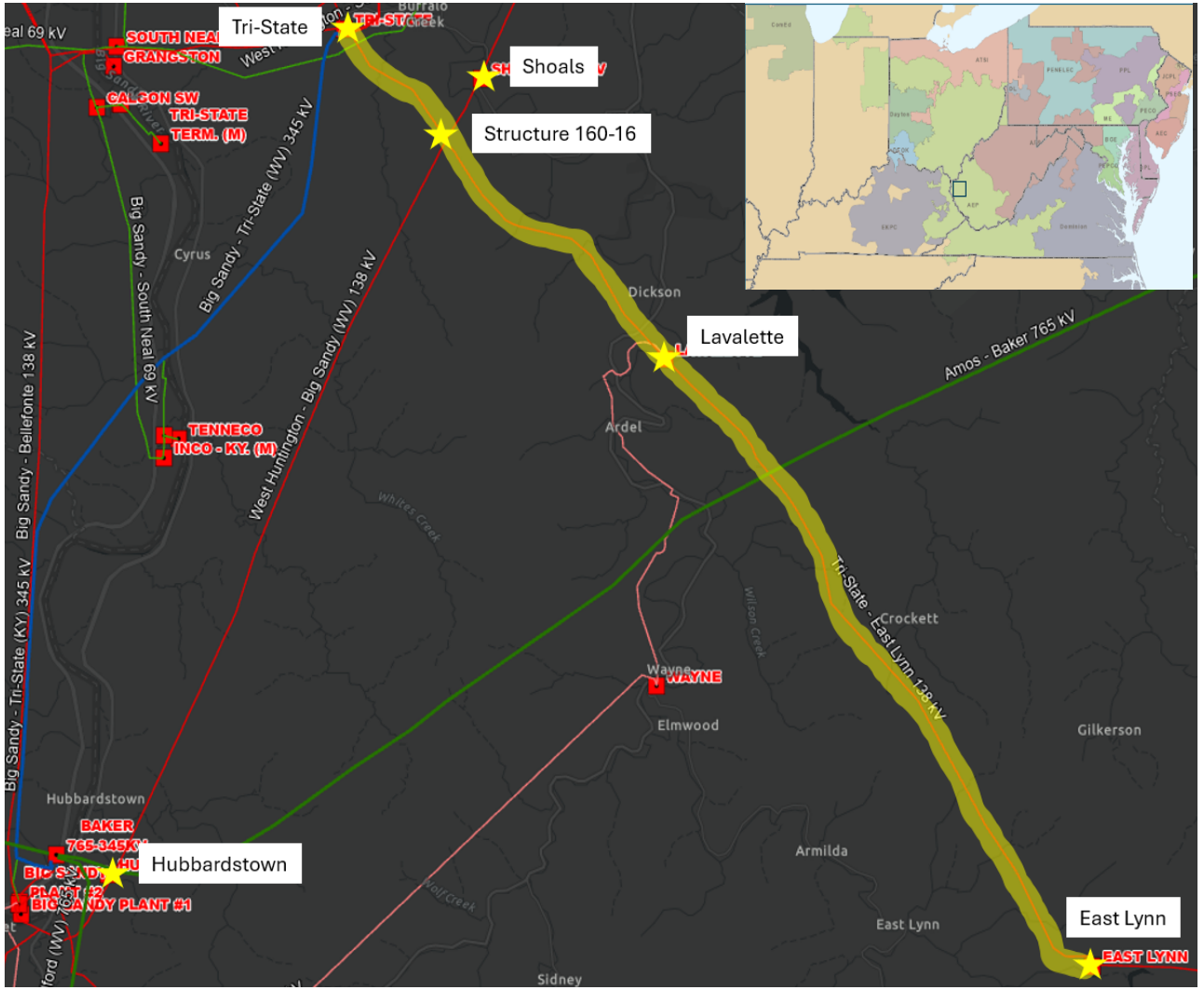
Specific Assumption References:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 8)

Problem Statement:

Tri-State – East Lynne 138 kV Line (~18 miles):

- Circuit primarily consists of original vintage (1979) wood pole structures and 795 ACSR conductor - Circuit fails to meet 2017 NESC Grade B loading criteria, AEP structural strength requirements and fails to meet the current ASCE structural strength requirements. - Legacy butt wrap grounding method is used throughout the line and is inadequate for current AEP standards
- Since 2017 there have been 6 momentary outages and 5 permanent outage on Tri-State – East Lynn 138 kV - Momentary outages were due to lightning and ice/snow - Permanent outages were due to crossarm failure, vegetation fall-in from outside AEP ROW, lightning and win. -- The permanent outages resulted in a total of 24.4M minutes of customer interruption
- 86 structures with at least one open structural condition which relates to 83% of the structures on this line asset. - Currently there are 196 open structural conditions related to woodpecker damaged poles, rot top poles, crossarms, a filler block, cracked poles, bowed crossarms, split poles and crossarms, corroded crossarms, broken cross arm and x-brace, a pole leaning transverse, rot heart crossarm - There are currently 15 open grounding conditions related to broken and stolen ground wire leads which has likely contributed to the number of lightning related outages



Tri State, WV/Hubbardstown, WV/Shoals, WV/Lavalette, WV/Lavalette, WV/East Lynn Metering, WV

Need number(s): AEP-2022-AP032

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Tri - State - Structure 160-16: Rebuild 2.26 mile single circuit 138kV line to replace the existing single circuit 138kV line between Tri-State and existing structure 160-16 located in WV. Structure 160-16 is a newer tower installed in 2009 and will not be replaced as part of this project. . Estimated Cost: $12.9 M

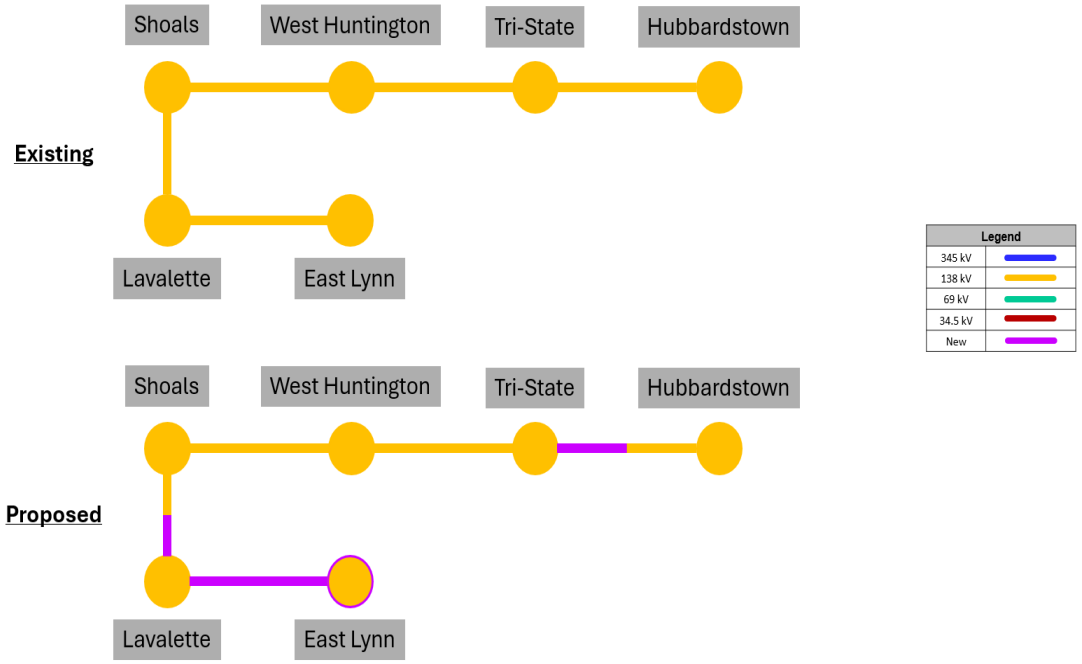
Structure 160-16 - Lavalette: Rebuild 4.7 mile single circuit 138kV line to replace the existing single circuit 138kV line between Structure 160-16 and Lavalette station. Structure 160-16 is a newer tower installed in 2009 and will not be replaced as part of this project. . Estimated Cost: $25.3 M

East Lynn - Lavalette: Rebuild 11.01 mile single circuit 138kV line to replace the existing single circuit 138kV line between East Lynn - Lavalette.. Estimated Cost: $60.6 M

Transmission Cost Estimate: $98.8 M

Alternatives Considered:

The alternative would be preforming rehab work on the line. Rehab work would addres s structure related open conditions and ROW encroachments. However, this could pote ntially leave some vintage 1979 structures in-
service. This approach would also not address the vintage 1979 conductor. Since 86 structures have at least one open condition (83% of all structures on the line) this option was not chosen. Retirement is also not an option as this line serves multiple customers off the line.



Projected In-Service: 11/28/2029

Project Status: Scoping

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)

AEP Transmission Zone M-3 Process
Thelma, KY/Big Sandy, KY/Busseyville, KY

Need Number: AEP-2025-AP006

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 11/14/2025

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

AEP Assumptions Slide 13

Problem Statement:

Line Name: Big Sandy - Thelma 138kV circuit (The Big Sandy – Thelma 138kV asset stops at structure 191-79 and combines with the West Huntington – Big Sandy 138kV asset. The West Huntington – Big Sandy 138kV asset becomes a double circuit asset before entering Big Sandy station from structure 191-79.)

Original Install Date (Age): 1963

Length of Line: ~25.5 mi

Total structure count: 127

Original Line Construction Type: Wood and Lattice Aluminum

Conductor Type: 636,000 ACSR

Momentary/Permanent Outages: 5 Momentary and 5 Permanent outages on the Big Sandy – Thelma circuit causing 3.4M minutes of CMI.

The line asset serves 33 MVA of peak load at Busseyville station.

Line conditions:

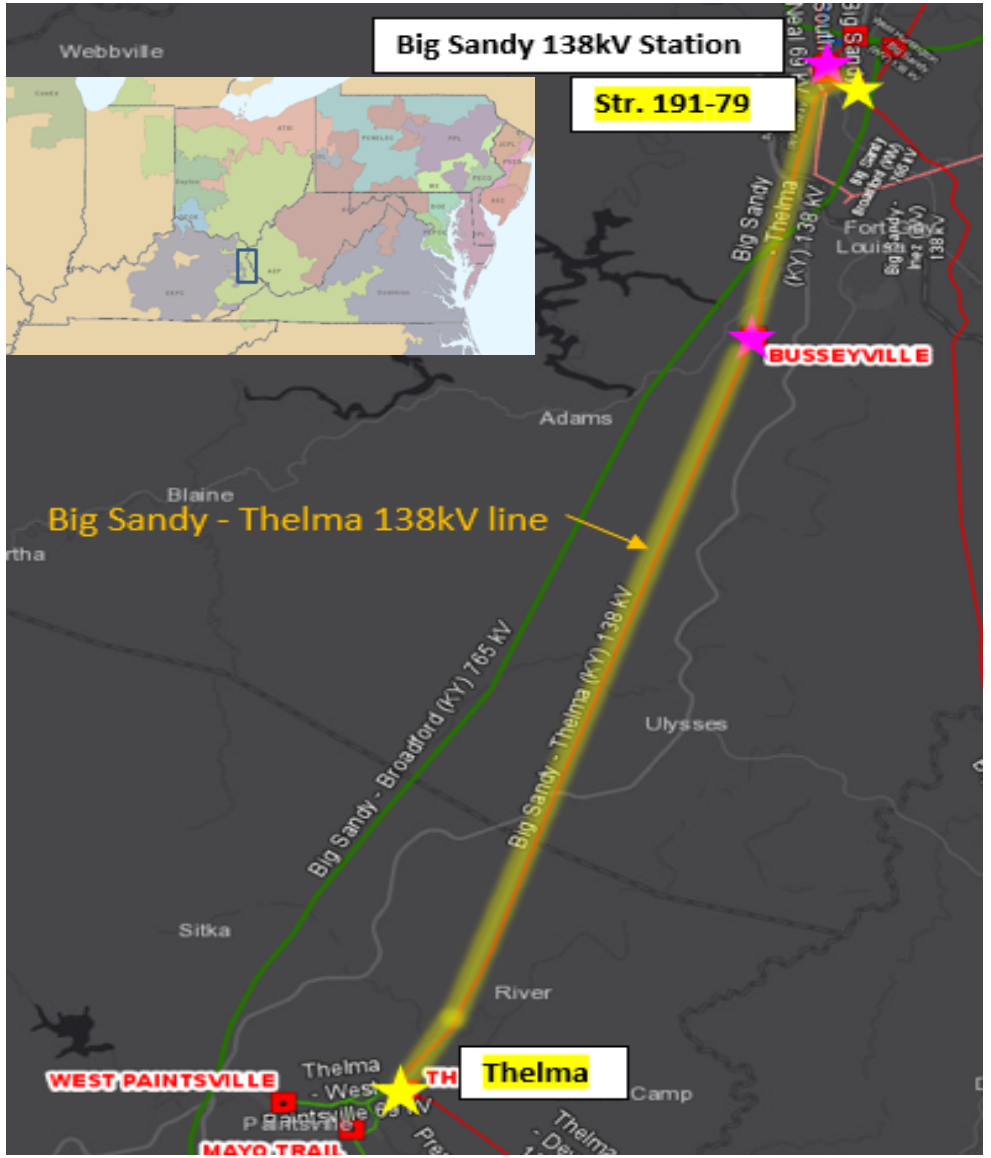
•The structures on the Big Sandy - Thelma 138kV line fail to meet NESC Grade B loading criteria, fail to meet current AEP structural strength requirements, and fail to meet the current ASCE structural strength requirements.

•112 of 127 structures or 88% of the structures are 1963 wood vintage structures and 11 of 127 are 1963 lattice vintage structures.

•There are 199 open structural conditions impacting poles, crossarms, X-braces, and knee / vee braces mainly including woodpecker holes, rot, bowing, and broken conditions. There are 137 open conditions related to broken or missing ground lead wires or missing ground rods. There are 95 structures with at least one open condition, which relates to 75% of the structures on the line.

•The structures are grounded utilizing the butt wrap method. The current grounding system and poor shielding angle do not meet current AEP and industry accepted criteria, making the line susceptible to momentary and permanent outages, affecting customer reliability.

•The inadequate grounding limits the available path to ground during any type of line fault, increasing the intensity the conductor and related hardware have to withstand during the fault. The reduced electrical strength of the insulators could lead to electrical damage to structures and hardware during a fault if the insulator were to fail from elevated electrical stresses.



Busseyville, KY/Thelma, KY/Big Sandy, KY/Busseyville, KY/Big Sandy, KY/Thelma, KY

Need number(s): AEP-2025-AP006

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Thelma - Busseyville 138 kV: Rebuild the 19 mile long 138 kV line from Thelma - Busseyville. Estimated Cost: $120 M

Big Sandy - Busseyville 138 kV: Rebuild the 7 mile long section of Big Sandy - Busseyville 138 kV line.. Estimated Cost: $48.4 M

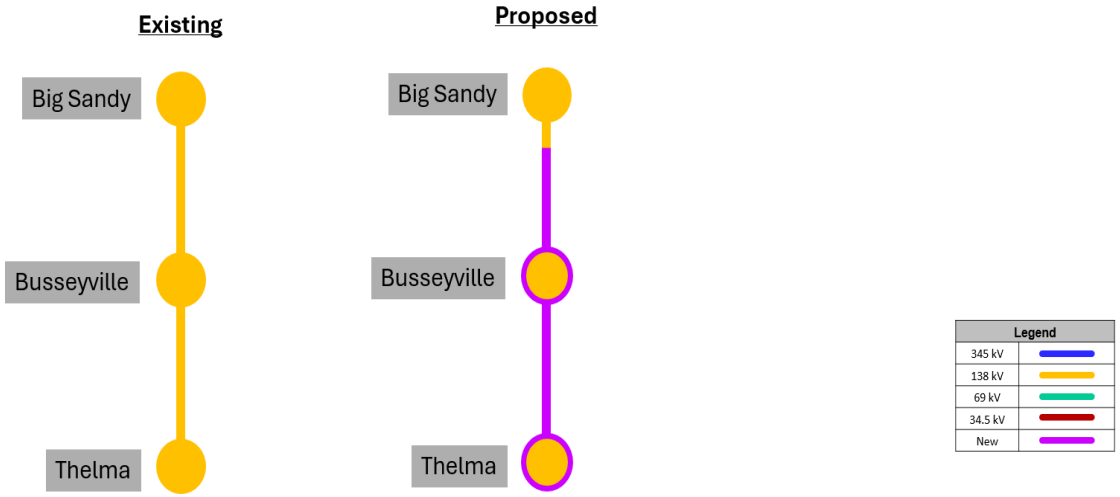
Big Sandy Substation: Relay settings update at Big Sandy Substation. Estimated Cost: $0.055 M

Thelma Substation: Replacing jumpers on Big Sandy Line. Big Sandy Line Trap, CCVT, and Tuner will be replaced. Replacement of associated control cables. Update relay settings at Thelma substation.. Estimated Cost: $1.1 M

Transmission Cost Estimate: $169.555 M

Alternatives Considered:

The alternative would be performing rehab work on the line. Rehab work would address structure related open conditions and ROW encroachments. However, this could potentially leave some vintage 1963 structures in-service. This approach would also not address the deteriorating 1963-installed conductor. Retirement of the line is also not a possibility as this line serves as a major 138 kV path through Kentucky to connect critical stations as well as a source to Busseyville to serve customers.



Projected In-Service: 11/01/2030

Project Status: Scoping

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)

AEP Transmission Zone M-3 Process
Progress Park, VA

Need Number: AEP-2026-AP001

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 01/16/2026

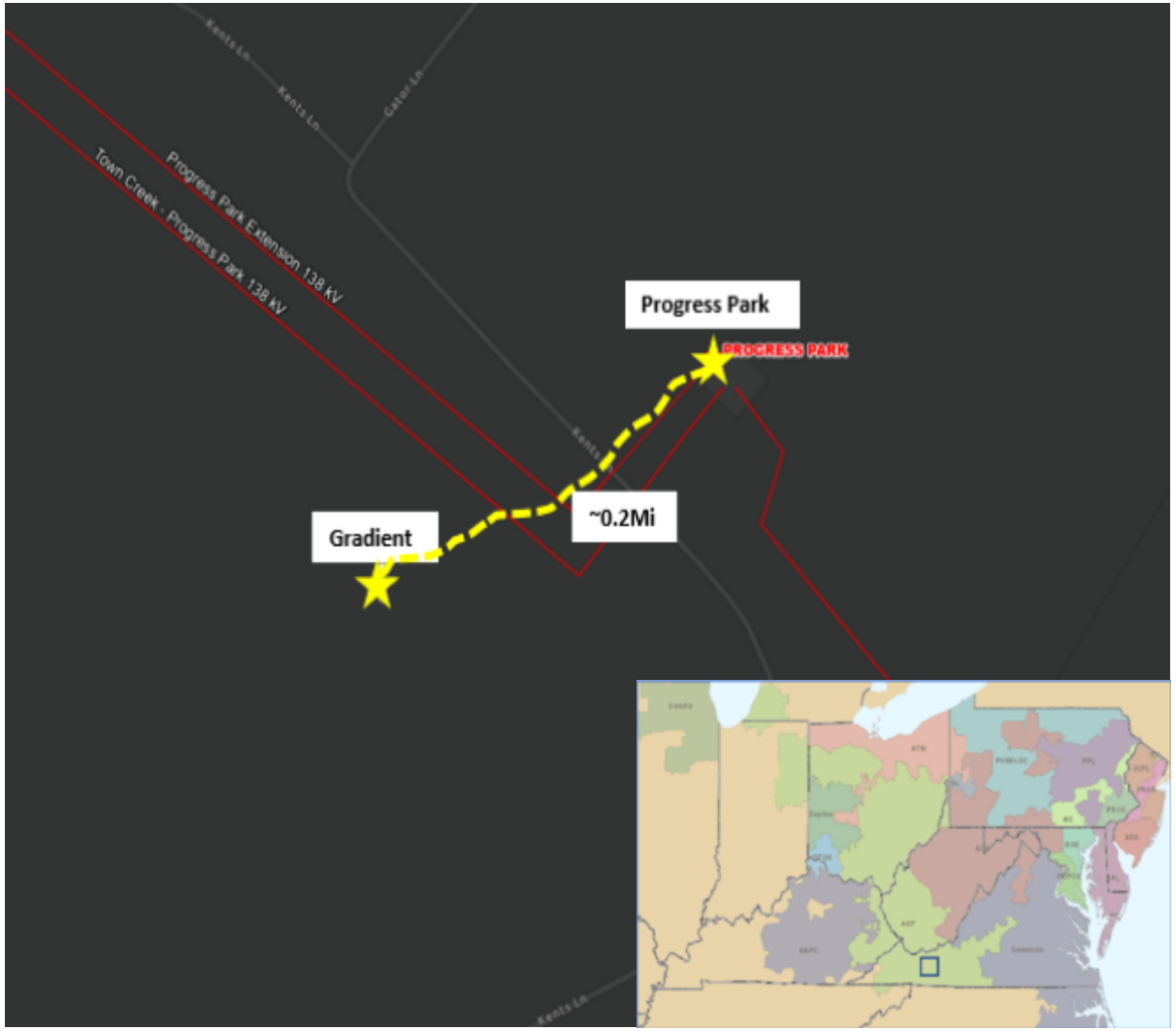
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12).

Problem Statement:

A customer has requested new 138 kV service in Wytheville, VA. The ultimate peak demand is 240MW. Customer requested in-service date is Q1 2027.



AEP Transmission Zone M-3 Process
Progress Park, VA/Gradient, VA/Progress Park, VA

Need number(s): AEP-2026-AP001

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Gradient Extension: Construct 0.2 miles of greenfield single circuit 138kV line from Progress Park to dead-end insulators on the customer's station steel structure. . Estimated Cost: $4.631 M

Progress Park Station: Install two 138 kV Circuit Breakers and a Meter at Progress Park station. Estimated Cost: $7.128 M

Transmission Cost Estimate: $11.759 M

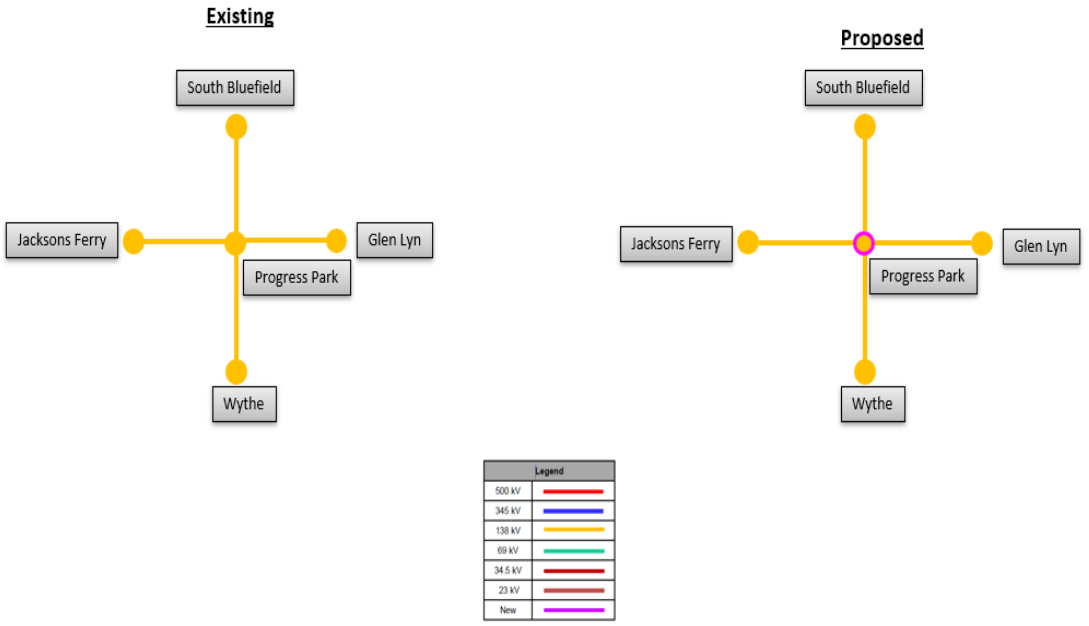
Alternatives Considered:

Neighboring 138 kV lines were considered as an interconnection point but it would require building a greenfield, three CB ring bus station to serve the customer which would cost significantly more than the proposed option. Additionally, Progress Park has more electrical sources to serve the customer.

Projected In-Service: 02/08/2027

Project Status: Engineering

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



AEP Transmission Zone M-3 Process
South Canton, OH/Torrey, OH

Need Number: AEP-2025-OH007

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 07/18/2025

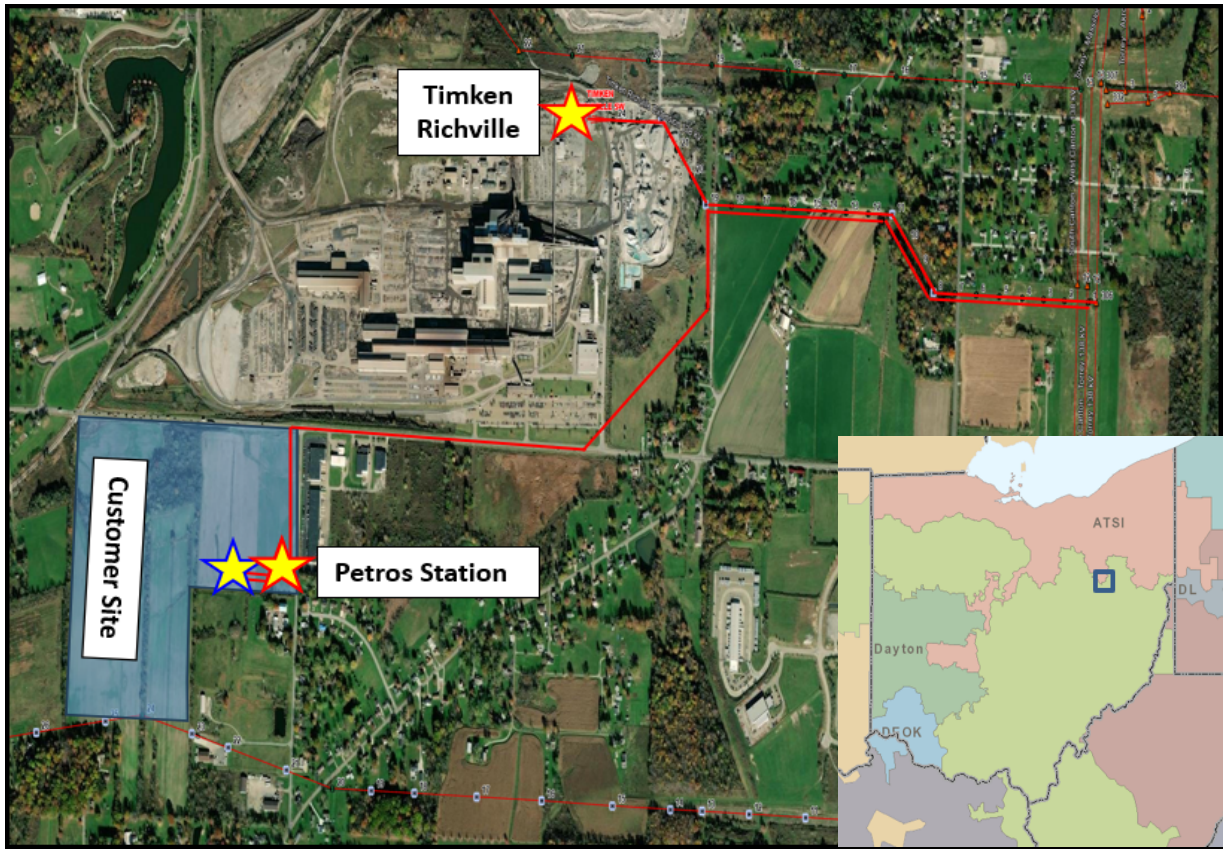
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 13)

Problem Statement:

A new customer has requested 138 kV service to a site located near the South Canton - Torrey 138 kV line asset. The anticipated load is 255 MW and has a requested in-service date of 10/13/2027.



Petros, OH/Torrey, OH/Petros Customer, OH/Timken Richville, OH/South Canton, OH

Need number(s): AEP-2025-OH007

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

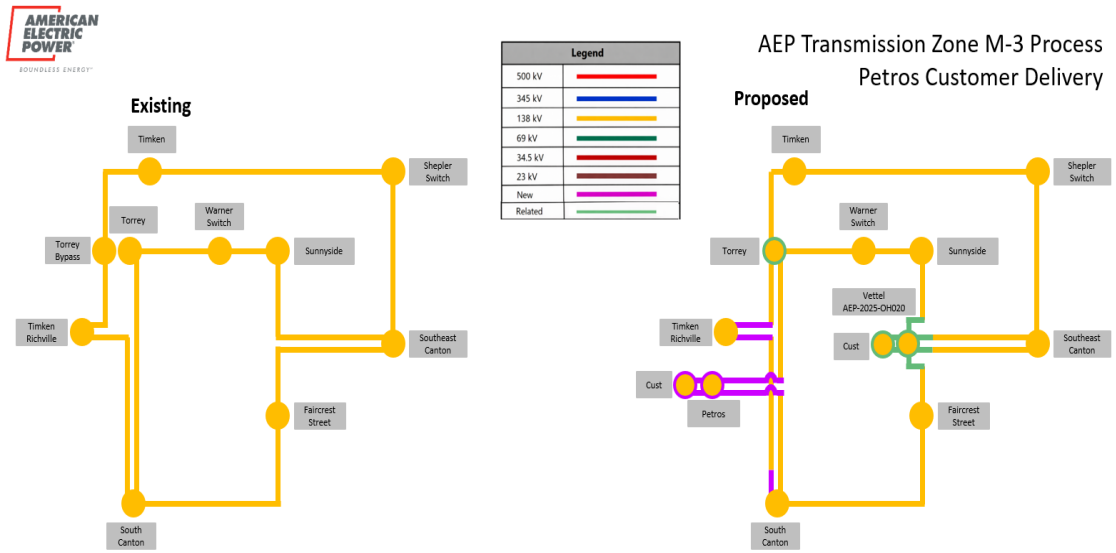
Petros 138 kV: Construct a greenfield breaker and a half station operated as a ring bus with (4) 138 kV 3000A 63 kA circuit breakers. . Estimated Cost: $14.033 M

Petros Extension 138 kV: Cut into the South Canton - Torrey 138 kV line with a ~2.00 mile double circuit line utilizing 795 kcmil 26/7 "Drake" ACSS (SE 492), to accommodate the greenfield Petros Station.. Estimated Cost: $19.6 M

Petros - Customer 138 kV: Install (2) ~0.1 mile customer feeds from Petros station utilizing 795 kcmil 26/7 "Drake" ACSS (SE 492).. Estimated Cost: $0.502 M

Timken Richville Extension 138 kV: To support this customers anticipated load ~1.42 miles of double circuit 138 kV line on the South Canton - Timken Richville & Timken Richville - Torrey circuits will be rebuilt utilizing 1033.5 ACSS 54/7 Curlew (SE 557). Estimated Cost: $13.49 M

South Canton Extension 138 kV: To support this customers anticipated load ~0.30 miles of 138 kV line on the South Canton - Timken Richville circuit will be reconductored utilizing 1033.5 ACSS 54/7 Curlew (SE 557).. Estimated Cost: $1.5 M



Transmission Cost Estimate: $49.124 M

Alternatives Considered:

Considering the location of the customer facilities and timing of the request, no other viable transmission alternatives were identified. Other upgrades in the area help facilitate this connection to the 138 kV.

Projected In-Service: 10/13/2027

Project Status: Engineering

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)

AEP Transmission Zone M-3 Process
Muskingum River, OH

Need Number: AEP-2025-OH013

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Previously Presented: Need Meeting 08/15/2025

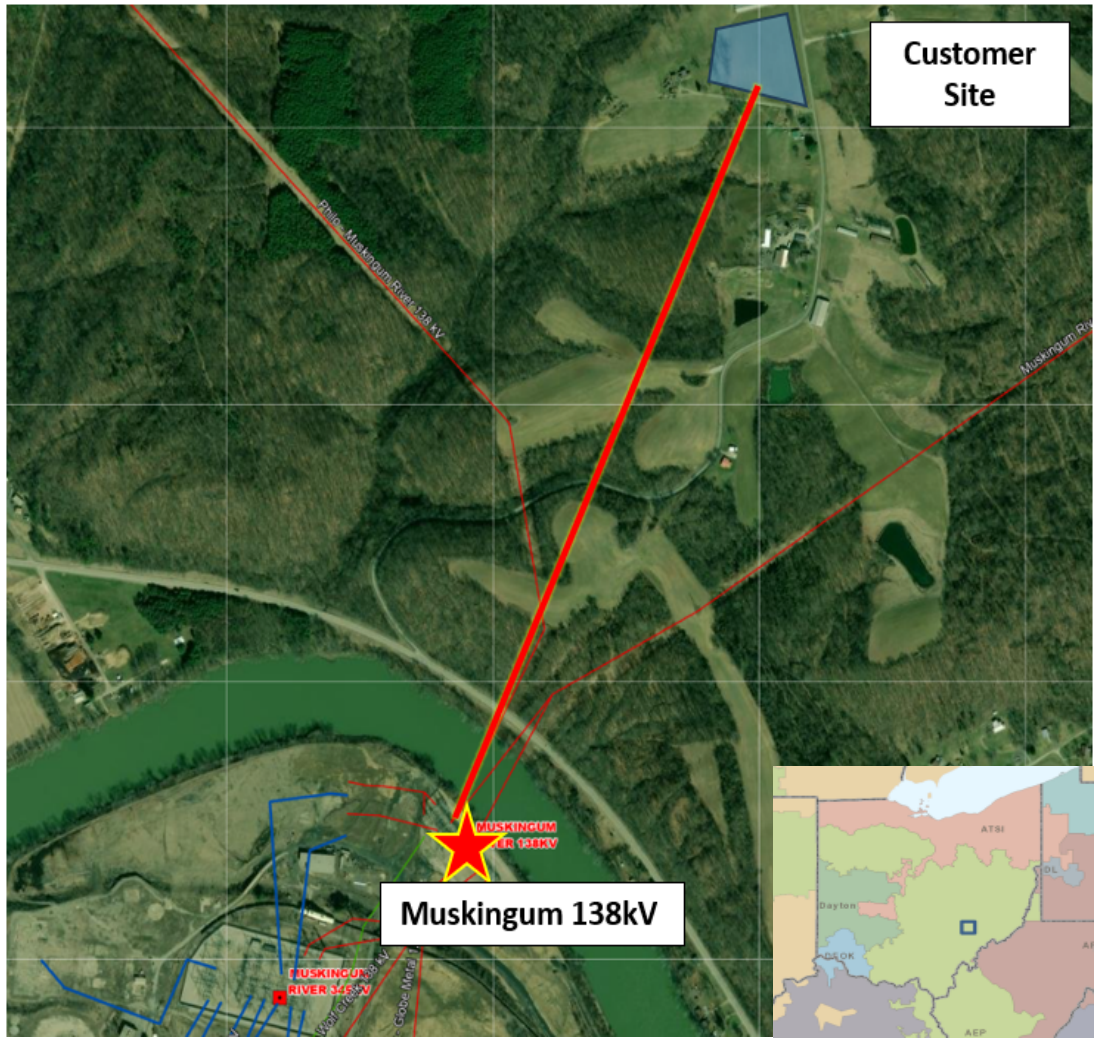
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:

A customer has requested new 138kV transmission service at a site near AEP's existing Muskingum station in Waterford, OH. Initial demand at the delivery point will be 25MW. Peak demand at the delivery point will be 200MW by 2029. Customer requested an initial in-service date of 02/01/2027.



Muskingum River, OH/Muskingum 138kV Customer Site, OH

Need number(s): AEP-2025-OH013

Process Stage: Solution Meeting SRRTEP-W - 05/15/2026

Proposed Solution:

Muskingum Station: Install a new 138kV breaker at Muskingum River 138kV on bus #1 to facilitate extension to customer site. Estimated Cost: $3.085 M

138kV Customer Extension: Install ~0.35 miles of 138kV line from Muskingum to customer station. Estimated Cost: $2.697 M

Transmission Cost Estimate: $5.782 M

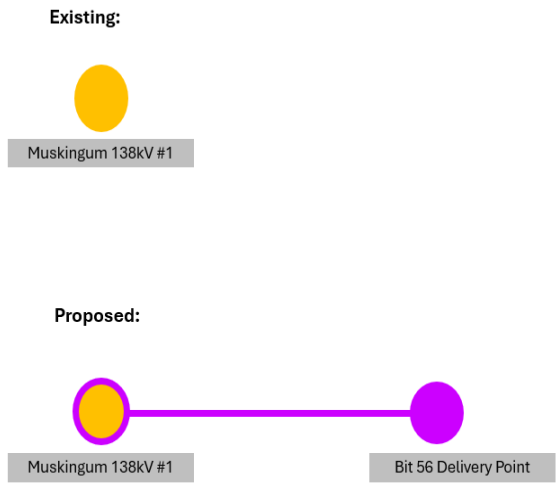
Alternatives Considered:

Considering the geographic location of the customer site and the ability to leverage existing infrastructure at Muskingum River station, no other viable alternatives were identified.

Projected In-Service: 12/06/2027

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer & Winter (50/50)



Appendix

High Level M-3 Meeting Schedule

Assumptions

Activity	Timing
Posting of TO Assumptions Meeting information	20 days before Assumptions Meeting
Stakeholder comments	10 days after Assumptions Meeting

Needs

Activity	Timing
TOs and Stakeholders Post Needs Meeting slides	10 days before Needs Meeting
Stakeholder comments	10 days after Needs Meeting

Solutions

Activity	Timing
TOs and Stakeholders Post Solutions Meeting slides	10 days before Solutions Meeting
Stakeholder comments	10 days after Solutions Meeting

Submission of Supplemental Projects & Local Plan

Activity	Timing
Do No Harm (DNH) analysis for selected solution	Prior to posting selected solution
Post selected solution(s)	Following completion of DNH analysis
Stakeholder comments	10 days prior to Local Plan Submission for integration into RTEP
Local Plan submitted to PJM for integration into RTEP	Following review and consideration of comments received after posting of selected solutions

Revision History

05/05/2026– V1 – Original version posted to pjm.com