Western Sub Regional RTEP:
AEP Supplemental Projects

September 19, 2025

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
South East Canton, OH

Need Number: AEP-2025-OH020

Process Stage: Need Meeting 09/19/2025

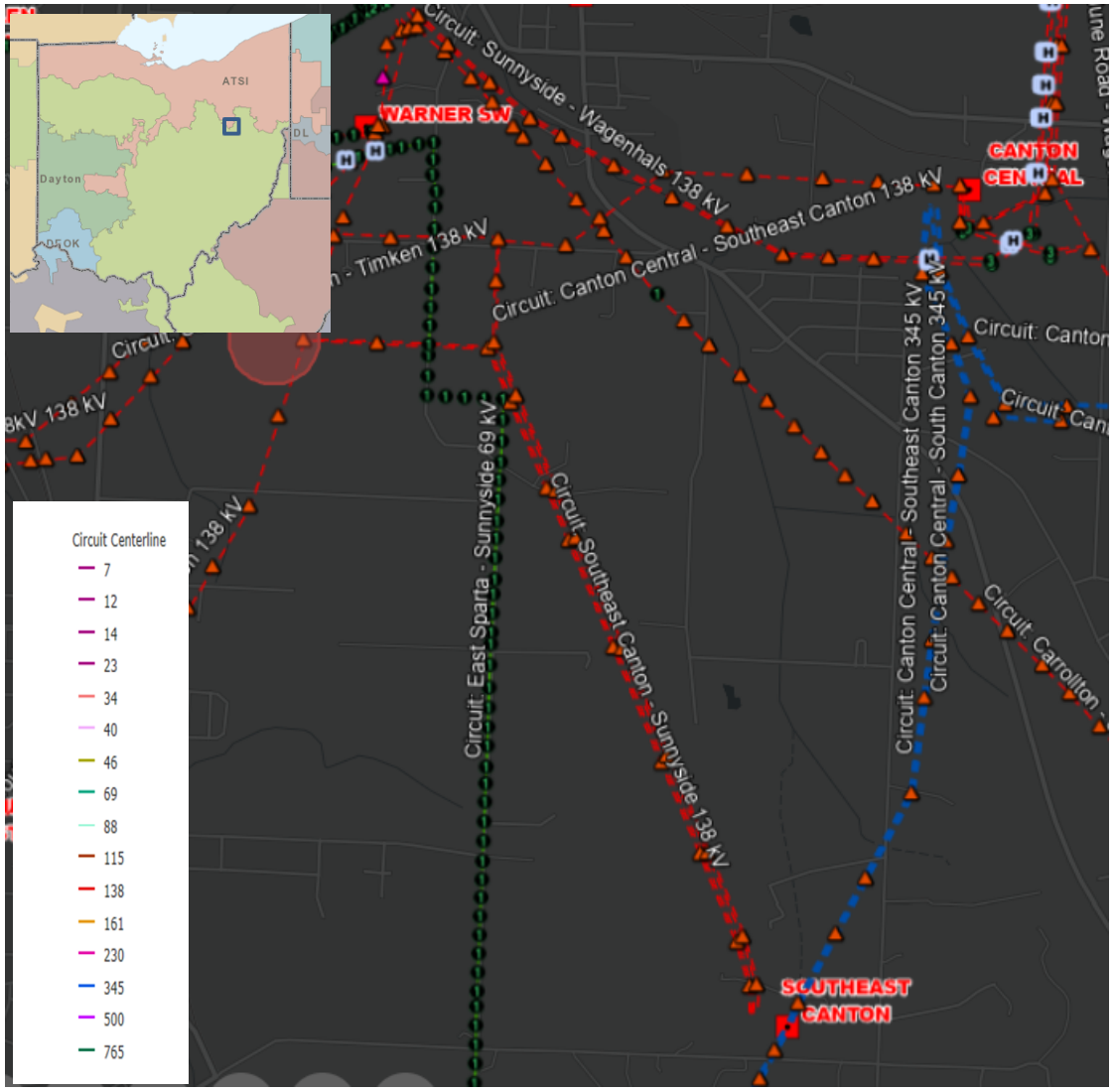
Project Driver: Customer Service

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
Canton Central, OH

Need Number: AEP-2025-OH021

Process Stage: Need Meeting 09/19/2025

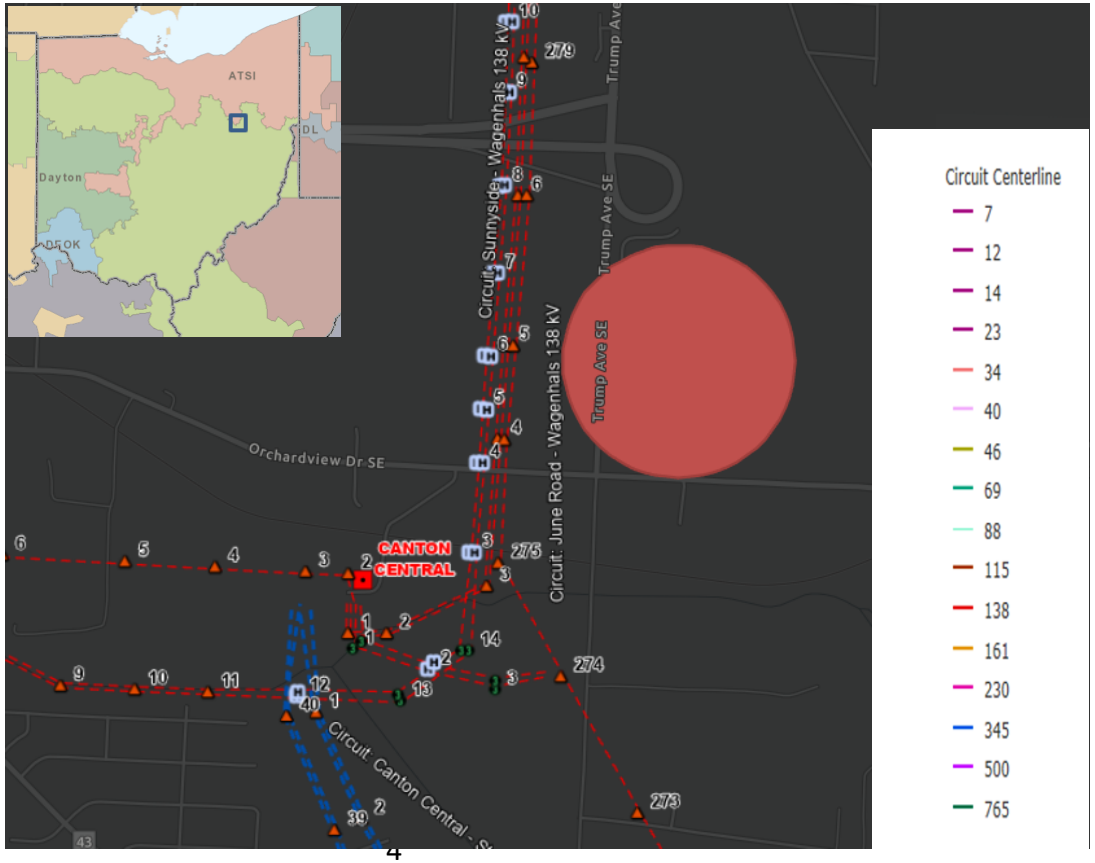
Project Driver: Customer Service

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 Canton Central station in Canton, OH. Total demand to be served at the delivery point will be 300MW. Customer requested in-service date of 01/08/2028.



AEP Transmission Zone M-3 Process
Calvin Switch, MI

Need Number: AEP-2025-IM009

Process Stage: Need Meeting 09/19/2025

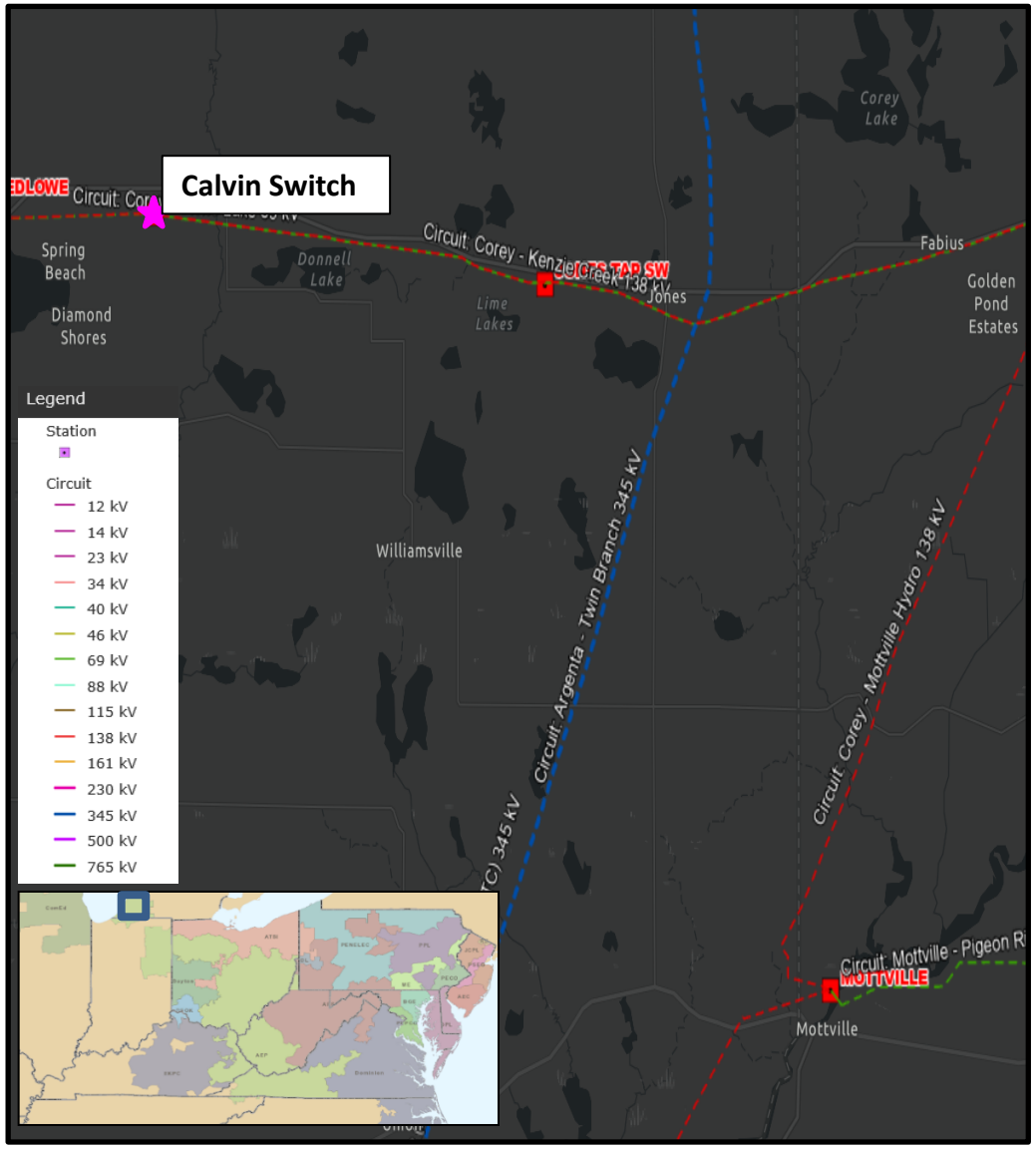
Project Driver: Operational Flexibility and Efficiency

Specific Assumption References:

Operational Flexibility and Efficiency (AEP Assumptions Slide 14)

Problem Statement:

Calvin Switch is the junction point of a 3-terminal line with remote ends at Stone Lake, Corey, and Mottville. Midwest Energy owns the line section between Calvin Switch and Mottville. Current protection schemes cannot reliably protect the long segments on the 3-terminal line, as clearing times are too slow and has resulted in misoperations and equipment damage on the feed towards Midwest Energy.



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
Trail Fork, WV

Need Number: AEP-2025-AP003

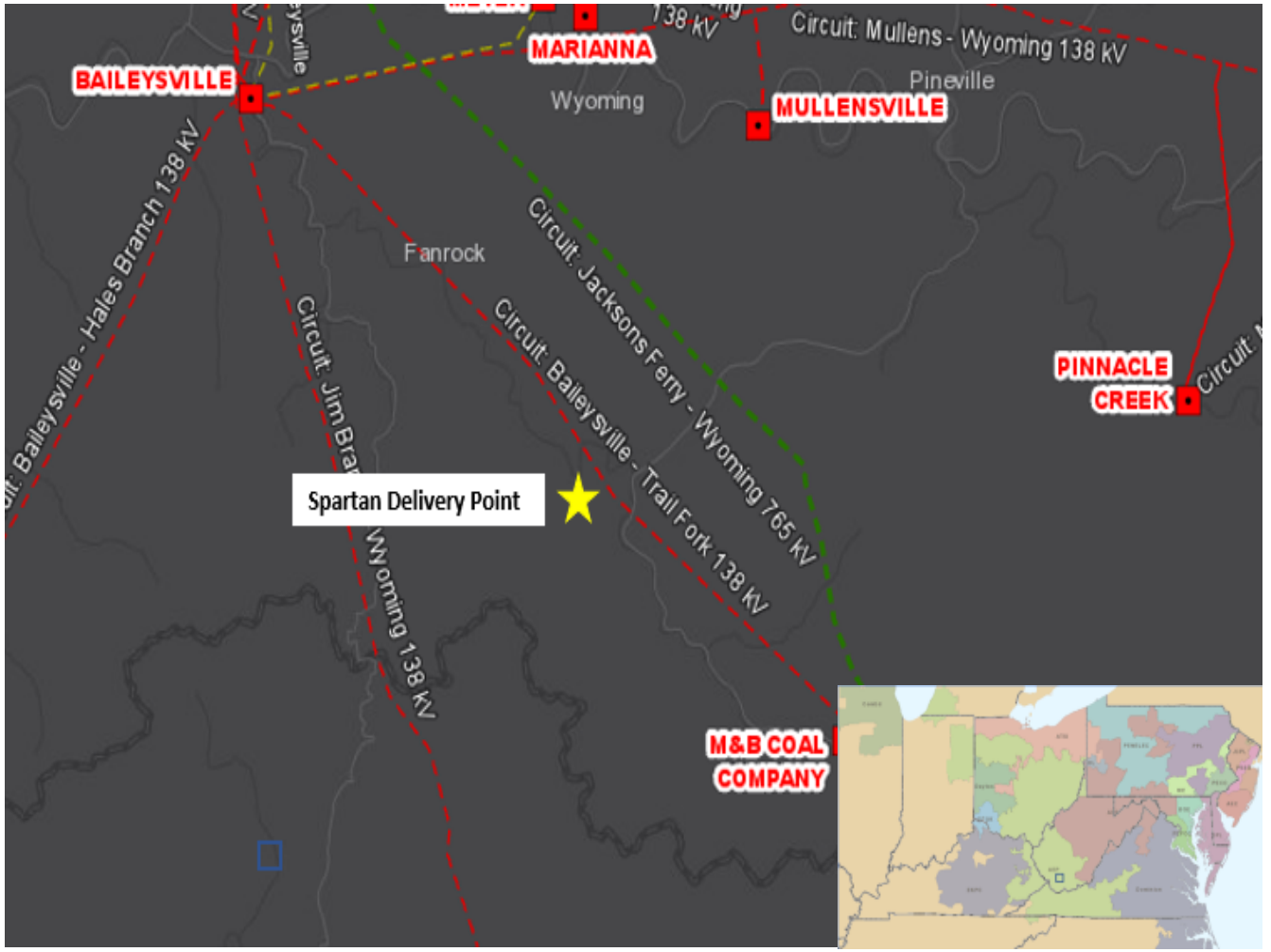
Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Previously Presented: Need Meeting 03/14/2025

Supplemental Project Driver: Customer Service

Specific Assumption Reference: AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12).

Problem Statement:
A customer has requested new 138 kV service in Wolf Pen, WV. The requested in-service date is March 2026.
Projected Peak Demand: 7MW.



AEP Transmission Zone M-3 Process
Aloe Vera SW, WV

Need number(s): AEP-2025-AP003

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Aloe Vera SW: Install a new tap point on the existing Logan - Switchback 138 kV line between Baileysville and Trail Fork Stations with a single switch facing the customer. Install a new 138 kV delineation pole to connect the customer to the tap and add low side metering at the customer site.. Estimated Cost: 0.

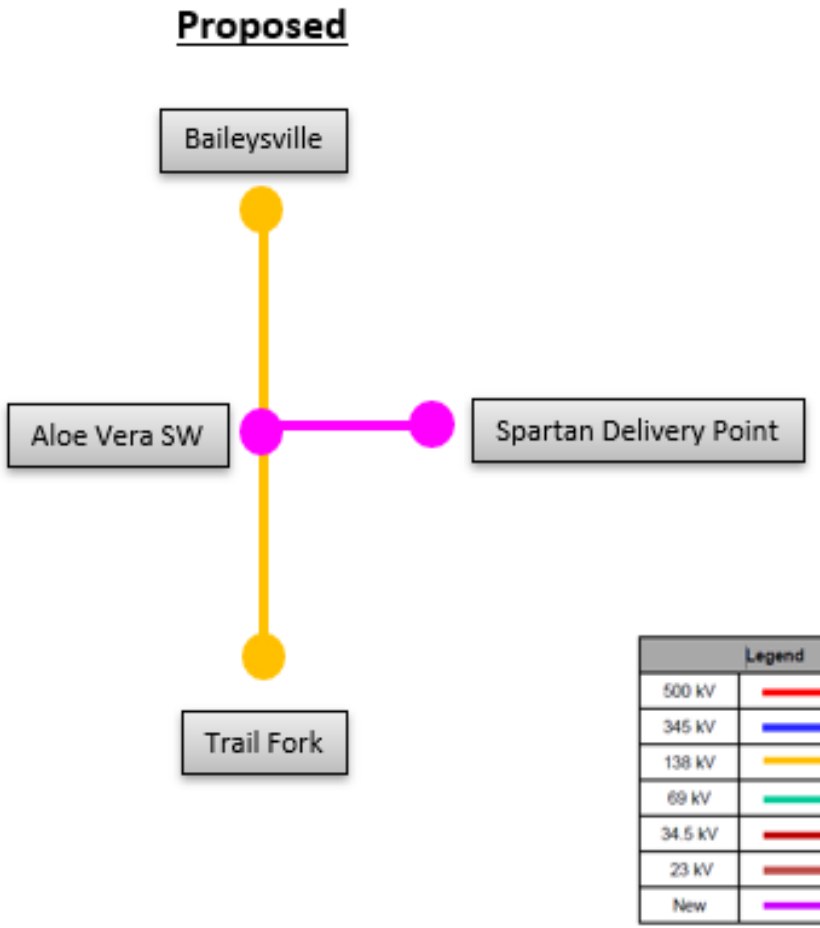
Transmission Cost Estimate:

Alternatives Considered:

Neighboring 138 kV lines were considered but they are at least 2.5 Miles farther away from the delivery point. This project is 100% reimbursable.

Projected In-Service: 03/05/2026

Project Status: Engineering



Need Number: AEP-2023-AP006

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Previously Presented: Need Meeting 02/17/2023

Project Driver:

Customer Service

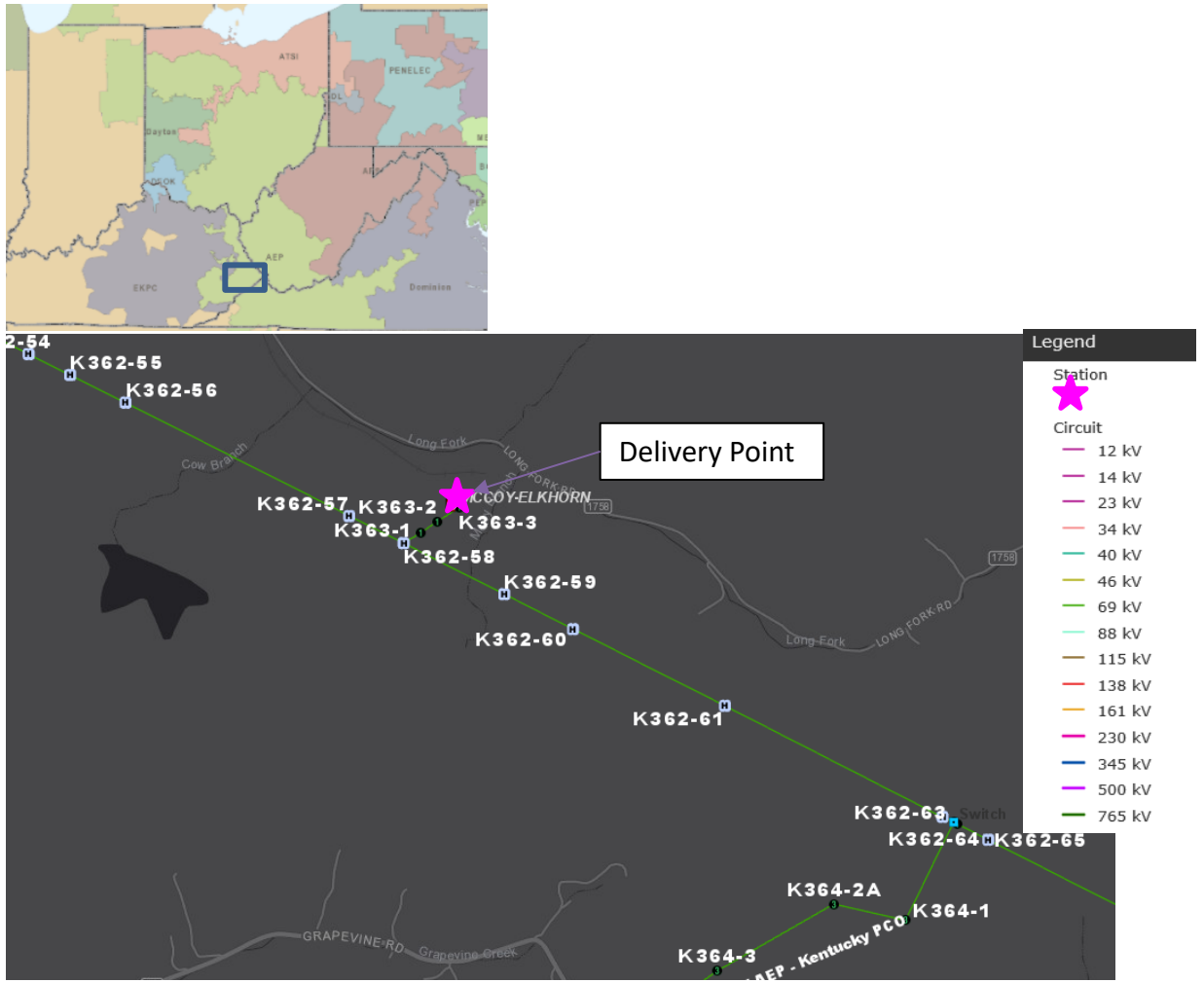
Specific Assumption Reference:

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

Problem Statement:

Customer Service:

- A customer has requested transmission service at McCoy – Elkhorn delivery point in Pike County, KY.
- This existing delivery point is served via a Hard Tap on Johns Creek - Second Fork 69kV line.
- The customer has indicated that their initial peak demand will be 15 MW at the site.
- The customer has requested an ISD of 12/15/2023



AEP Transmission Zone M-3 Process
Pike County, KY

Need number(s): AEP-2023-AP006

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Johns Creek - Second Fork 69kV line: Install roughly 0.8 miles of new 69kV structures but reuse existing conductor to get the line to the new phase over phase switch location.. Estimated Cost: $2.44 M

McCoy – Elkhorn 69kV Install: Install roughly 0.2 miles of new 69kV line to connect the delivery point to the new phase over phase switch.. Estimated Cost: $0.97 M

Simers 69kV Phase over Phase Switch Install: Install a new phase over phase switch to replace the existing hard tap.. Estimated Cost: $0.58 M

Transmission Cost Estimate: $3.99 M

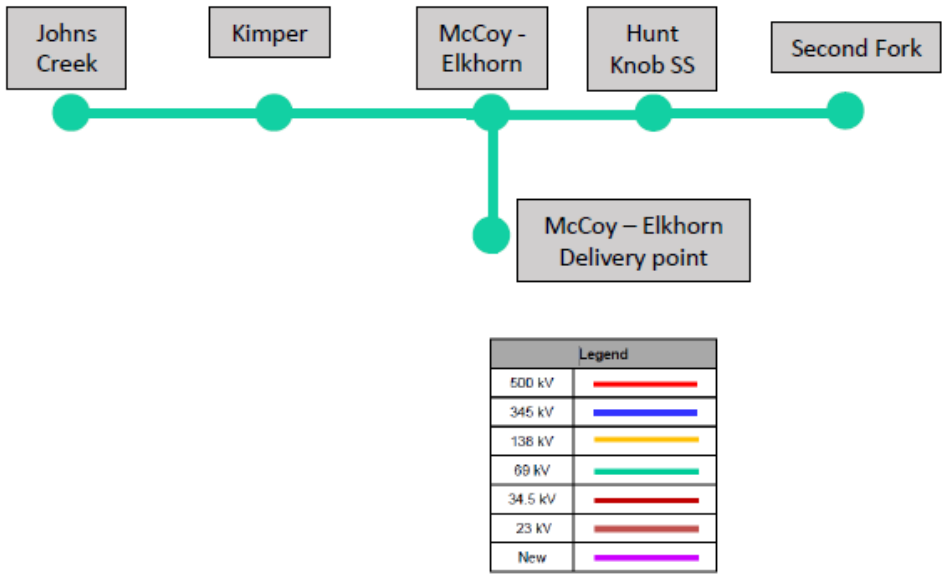
Alternatives Considered:

A new delivery point could be established, but it would be more costly and the customer's preference was to use the established delivery point. The area has very steep terrain and creating a new tap point would require more access roads and a longer line to get to the customer delivery point.

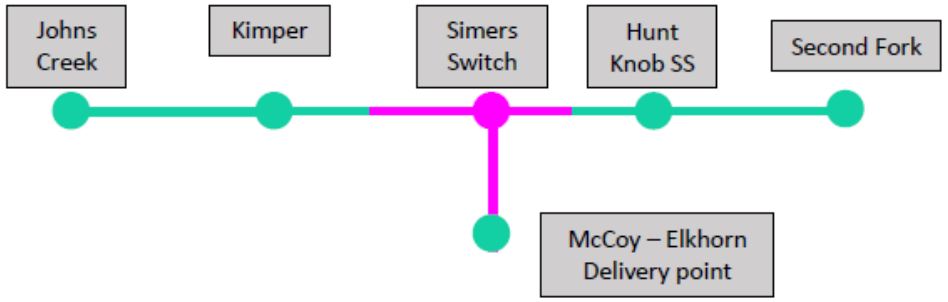
Projected In-Service: 11/01/2025

Project Status: Engineering

Existing



Proposed



AEP Transmission Zone M-3 Process
Elcona Tap, IN

Need Number: AEP-2025-IM003

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

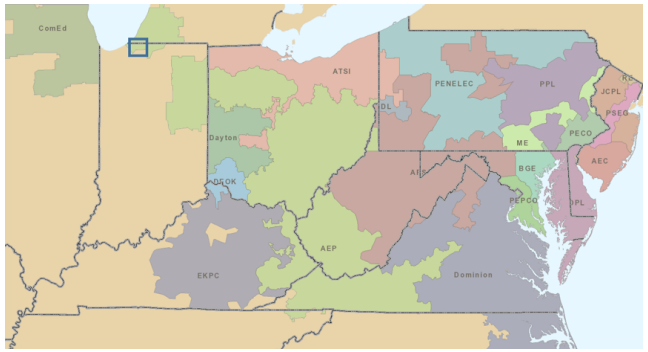
Previously Presented: Need Meeting 02/14/2025

Supplemental Project Driver: Operational Flexibility and Efficiency

Specific Assumption Reference: AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:
I&M Distribution is requesting configuration changes at Elcona station, which is served via a radial line. Elcona station has no load transfer capability to adjacent stations. Performing any sort of maintenance on the Elcona Tap 138kV line or Elcona Tap 138kV Switch requires any loads served out of Elcona to be dropped. This leaves 12 MVA of load at risk unable to be recovered.

Critical loads served by Elcona include The Center for Hospice and City Elkhart Wastewater Lift Station.



AEP Transmission Zone M-3 Process
Elcona Tap, IN

Need number(s): AEP-2025-IM003

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Elcona Extension 138kV: Install 2.15 miles of single circuit 138kV line from near Elcona Tap to Elcona, creating the East Elkhart - Elcona 138kV circuit. Estimated Cost: $13.562 M

Dunlap - Elcona 138kV Line: Reconnect the existing Elcona Tap - Elcona and Elcona Tap - Dunlap branches to bypass the old switch point due to the switch retirement.. Estimated Cost: $2.068 M

Retire Elcona Tap Switch 138kV: Retire the existing Elcona Tap Switch 138kV. Estimated Cost: $0.195 M

Elcona Station 138kV: Install 138kV in-and-out bus with line MOABs. Work on the distribution side includes installing a new 138/12kV transformer.. Estimated Cost: $2.303 M

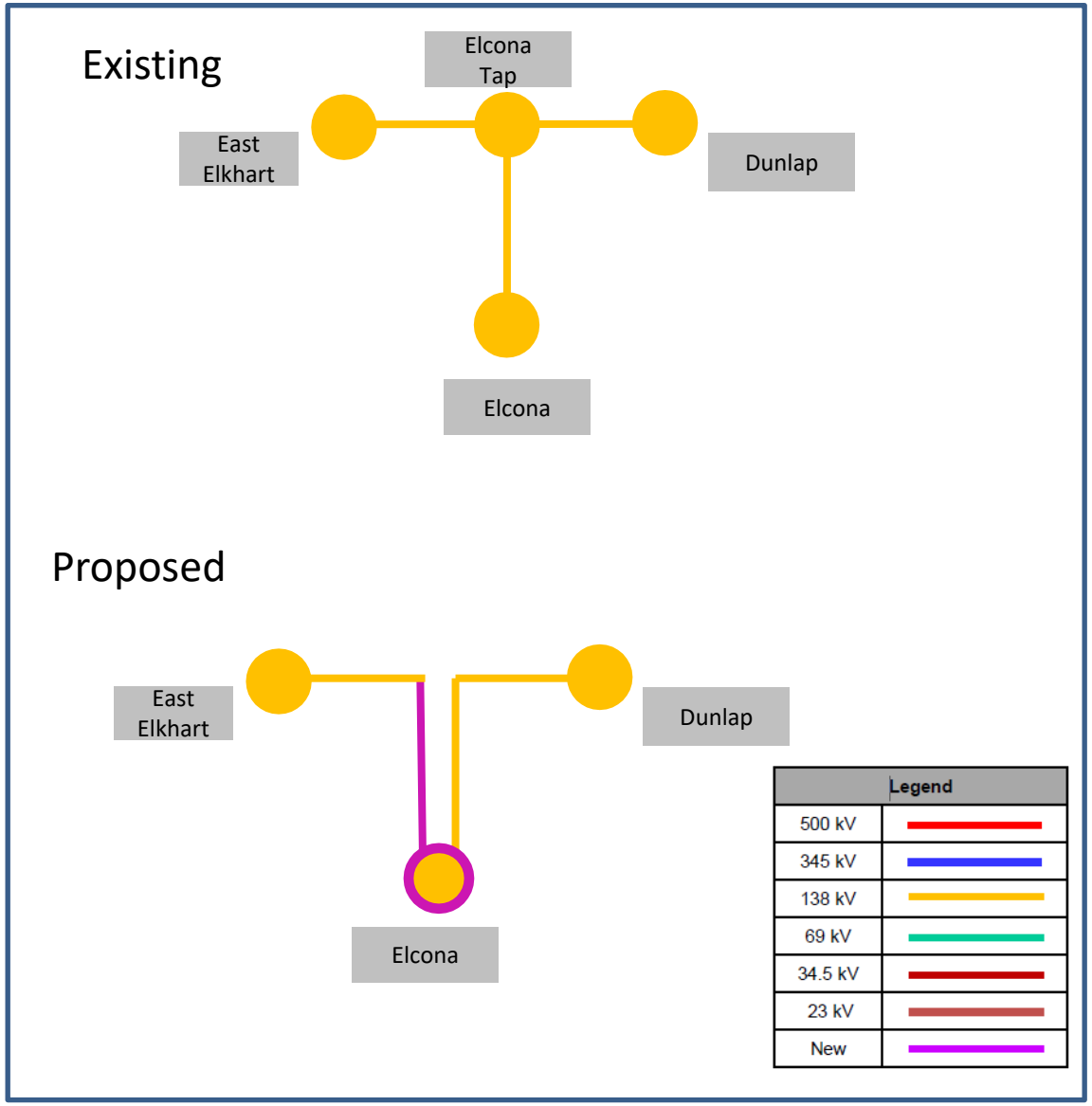
Transmission Cost Estimate: $18.128 M

Alternatives Considered:

Purchase property and construct a new looped D-Station with new D-Circuits tied to Elcona Circuits. The proposed solution is able to be executed on property already owned by AEP and would not benefit from a location change for the Distribution station. Rebuilding the existing radial as double circuit was also considered to provide the second line, but outages are not able to be taken on the existing line without dropping load at Elcona as it is not recoverable from other sources.

Projected In-Service: 05/02/2029

Project Status: Scoping



AEP Transmission Zone M-3 Process
Harrison, OH/Madison, OH

Need Number: AEP-2025-OH001

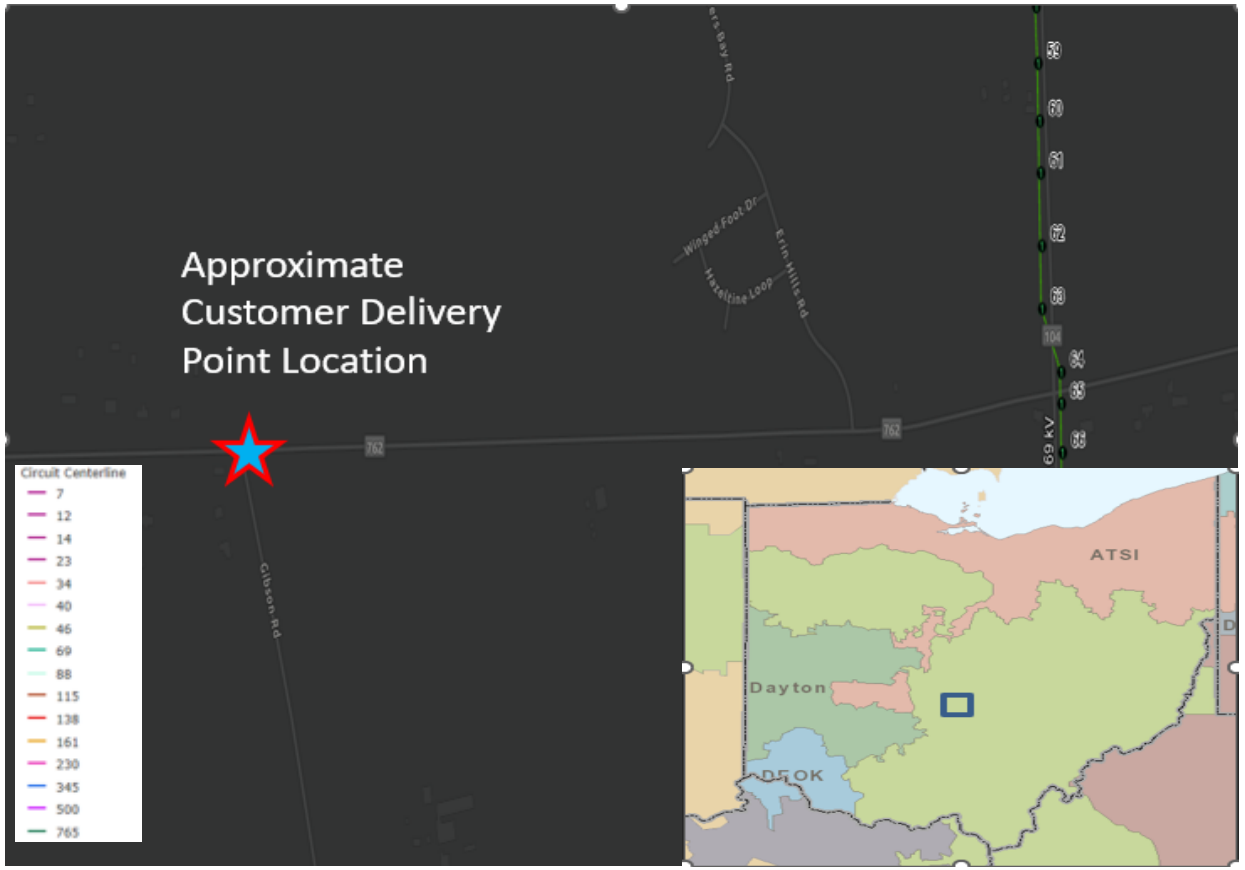
Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Previously Presented: Need Meeting 02/14/2025

Supplemental Project Driver: Customer Service

Specific Assumption Reference: AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 12)

Problem Statement:
Buckeye Power has requested a new 69kV delivery point in Pickaway County Ohio on behalf of South-Central Power Company, Inc. The projected demand at the delivery point at initial in-service is 10.0 MW with an ultimate capacity of up to 17.5 MW. The requested in-service date is 12/2026.



AEP Transmission Zone M-3 Process
Harrison, OH/Madison, OH

Need number(s): AEP-2025-OH001

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Erin Hills Switch 69kV: Install a 69 kV, 1200A 3-way phase-over-phase switch with MOAB switches. Estimated Cost: $1.73 M

Harrison Capbank 69 kV: Install 1 – 69kV cap bank (10.8 MVAR) with a 420A 18kA cap switcher at Harrison station.. Estimated Cost: $1.348 M

Harrison - Madison 69 kV Modification: Cut-in to the Harrison - Madison 69 kV circuit and connect it to Erin Hills Switch. Estimated Cost: $2.226 M

Erin Hills Switch Extension 69kV: Construct ~1.5 miles of greenfield single circuit 69kV transmission line from Erin Hills Switch to the customer's station. Estimated Cost: $5.711 M

Transmission Cost Estimate: $11.015 M

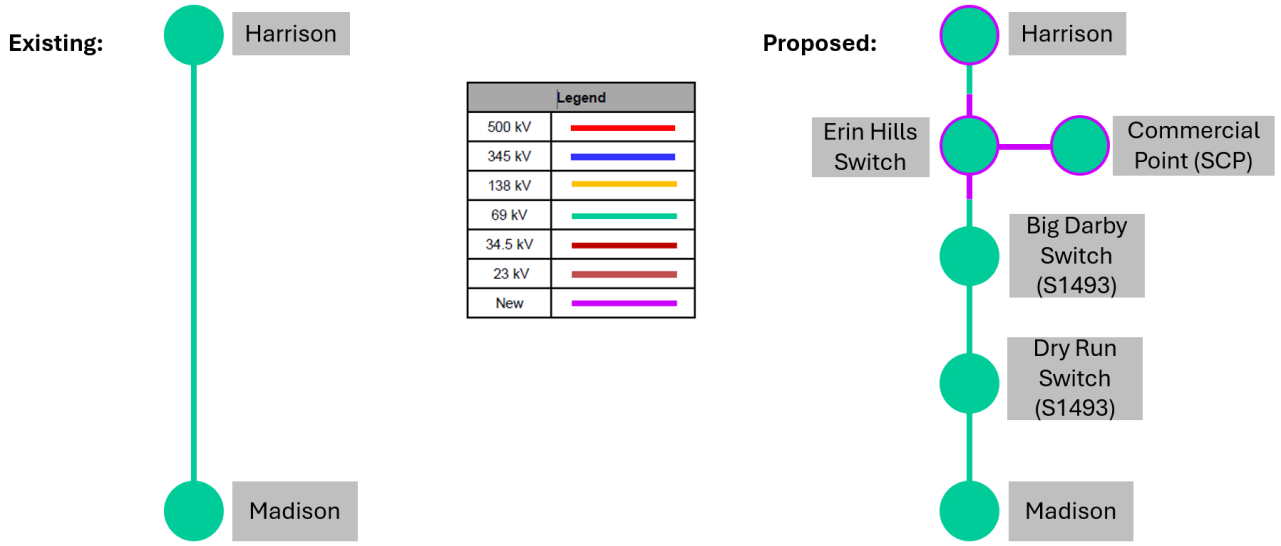
Alternatives Considered:

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

Projected In-Service: 06/08/2029

Project Status: Engineering

Bubble Diagram



AEP Transmission Zone M-3 Process
Greif, OH/Huntley, OH/Busch, OH/Lazelle, OH

Need Number: AEP-2025-OH003

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Previously Presented: Need Meeting 02/14/2025

Supplemental Project Driver: Equipment Condition/Performance/Risk

Specific Assumption Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

Problem Statement:

Huntley Extension 138kV:

The existing Huntley Extension 138 kV line was originally installed in 1977 and is approximately 2.57 miles long (~1.18 mi is single circuit 138 kV line and ~1.38 mi is double circuit 69 & 138 kV). The line utilizes a mixture of wood poles (41) and steel pole (9) structures with 636,000 CM ACSR 26/7 (Grosbeak) (138kV) & 336,400 CM ACSR 18/1 (Merlin) (69kV) conductor.

Circuit Historical Performance: Greif - Huntley (CSP) 138kV

From June 1, 2019 to June 30, 2024, there have been 5 momentary outages and 1 permanent outage on the Greif - Huntley (CSP) 138kV Circuit.

Circuit Historical Performance: Busch - Lazelle 69kV

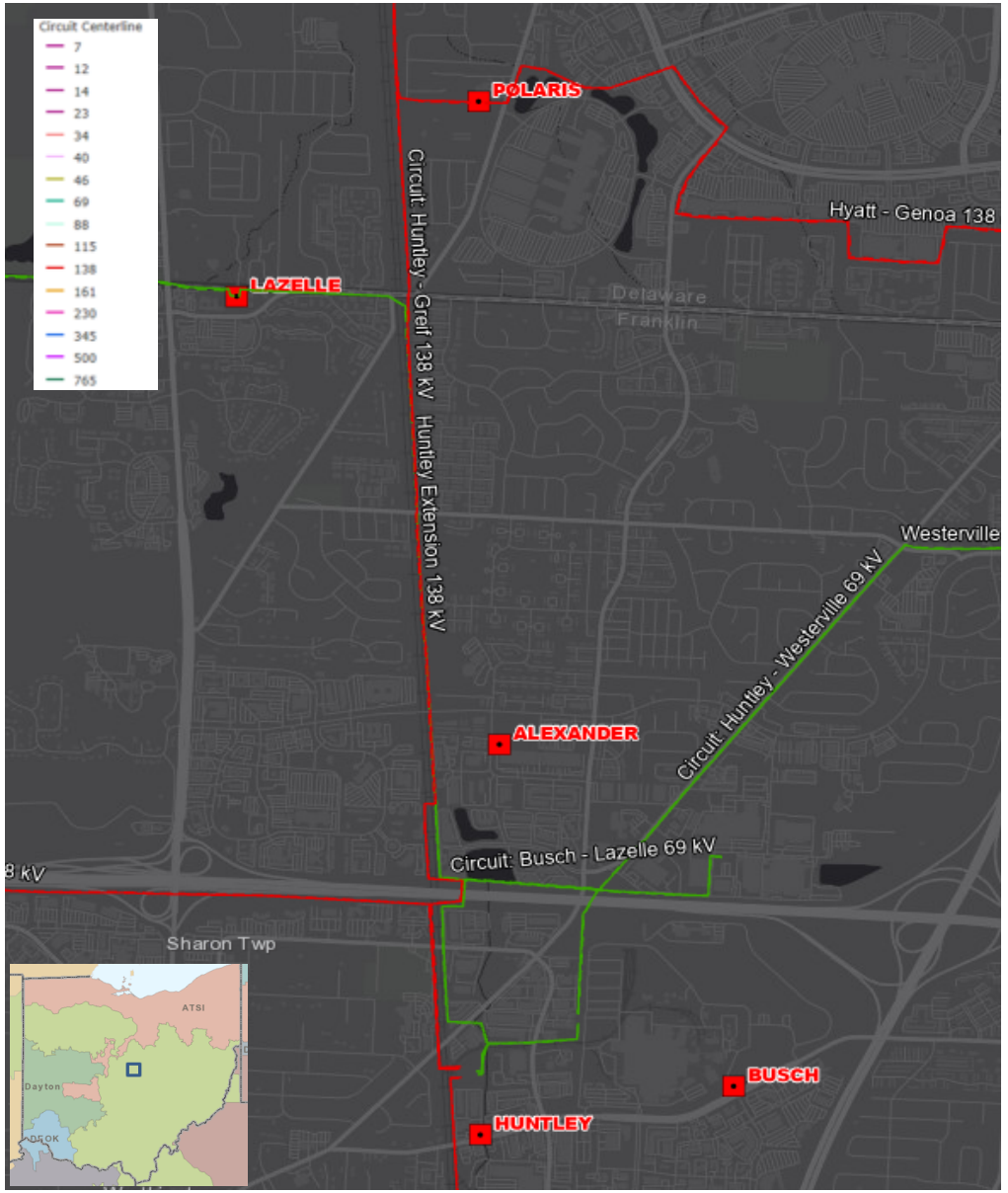
From June 1, 2019 to June 30, 2024, there have been 2 momentary outages, 5 permanent outages on the Busch - Lazelle 69kV Circuit.

Open Conditions:

As of September 16, 2024, there are 5 structures with at least one open structural condition, which relates to 10% of the structures on the line. There are currently 5 open structural conditions related specifically affecting the poles and crossarms including Rot Pocket (1), Rot Top (2), and Split (2) conditions. There are currently 11 hardware related open condition specifically affecting guys, insulator, and molding including Damaged (1), Loose (1), and Missing (9) conditions.

Additional Information:

A recent engineering analysis identified 49% of the line structures are overloaded under the NESC heavy loading conditions. The overloaded structures parallel a railroad right of way.



AEP Transmission Zone M-3 Process
Greif, OH/Huntley, OH/Busch, OH/Lazelle, OH

Need number(s): AEP-2025-OH003

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Huntley Extension Rebuild: Rebuild ~2.56 miles of line between the Busch - Lazelle 69 kV and Huntley - Greif 138 kV circuits, utilizing 1033.5 (54/7) ACSR conductor SE 69 kV (206 MVA) 138 kV (411 MVA); this rebuild consist of both single and double circuit sections (~1.18 miles of single circuit and ~1.38 miles of double circuit).. Estimated Cost: $15.7 M

Transmission Cost Estimate: $15.7 M

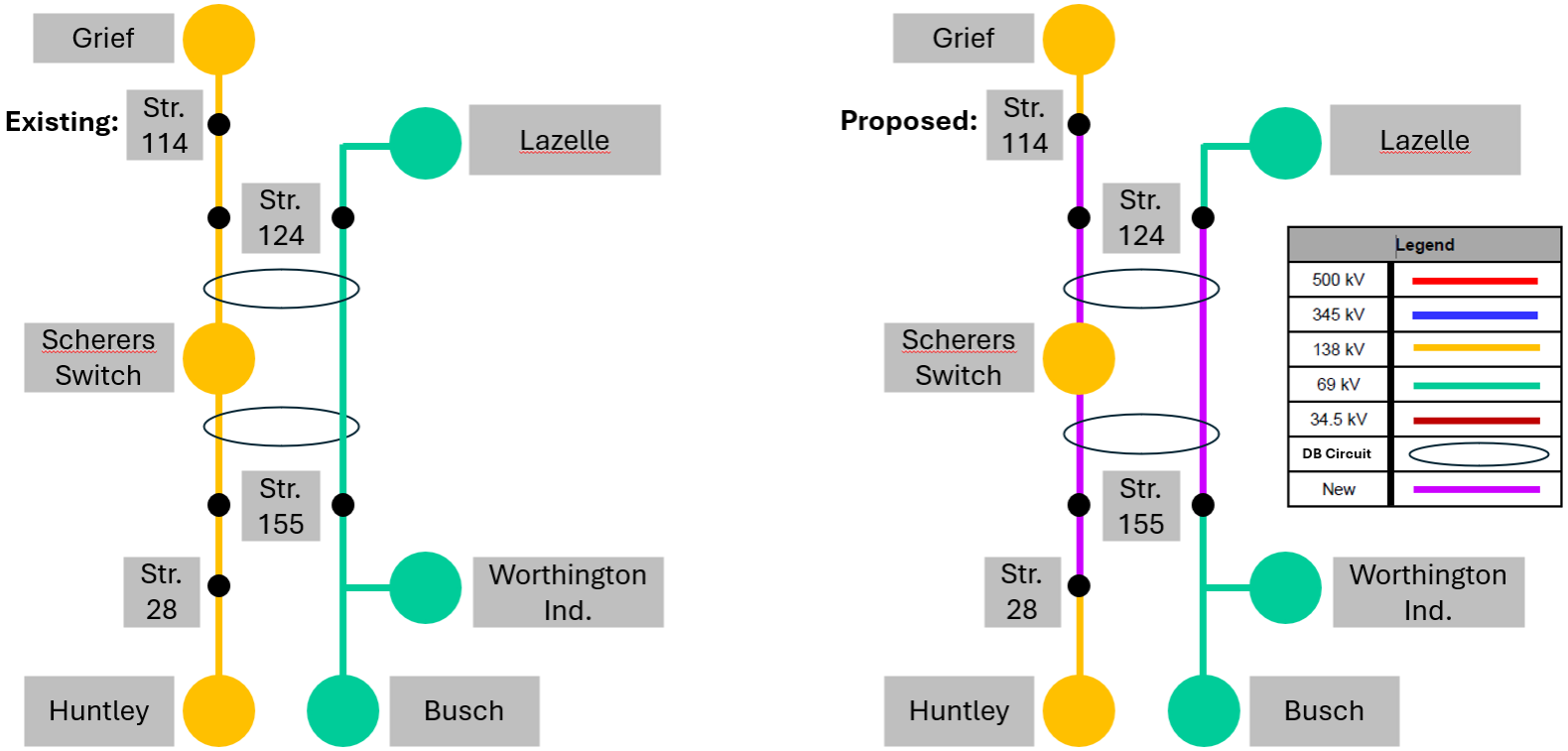
Alternatives Considered:

Considering the location of the line and number of stations served from it, retirement is not an option.

Projected In-Service: 03/03/2028

Project Status: Engineering

Bubble Diagram



AEP Transmission Zone M-3 Process
Windsor, OH

Need Number: AEP-2025-OH004

Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Previously Presented: Need Meeting 07/18/2025

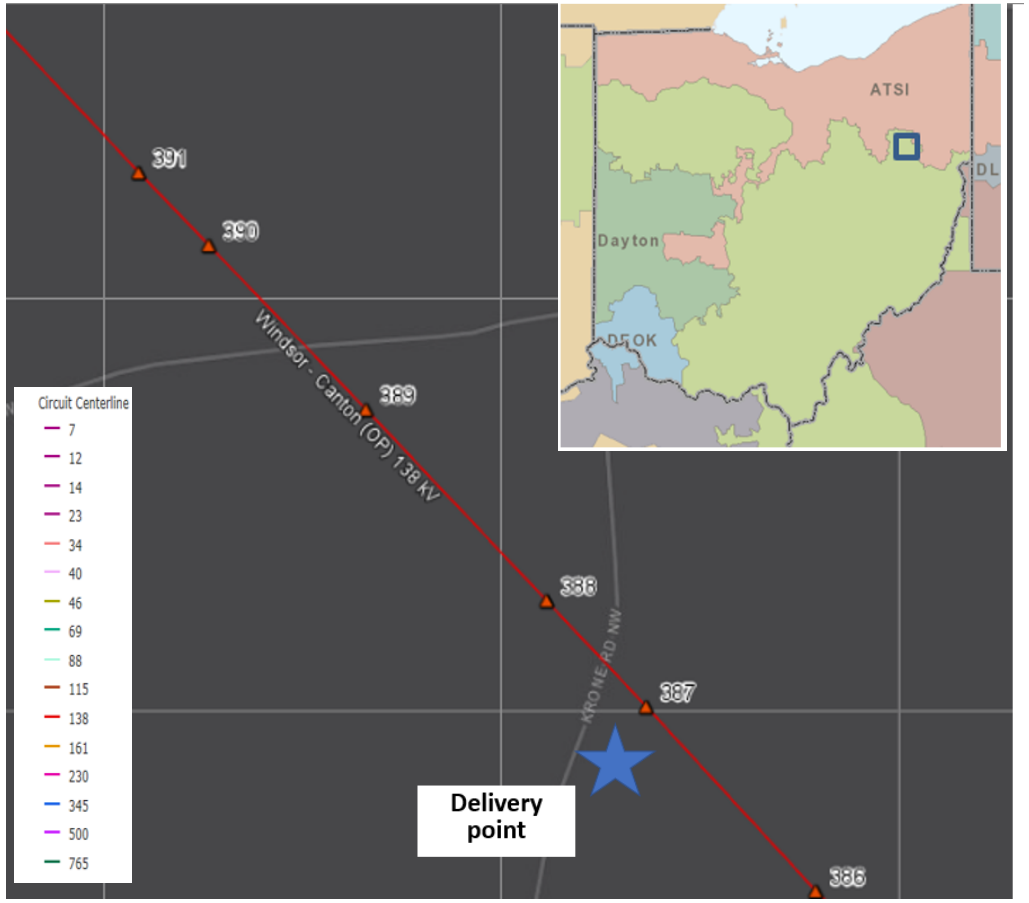
Project Driver: Customer Service

Specific Assumption References:

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

Problem Statement:

A customer has requested a new 138 kV delivery point in Malvern, Ohio. The anticipated load is 20 MW and delivery is requested by 02/18/2027.



AEP Transmission Zone M-3 Process
Windsor, OH

Need number(s): AEP-2025-OH004

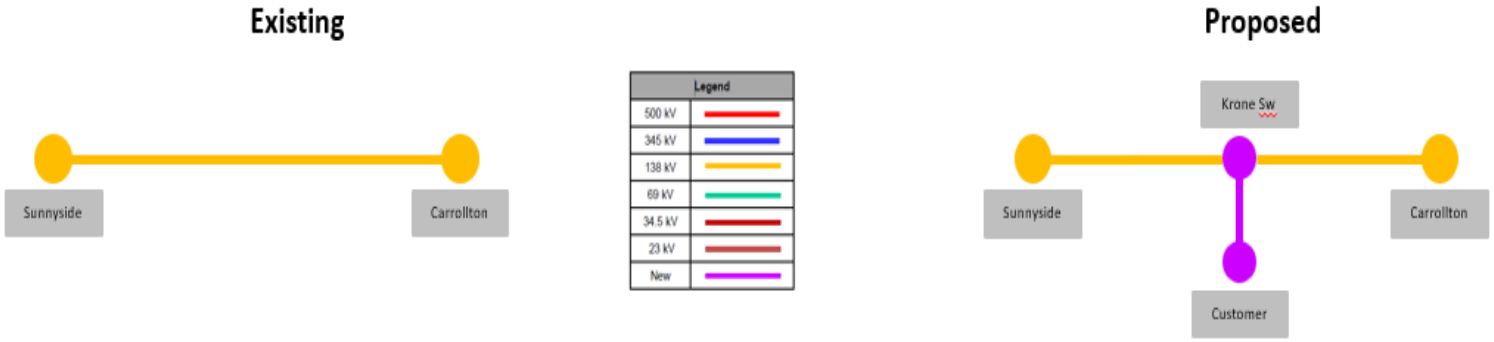
Process Stage: Solution Meeting SRRTEP-W - 09/19/2025

Proposed Solution:

Sunnyside - Carrollton 138 kV cut-in: Cut into the Sunnyside - Carrollton 138 kV circuit to install new phase over phase switch to the customer substation. Estimated Cost: $0.908 M

Customer Extension: Build ~0.1-mile extension from the switch structure to the customer substation. Estimated Cost: $0.446 M

Krone Switch Install: Install phase over phase switch cut into the Sunnyside - Carrollton 138 kV circuit. Estimated Cost: $1.101 M



Transmission Cost Estimate: $2.455 M

Alternatives Considered:

Serve customer from the 69kV line approximately 0.75 miles away. This option would require significant 69 kV upgrades to accommodate load.

Projected In-Service: 02/18/2027

Project Status: Scoping

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

09/08/2025– V1 – Original version posted to pjm.com