

Western Sub Regional RTEP: AEP Supplemental Projects

October 16, 2026

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



Need Number: AEP-2026-OH040

Process Stage: Need Meeting 10/16/2026

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

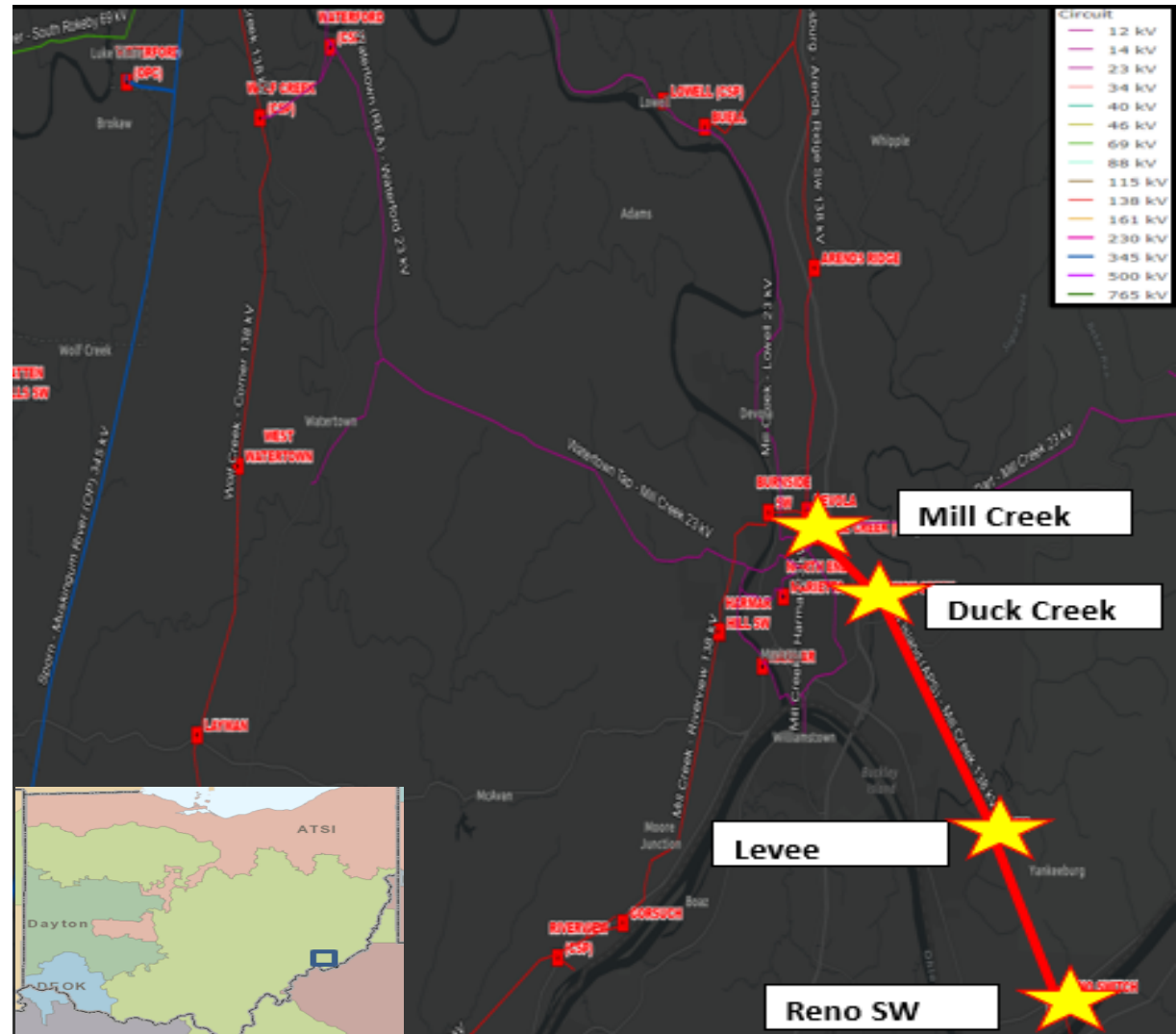
AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 13)

Problem Statement:

Reno SW - Mill Creek 138 kV

- Original Install Date: 1945 (some structures/conductor replaced in 1978)
- Total Length of Line: ~8.18 miles
- Circuit Segments:
 - Duck Creek - Mill Creek 138 kV: ~1.53 miles
 - Duck Creek - Levee 138 kV: ~4.02 miles
 - Belmont - Levee 138 kV (Levee to Reno SW section): ~2.65 miles
- Outage Info: 1 Permanent (14.65-hour outage due to failed AC equipment, breaker opened unknown)
- Structures: 54 wood poles currently in service, installed in 1978 (54 of 56 total structures)
- Conductor: 954 KCM ACSR 45/7 (Rail), 336 KCM ACSR 18/1 (Merlin)
- 23 open structure conditions with 19 unique structures that have at least with one condition (35%) associated with rot, woodpecker damage and broken grounds.

AEP Transmission Zone M-3 Process Reno Switch - Mill Creek 138 kV Line





AEP Transmission Zone M-3 Process

Nickel Distribution Delivery

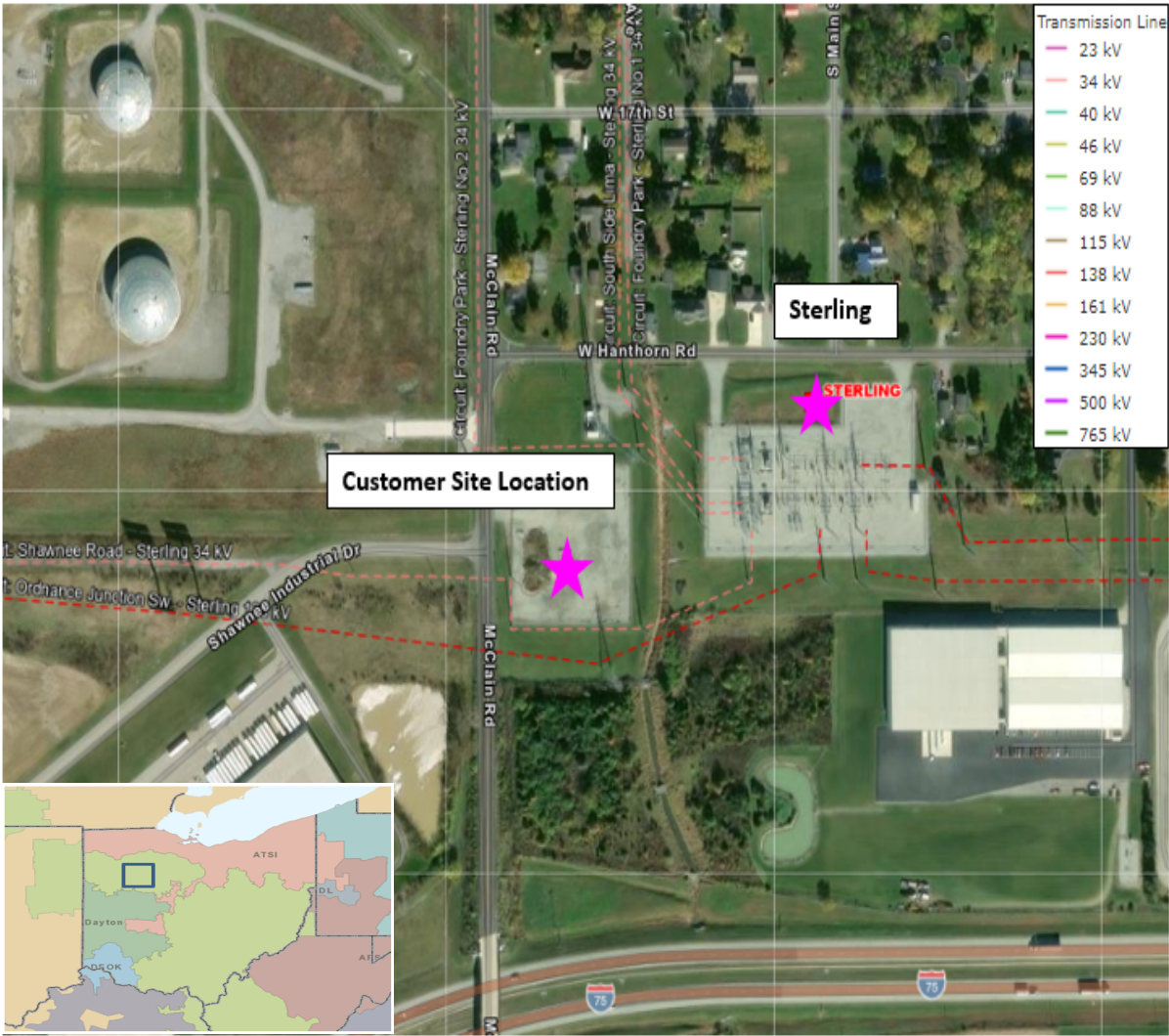
Need Number: AEP-2026-OH036

Process Stage: Need Meeting 10/16/2026

Project Driver: Customer Service

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

Problem Statement:
 AEP Ohio has requested a new 138kV delivery point (Nickel) located adjacent to the existing AEP Sterling substation with a requested 12/2028 ISD. The new distribution delivery point is intended to add distribution capacity to the industrial load center expanding in the area.



AEP Transmission Zone M-3 Process

Pittsburgh Avenue Station

Need Number: AEP-2026-OH038

Process Stage: Need Meeting 10/16/2026

Project Driver: Equipment Condition/Performance/Risk, Customer Service

Specific Assumption References:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 12 & 13)

Problem Statement:

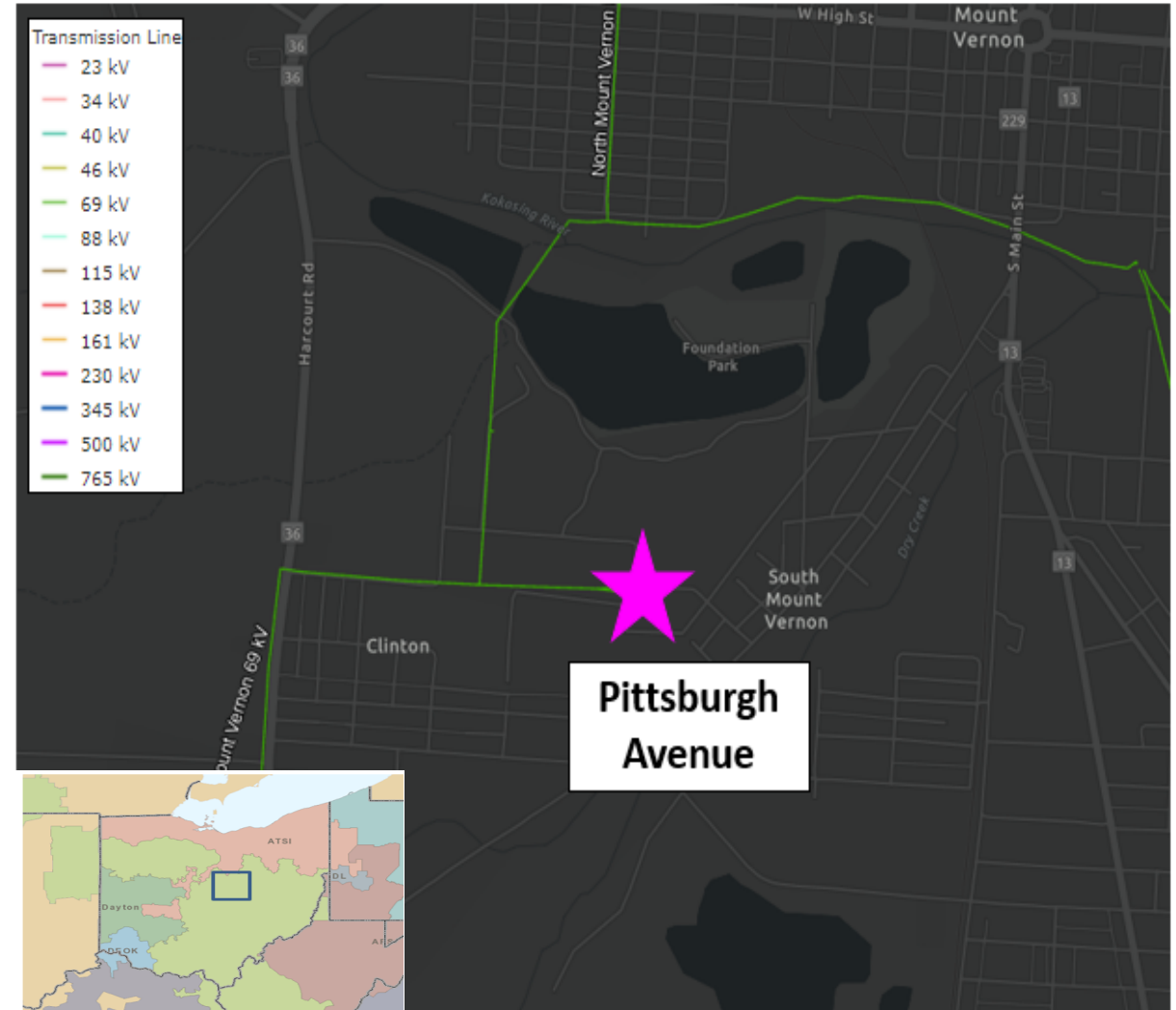
Pittsburgh Avenue Station

69kV Transmission owned circuit breaker, CB-A, is an oil type breaker. This breaker is 1960s vintage and is oil filled without oil containment; oil filled breakers have much more maintenance required due to oil handling that their modern, SF6 counterparts do not require. The manufacturer of the circuit breaker provides no support for this family of circuit breakers and spare parts are increasingly more difficult to obtain. This model family has experienced major malfunctions associated with their hydraulic mechanism, which includes low-pressure readings, hydraulic leaks, pump lockouts, and failure to shut off. These mechanism malfunctions have led to several failures to close and other types of mis-operations across the AEP fleet.

The station utilizes vintage 69kV "hook stick" circuit breaker switches which are more difficult to operate compared to GOAB disconnects.

Pittsburgh Avenue Substation currently deploys 43 relays, implemented to ensure the adequate protection and operation of the substation. Currently, 38 of the 43 relays (88% of all station relays) are in need of replacement. There are 36 of the electromechanical and 2 static type relays which have significant limitations with regards to fault data collection and retention.

AEP OH has also requested modifications to their distribution delivery point at the station.





Need Number: AEP-2026-OH042

Process Stage: Need Meeting 10/16/2026

Project Driver: Customer Service

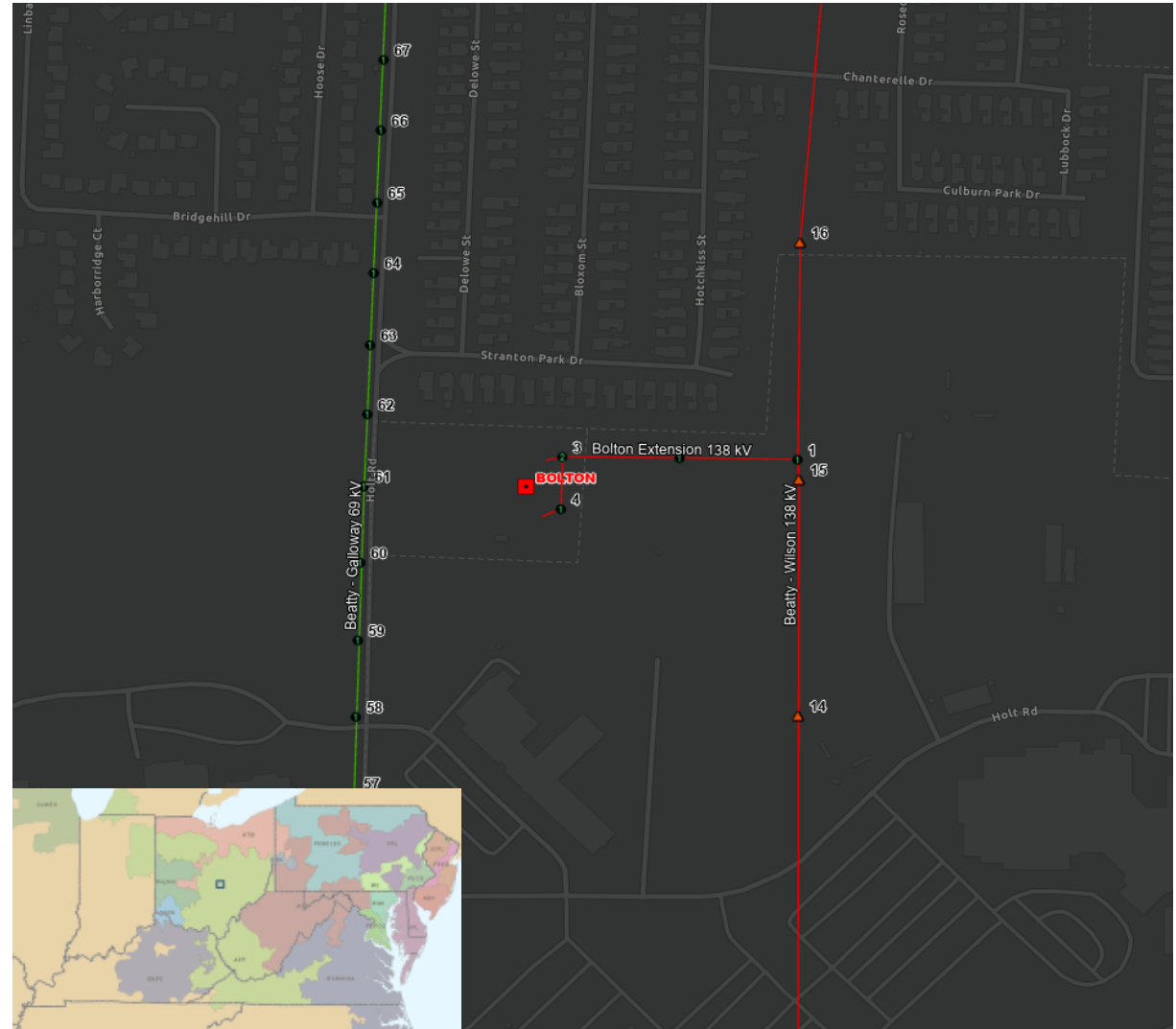
Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 1 2)

Problem Statement:

AEP Ohio Distribution has requested additional load from the existing Bolton 138kV station delivery point. The requested load increase is 16 MVA with expected service date of Q3 2027.

AEP Transmission Zone M-3 Process Bolton Station Distribution Delivery





AEP Transmission Zone M-3 Process Franklin Furnace Customer Delivery Point

Need Number: AEP-2026-OH043

Process Stage: Need Meeting 10/16/2026

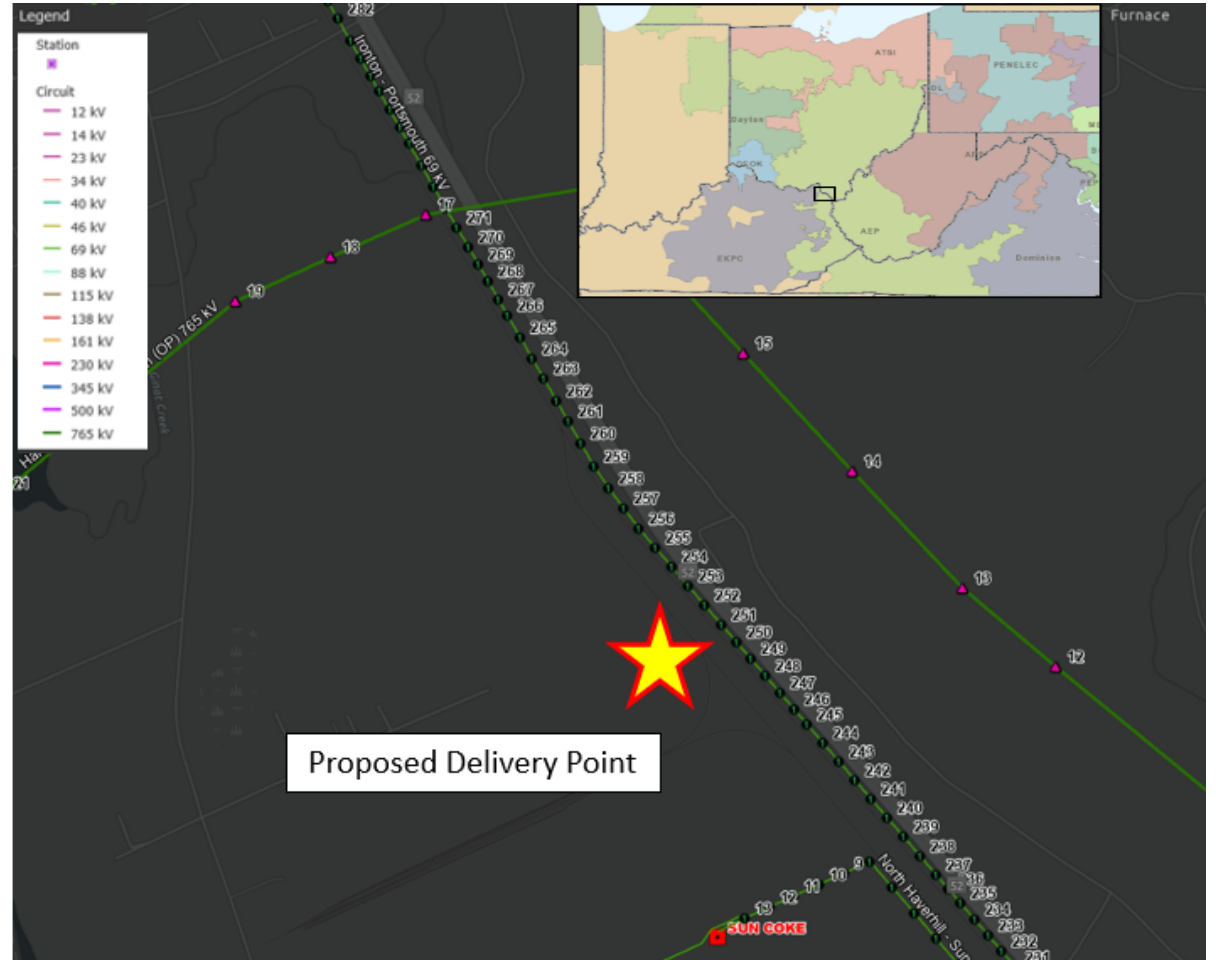
Project Driver: Customer Service

Specific Assumption References:

AEP Connection Requirements for the AEP Transmission System (AEP Assumptions Slide 1 2)

Problem Statement:

A Customer has requested 69kV transmission service for 20 MW in Franklin Furnace, OH. The customer's ultimate load is 20MW and has asked to be in service by 3/31/2028.





AEP Transmission Zone M-3 Process Reedy Creek

Need Number: AEP-2026-AP008

Process Stage: Need Meeting 10/16/2026

Project Driver: Equipment Condition/Performance/Risk, Operational Flexibility and Efficiency

Specific Assumption References:

AEP Assumptions Slide 12

Problem Statement:

Reedy Creek 138/69/34.5 kV XFR #1 controls are obsolete with no part availability as well as leaks from the wiring. The LTC is inoperable and locked down. No oil containment is present. Oil analysis has identified elevated levels of Ethane and Carbon Dioxide which indicates excessive decomposition of the paper insulating materials, reducing the ability of the transformer to withstand faults.

Reedy Creek 69/12 kV XFR #2 bushings are in need of replacement due to high risk of moisture ingress from worn gaskets. Cooling controls are obsolete and replacement parts are unavailable. No oil containment is present. The unit lacks thermally upgraded paper insulation and the unit's insulation materials are deteriorating. As the insulating paper materials age, they become brittle. The increasingly brittle and non-thermally upgraded paper can impair the unit's ability to withstand future short circuit or through fault events due to the state of the paper insulation.





AEP Transmission Zone M-3 Process Reedy Creek

Need Number: AEP-2026-AP008

Problem Statement: Continued from previous slide...

Reedy Creek 34.5 kV GND Bank cross ties are rotten, bushings are in need of replacement due to high risk of moisture ingress from worn gaskets. No oil containment.

Reedy Creek Substation currently deploys 45 relays, implemented to ensure the adequate protection and operation of the substation. Currently, 39 of the 45 relays (87% of all station relays) are in need of replacement or remediation. Of these, there are 30 of the electromechanical type which have significant limitations with regards to spare part availability and fault data collection and retention. In addition, these relays lack of vendor support. Also, there are 9 microprocessor relay commissioned from 2013-2017 that utilize obsolete firmware.

Reedy Creek also has multiple overlapping zones of protection. Currently, if a fault occurs at Reedy Creek on the 138kV bus or either of the T1 or T2 protection zones, we must momentarily drop Orebank and Short Hills stations via transfer trip pilot protection to isolate the fault and rely on the motor operated switch there at Reedy Creek to properly open and sectionalize the line. These types of schemes can be unreliable and, if it does not operate correctly, we will lose both of those stations which includes 11 Distribution circuits. Additionally, if we have any type of equipment malfunction (breaker failure) on the 138kV Nagel breaker, 138kV cap bank switcher or the 34kV C.B. "E", we must lock out the line to isolate these issues. This situation occurred recently with a 34.5 kV breaker failure that caused the loss of Short Hills, Orebank, Wellmont and Lovedale, impacting over 14k customers.



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 Salamonie - Burr Oak 69 kV Line Solution

Need Number: AEP-2019-IM031

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 02/20/2019

Project Driver: Equipment Condition/Performance/Risk, Customer Service

Specific Assumption References:

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

Problem Statement:

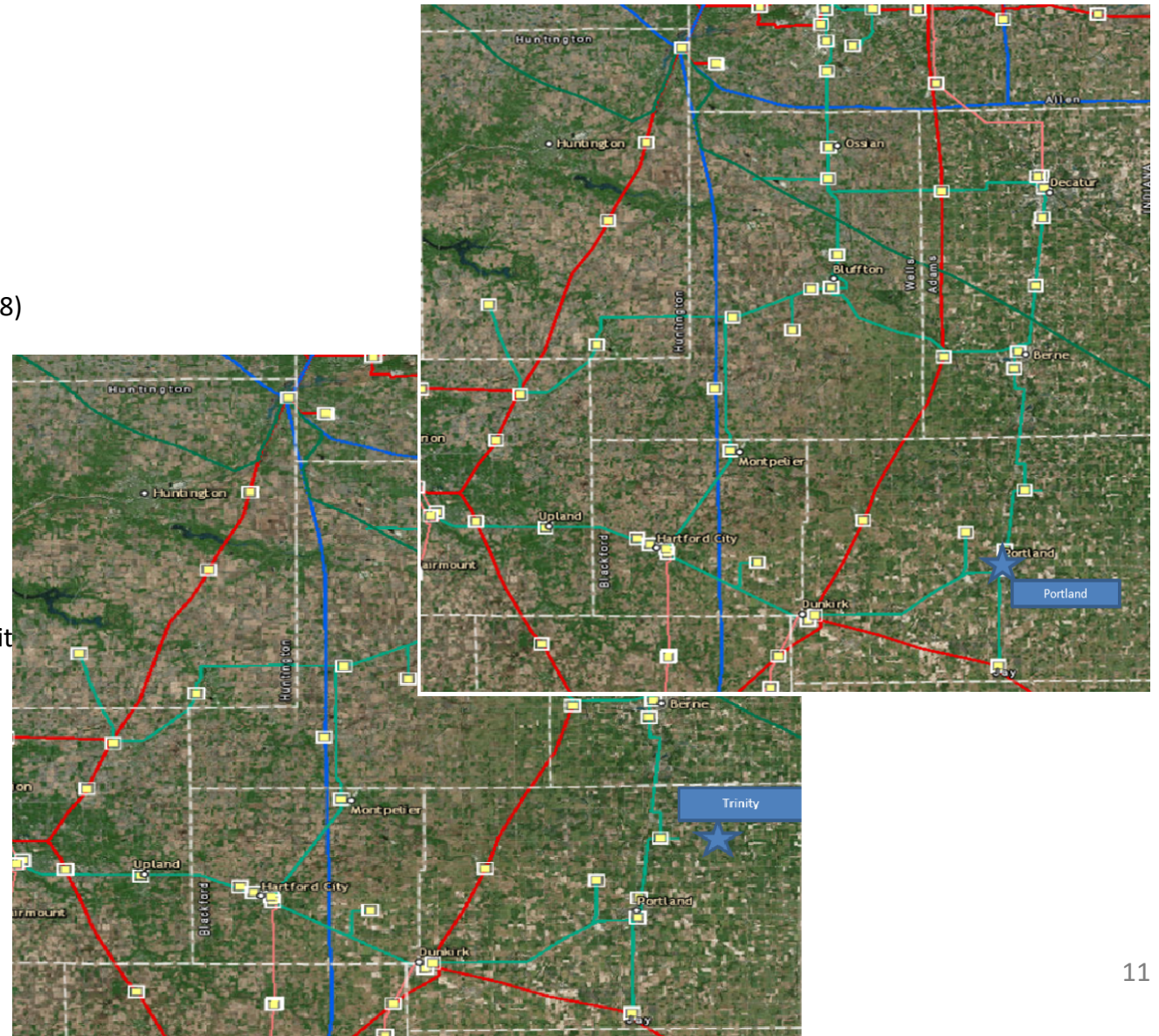
Portland 69kV station

Breakers "A" and "G"

- 1962-1969 vintage Oil breakers
- Fault Operations: A(57) G(89) – Recommended(10)

Trinity Tap (Jay REMC/Wabash Valley Power Authority)

- Potential economic developments have not materialized due to system load limit
- WVPA is targeting this area for load growth.





Need Number: AEP-2022-IM019

Process Stage: Solution Meeting 10/16/2026

Previously Presented: Need Meeting 11/18/2022

Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions slide 13 and slide 14.)

Problem Statement:

Portland – Marathon Oil 69 kV line is 6.77 miles long originally installed in 1968. The line is part of the Portland – North Portland and North Portland – Limberlost 69 kV circuits.

Length: 6.77 Miles

Original Construction Type: Wood pole structures with porcelain insulators along with several recently replaced steel poles (structures 49-59 and 74-75).

Conductor Type: 336.4 kCM ACSR 18/1 Merlin (5.79 mi, 1968 vintage); (0.94 mi; vintage 2017-2018)

Outage history:

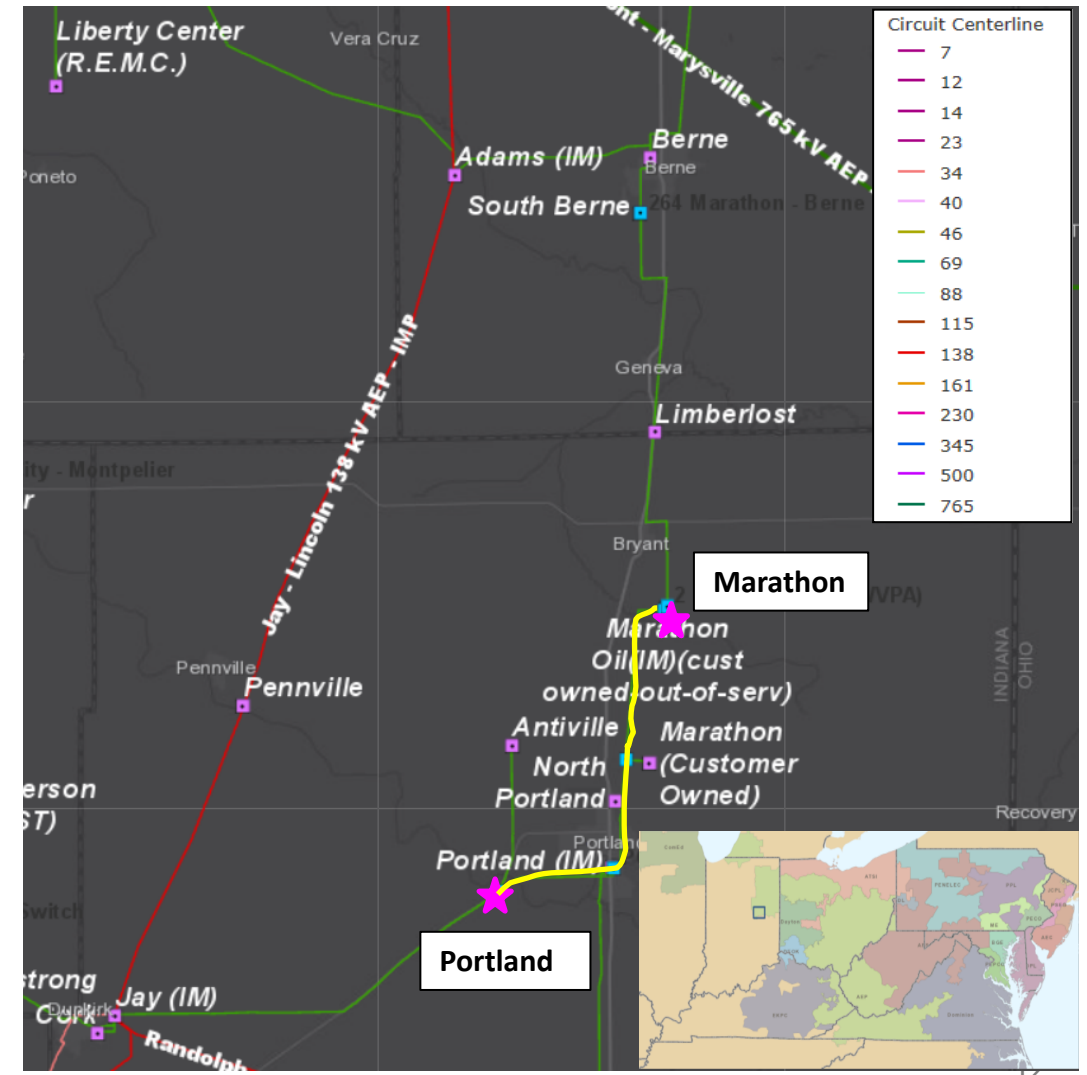
- Portland – North Portland 69 kV circuit:
 - Momentary/Permanent Outages: 2 Permanent outage 2017-2018
- North Portland – Limberlost 69 kV circuit:
 - Momentary/Permanent Outages: 3 Permanent and 1 Momentary 10/2018 – 1/2021

Condition Summary

- Number of open conditions: 7
 - The open conditions affecting the pole include rot heart and leaning transverse conditions.
- Based on the aerial drone and ground crew assessment done on 56 structures, the following was noted.
 - Approximately 32% of the structures assessed have wood decay, insect damage and bird damage.
 - Most wood poles have moderate to advanced shell decay.
 - Structure ground are not to AEP standards. Only partial grounds exists with a mix of aluminum to copper down-lead, and to a butt wrap.
- Structures fail NESC Grade B and AEP Strength requirements.
- The grounding method utilizes grounding rod on every other structure reducing lightning protection for the line.

Total structure count: 175, with 143 dating back to original installation.

AEP Transmission Zone M-3 Process Salamonie - Burr Oak 69 kV Line Solution





AEP Transmission Zone M-3 Process Salamonie - Burr Oak 69 kV Line Solution

Need number(s): AEP-2019-IM031, AEP-2022-IM019

Process Stage: Solution Meeting 10/16/2026

Proposed Solution:

Salamonie - Burr Oak 69 kV rebuild (Previously called Portland – Marathon Oil)

- Rebuild ~8.25 miles of 69 kV line (Previously called Portland - Marathon Oil) with the conductor size 556.5 ACSR 26/7 Dove.
- Estimated Cost: \$46 M

Salamonie

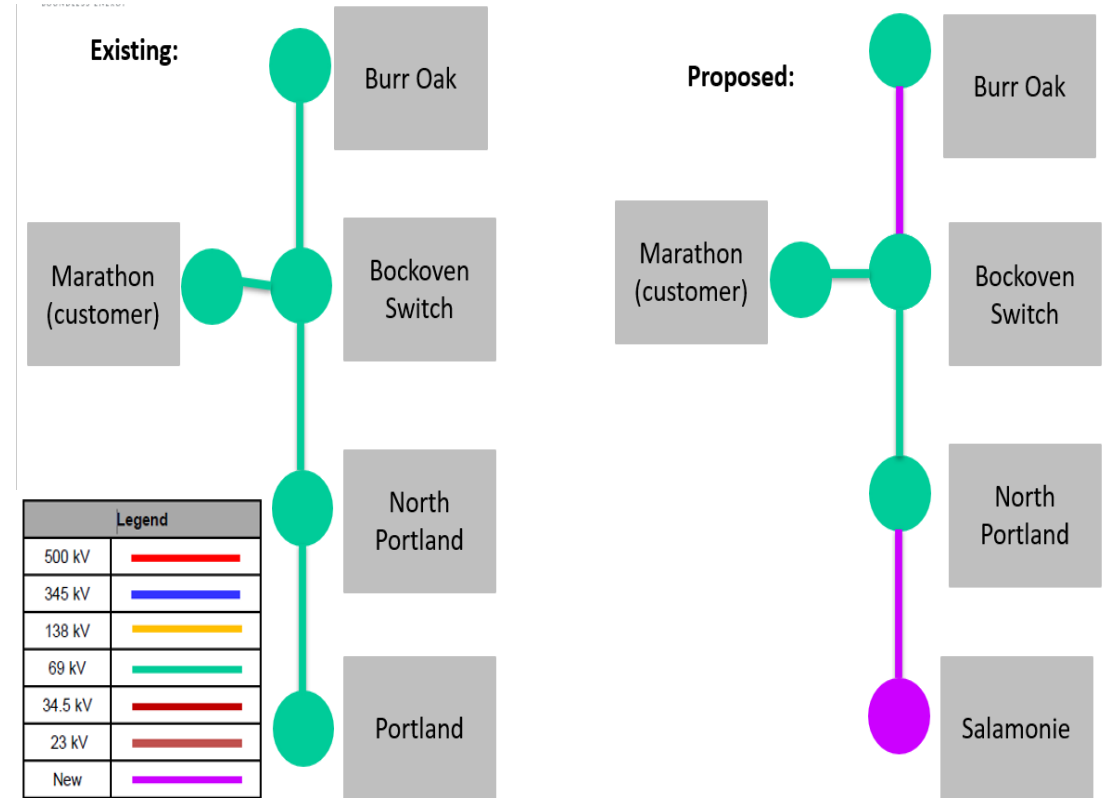
- Install a five 69 kV circuit breaker ring bus greenfield station to replace the Portland station as the station upgrades are not feasible at the current station location due to space restrictions.
- Estimated Cost: \$13.3 M

Bluff Point - Portland 69 kV line relocation to Salamonie station

- Line relocation to connect to the new Salamonie station. Install ~0.5 miles of 69 kV line with 556.5 ACSR 26/7 Dove line conductor to connect to Salamonie station. Remove ~0.8 miles from Structure #153 to Portland station.
- Estimated Cost: \$3.6 M

Jay - Portland 69 kV line relocation to Salamonie station

- Line relocation to connect to the new Salamonie station. Install ~0.1 miles of 69 kV line with 556.5 ACSR 26/7 Dove line conductor to connect to Salamonie station. Also remove ~0.6 miles from Structure #290 to Portland station.
- Estimated Cost: \$2.5 M





Need number(s): AEP-2019-IM031, AEP-2022-IM019

Proposed Solution: Continued from previous slide...

Jay 69 kV relay upgrades

- Jay 69 kV relay upgrades needed for the connection to Salamonie station.
- Estimated Cost: \$0.17 M

Bluff Point 69 kV relay upgrades

- Bluff Point 69 kV relay upgrades needed for the line relocation to Salamonie station.
- Estimated Cost: \$0.17 M

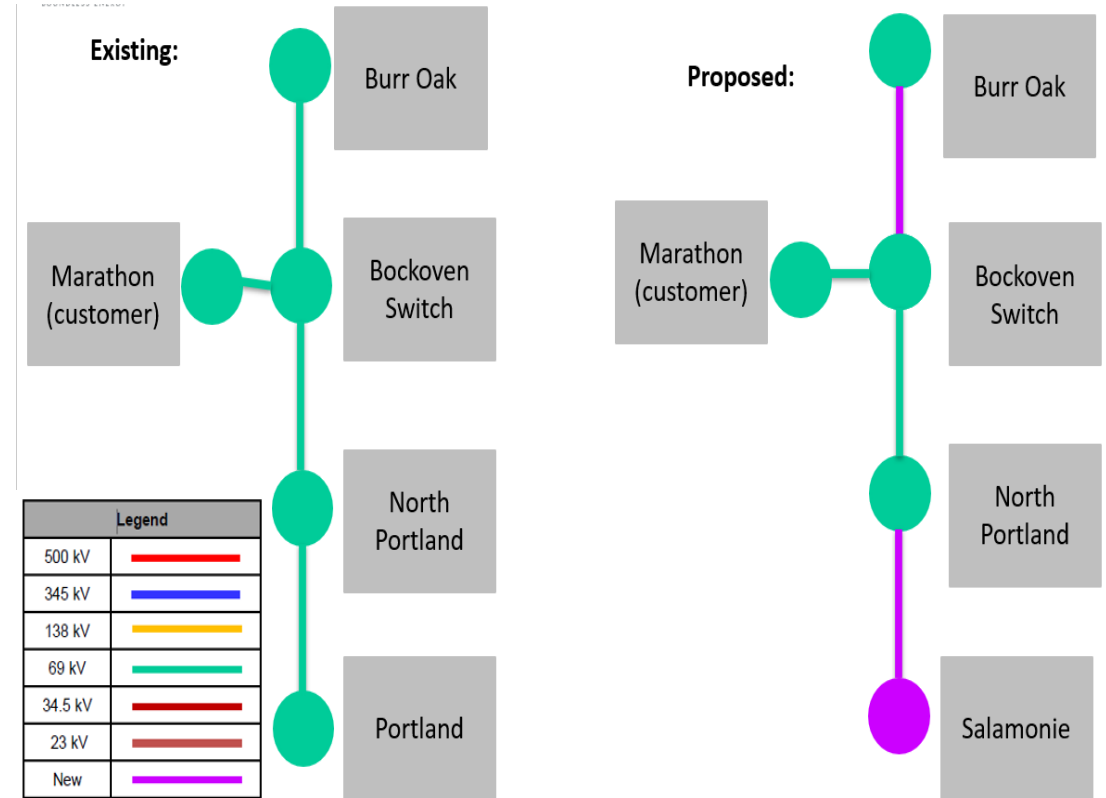
North Portland 69 kV relay upgrades

- North Portland 69 kV relay upgrades needed for the line rebuild and connection to Salamonie station.
- Estimated Cost: \$0.22 M

Portland station removal and retirement

- Retirement and removal of the Portland station as it does not have enough space to accommodate the upgrades needed.
- Estimated Cost: 0

AEP Transmission Zone M-3 Process Salamonie - Burr Oak 69 kV Line Solution





AEP Transmission Zone M-3 Process Salamonie - Burr Oak 69 kV Line Solution

Need number(s): AEP-2019-IM031, AEP-2022-IM019

Continued from previous slide...

Ratings MVA (SN/SE/WN/WE):

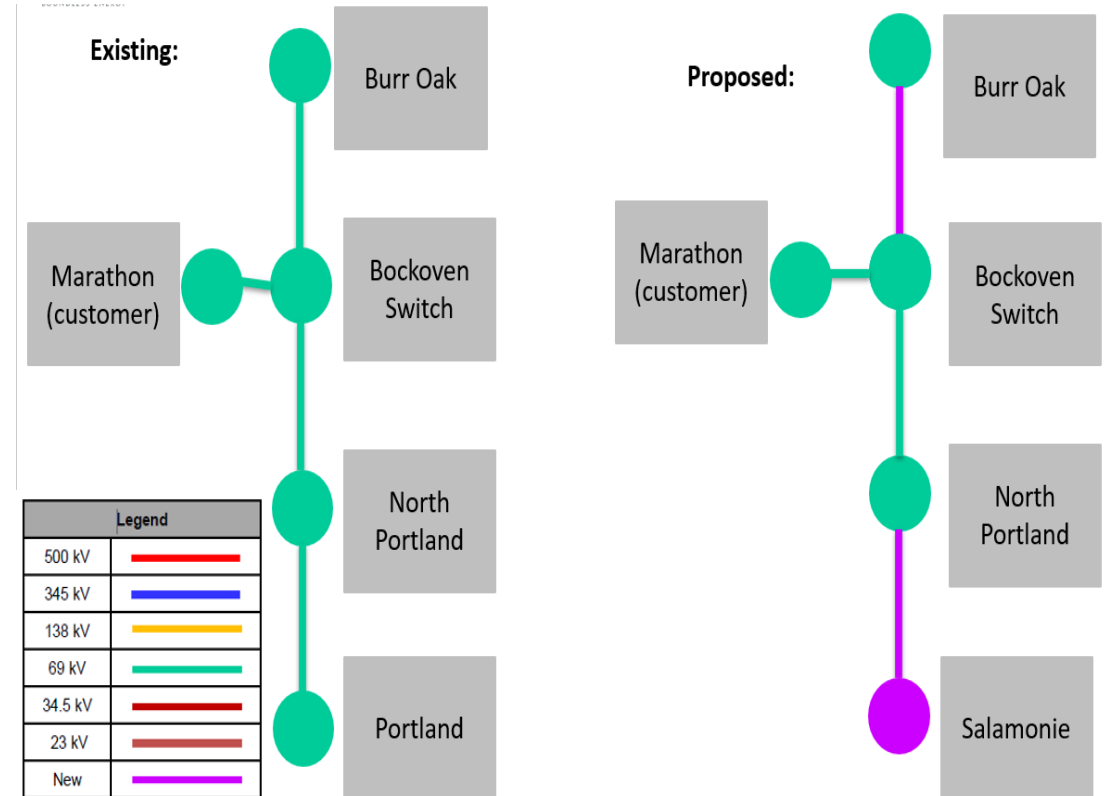
Salamonie - Burr Oak 69 kV rebuild (Previously called Portland – Marathon Oil)

- Before Proposed Solution: 68/86/90/103
- After Proposed Solution: 102/142/129/152

Salamonie

- A 69 kV Breaker
 - Before Proposed Solution: N/A kA
 - After Proposed Solution: 40 kA
- B 69 kV Breaker
 - Before Proposed Solution: N/A kA
 - After Proposed Solution: 40 kA
- C 69 kV Breaker
 - Before Proposed Solution: N/A kA
 - After Proposed Solution: 40 kA
- D 69 kV Breaker
 - Before Proposed Solution: N/A kA
 - After Proposed Solution: 40 kA
- E 69 kV Breaker
 - Before Proposed Solution: N/A kA
 - After Proposed Solution: 40 kA

SRRTEP-W - 10/16/2026 - AEP





AEP Transmission Zone M-3 Process Salamonie - Burr Oak 69 kV Line Solution

Need number(s): AEP-2019-IM031, AEP-2022-IM019

Ratings MVA (SN/SE/WN/WE): Continued from previous slide...

Bluff Point - Portland 69 kV line relocation to Salamonie station

- Before Proposed Solution: 68/86/86/90
- After Proposed Solution: 68/86/86/90

Jay - Portland 69 kV line relocation to Salamonie station

- Before Proposed Solution: 79/90/100/107
- After Proposed Solution: 100/100/126/126

Alternatives Considered:

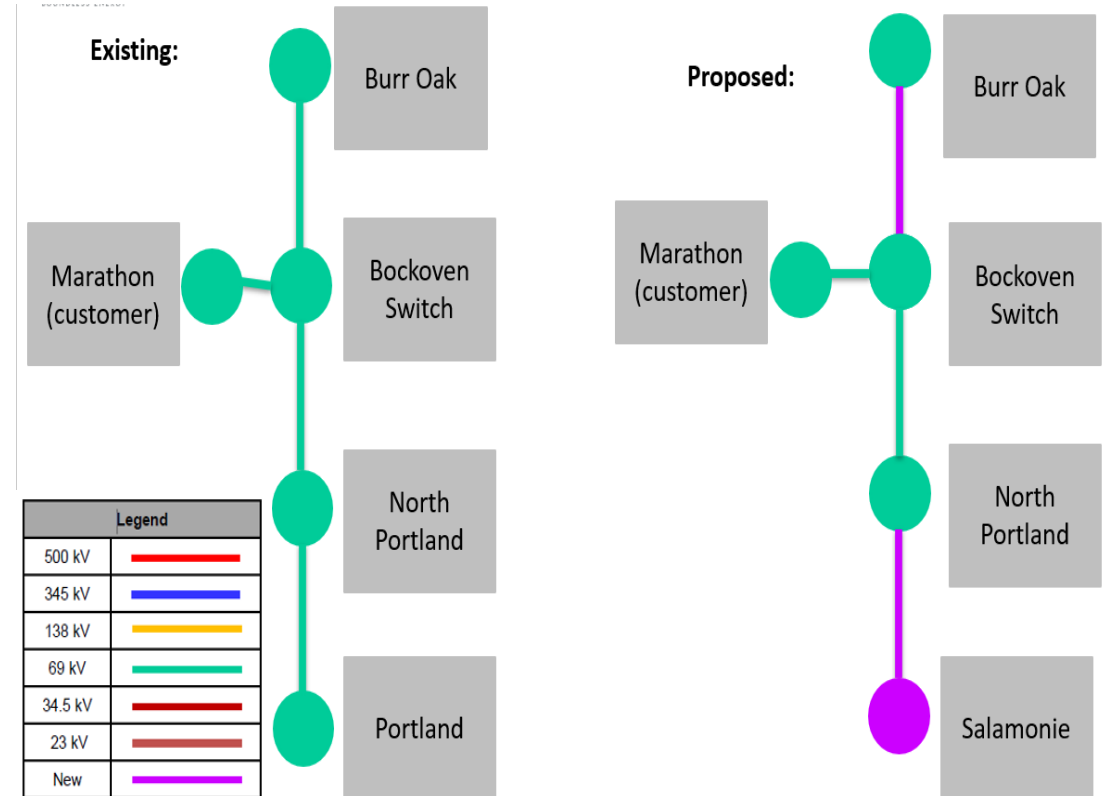
Retirement of the line was evaluated but deemed not feasible as there are many loads connected throughout this line which would require costly solutions to reliably feed these loads as it currently is.

Transmission Cost Estimate: \$65.96 M

Projected In-Service: 12/14/2029

Project Status: Scoping

Model: 2030 RTEP



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

10/06/2026– V1 – Original version posted to pjm.com