

Western Sub Regional RTEP: AEP Supplemental Projects

May 19, 2023

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-2023-OH009

Process Stage: Need Meeting 05/19/2023

Project Driver: Equipment Material/Condition/Performance/Risk; Operational Flexibility & Efficiency

Specific Assumption Reference: AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slides 13-14)

Problem Statement:

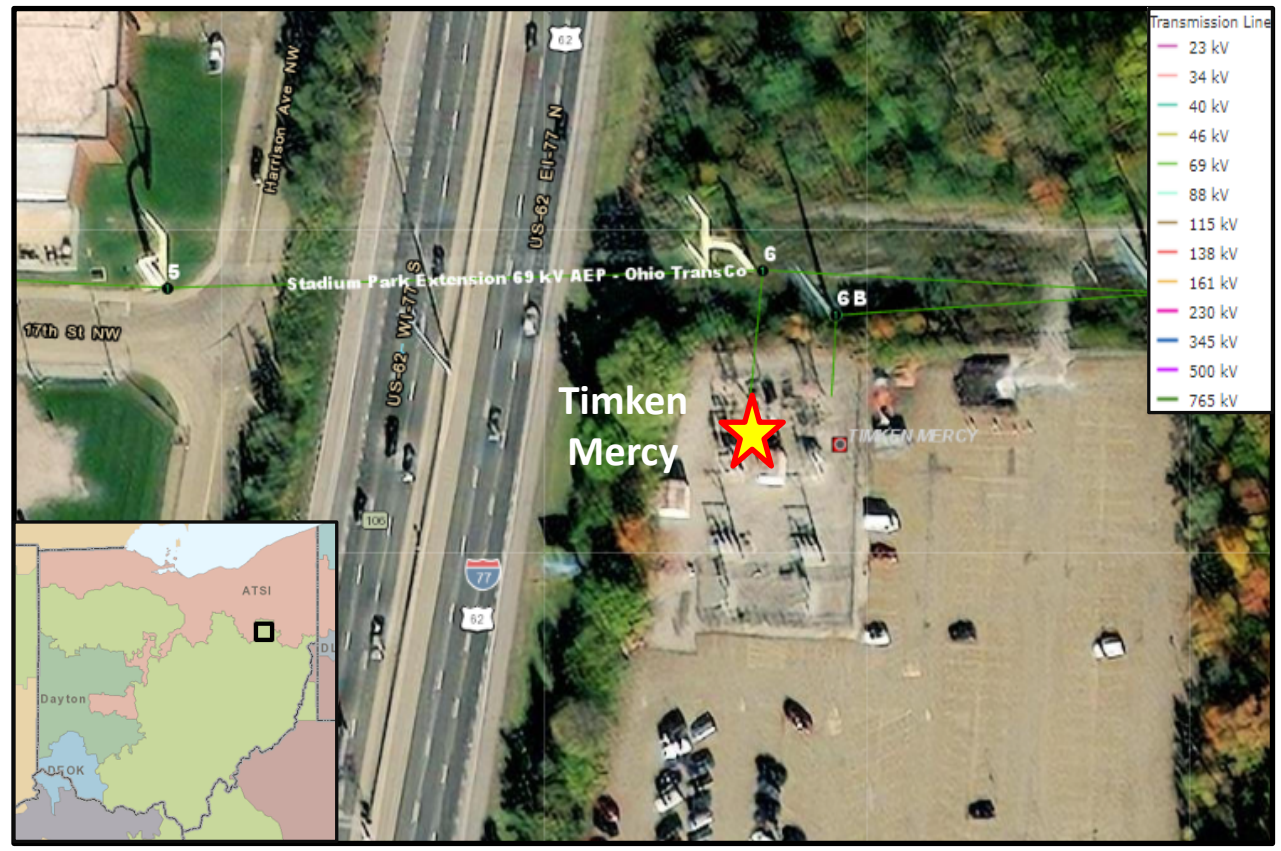
69 kV Circuit Breaker A:

- Breaker Age: 1966
- Interrupting Medium: (Oil)
- Additional Information: This breaker 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. As of April 10, 2023, there are only 33 remaining FK-69-2500-5 circuit breakers on the AEP system. The manufacturer provides no support for this fleet of circuit breakers and spare parts are not available; components are often taken from out of service units with remaining usable parts. A common failure mode documented in AEP malfunction records are compressor failures and valve defects, which cause low pressure and oil leaks. Another failure mode includes trip or reclose failures, caused primarily by spring latching and charging motor component failures. In addition, the vacuum oil and oil breakers have a lot of oil contamination from aging gaskets allowing moisture and other particle ingress.

Relays:

Currently, 30 of the 33 relays (91% of all station relays) are in need of replacement. All 30 of these are 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.

Other: The distribution-function equipment at Timken Mercy is also of 1969-vintage and is recommended for upgrades. In November 2022, the 69-4kV transformer #1 failed in an outage event, resulting in the need for a mobile transformer to be installed.



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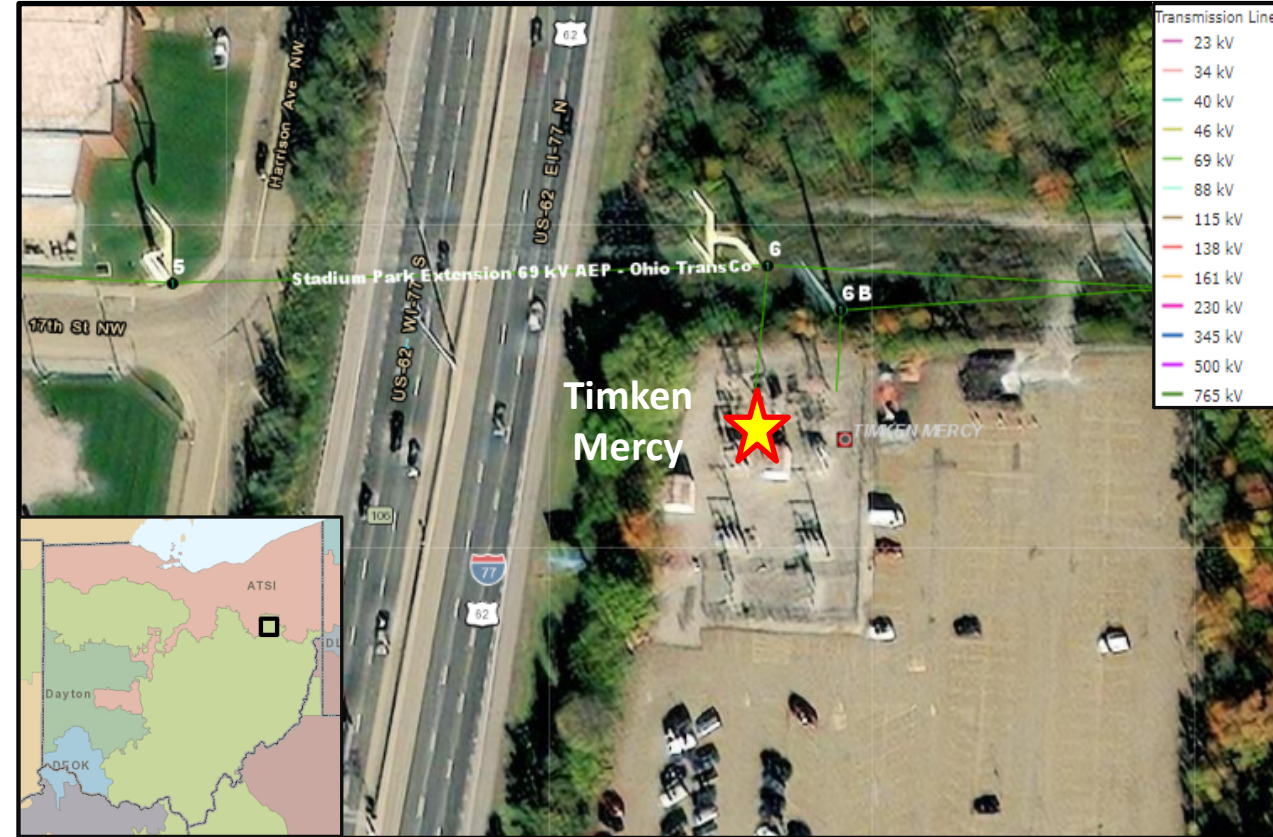
Process Stage: Need Meeting 05/19/2023

Project Driver: Equipment Material/Condition/Performance/Risk; Operational Flexibility & Efficiency

Problem Statement:

Operational Flexibility & Efficiency

Both 69-4 kV transformers that serve the hospital customer only have a high-side motor-operated switch; the transformer fault protection requires clearing the 69kV circuit (to either Stadium Park or Schroyer Avenue, which drops customers at Eighth Street 69kV station nearby). There are 3 overlapping zones of protection, between the 69kV circuit, transformer, and 69kV bus. This can lead to potential misoperations and overtripping, affecting service to the customer.



Need Number: AEP-2023-OH070

Process Stage: Need Meeting 5/19/2023

Project Driver: Customer Service

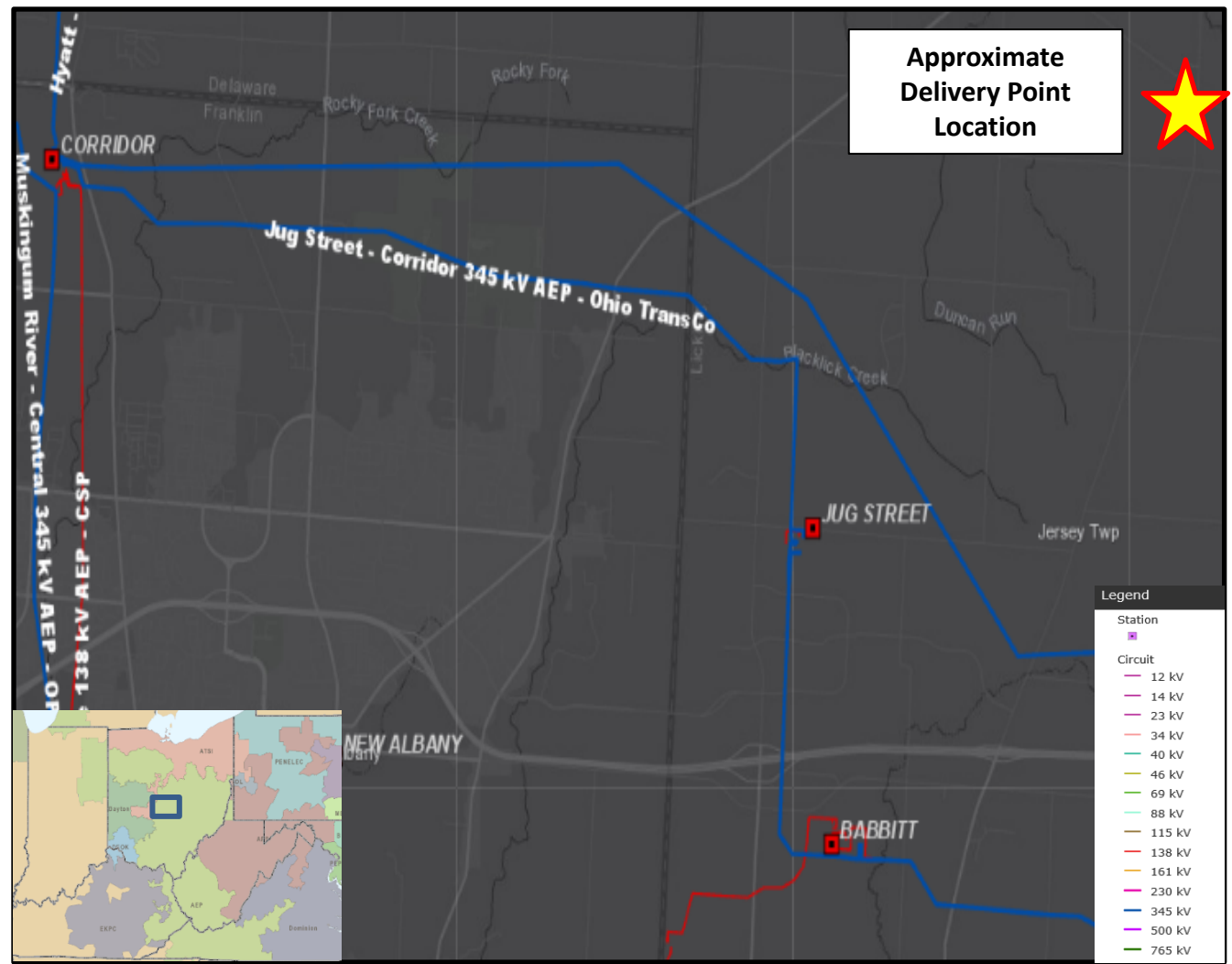
Specific Assumption Reference:

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

Problem Statement:

Customer Service:

- Buckeye Power, Inc. (Buckeye), on behalf of The Energy Cooperative (Licking REC) has requested a new 138 kV delivery point in New Albany Ohio.
- The projected demand at this delivery point is 24 MW in 2025 with an expected ultimate load of 43 MW by 2033.
- The customer has requested an ISD of June 2025



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

Need Number: AEP-2019-IM045

Process Stage: Solution Meeting 5/19/2023

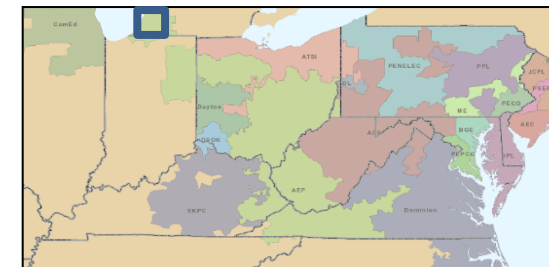
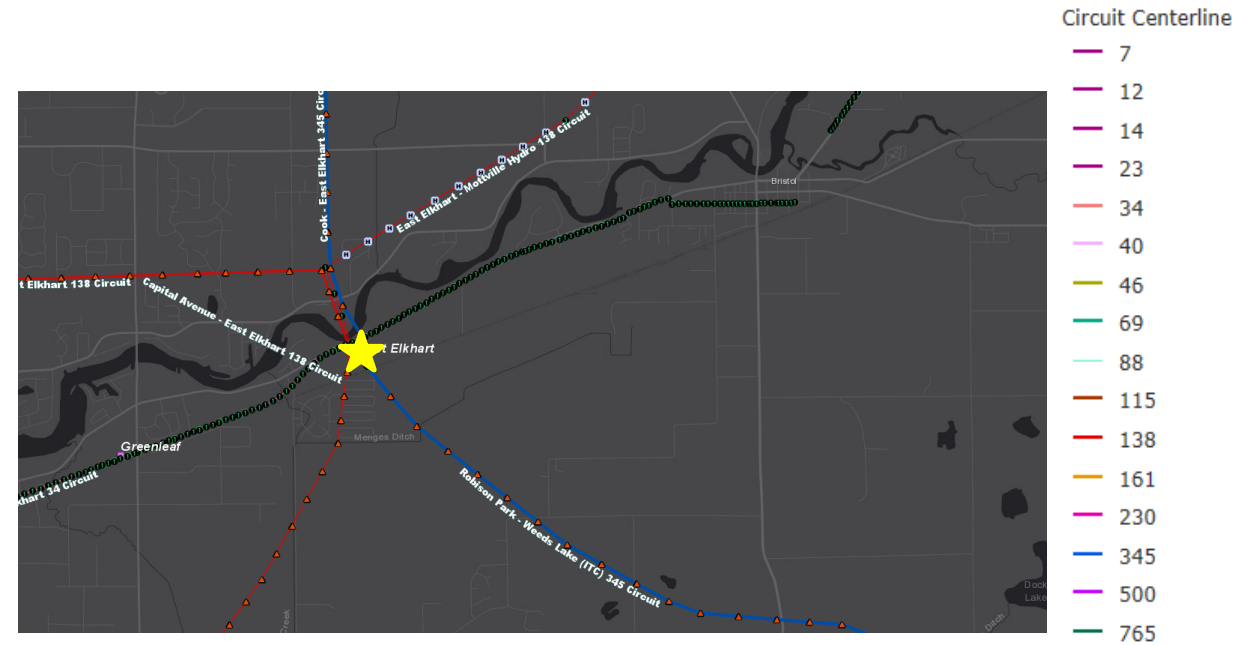
Previously Presented: Needs Meeting 11/22/2019

Project Driver: Customer Service

Specific Assumption Reference: AEP Interconnection Guidelines (AEP Assumptions Slide 7)

Problem Statement:

Request from NIPSCO for two (2) new 138kV interconnections at East Elkhart.



Need Number: AEP-2019-IM045

Process Stage: Solution Meeting 5/19/2023

Proposed Solution:

East Elkhart 138kV: Install a new 138kV breaker string with 3 3000A 40kA circuit breakers to accommodate two new feeds to the NIPSCO station. Relocate the 345/138kV transformer #2 feed to the new string. Install metering on both exits out of East Elkhart towards NIPSCO'S Menges Ditch station. **Estimated Cost: \$0.00M**

East Elkhart – Menges Ditch 138kV #1 and #2: Install the first span and structure outside of East Elkhart, one exiting to the north and the other to the south, utilizing 2 bundle 795 ACSR 26/7 DRAKE conductor creating a new AEP-NIPSCO interconnection and PJM-MISO seam.

Estimated Cost: \$0.00M

Total Estimated Transmission Cost: \$0.00M

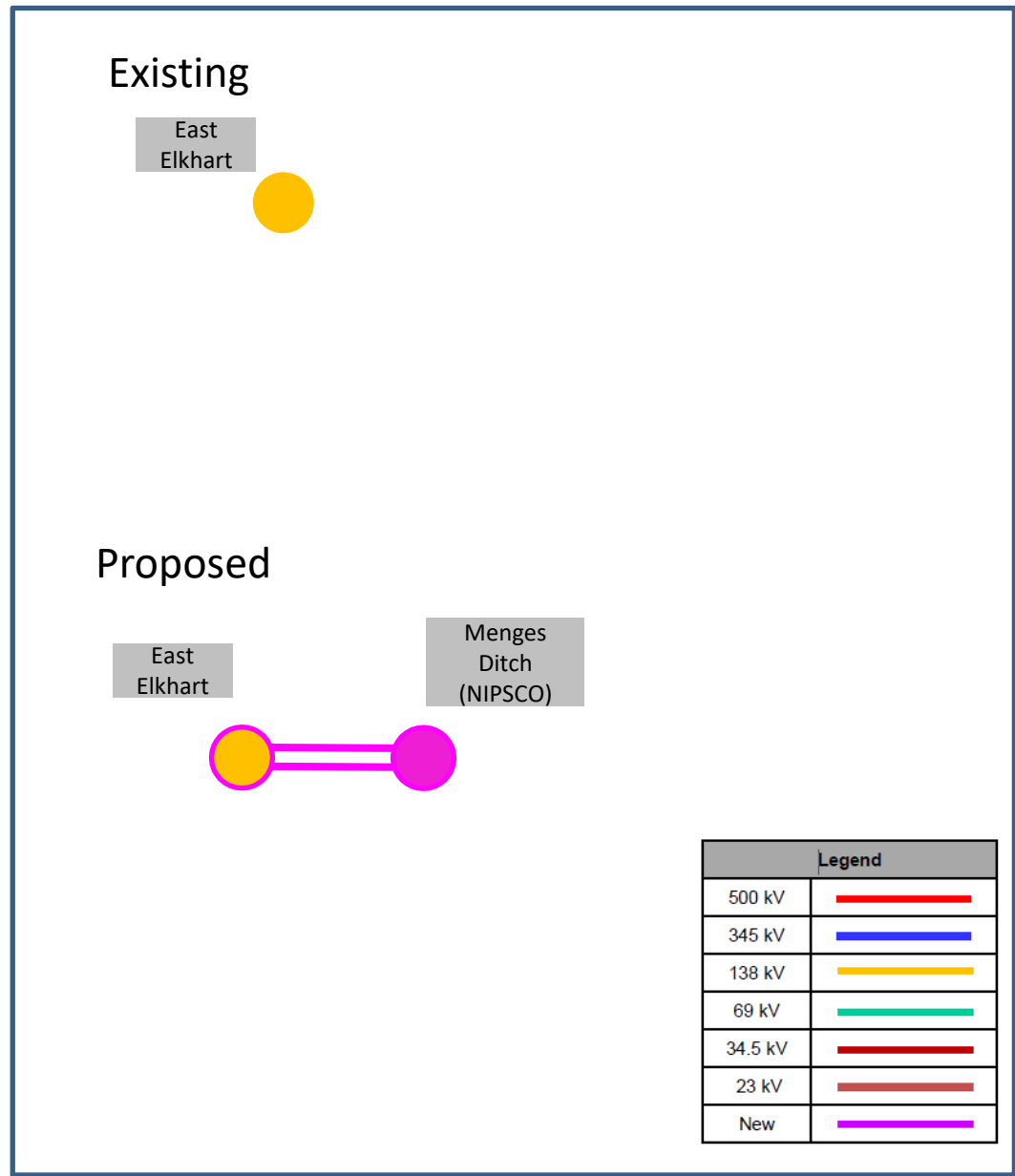
Alternative considered:

As this was a NIPSCO requested connection point, no viable alternatives were identified.

Projected In-Service: 12/1/2025

Project Status: Scoping

This project is fully funded by NIPSCO in MISO.



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

5/9/2022– V1 – Original version posted to pjm.com