Subregional RTEP Committee - Western
DEOK Supplemental Projects

February 16, 2024

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

DEOK Transmission Zone M-3 Process
Evendale

Need Number: DEOK-2024-002

Process Stage: Needs Meeting 02/16/2024

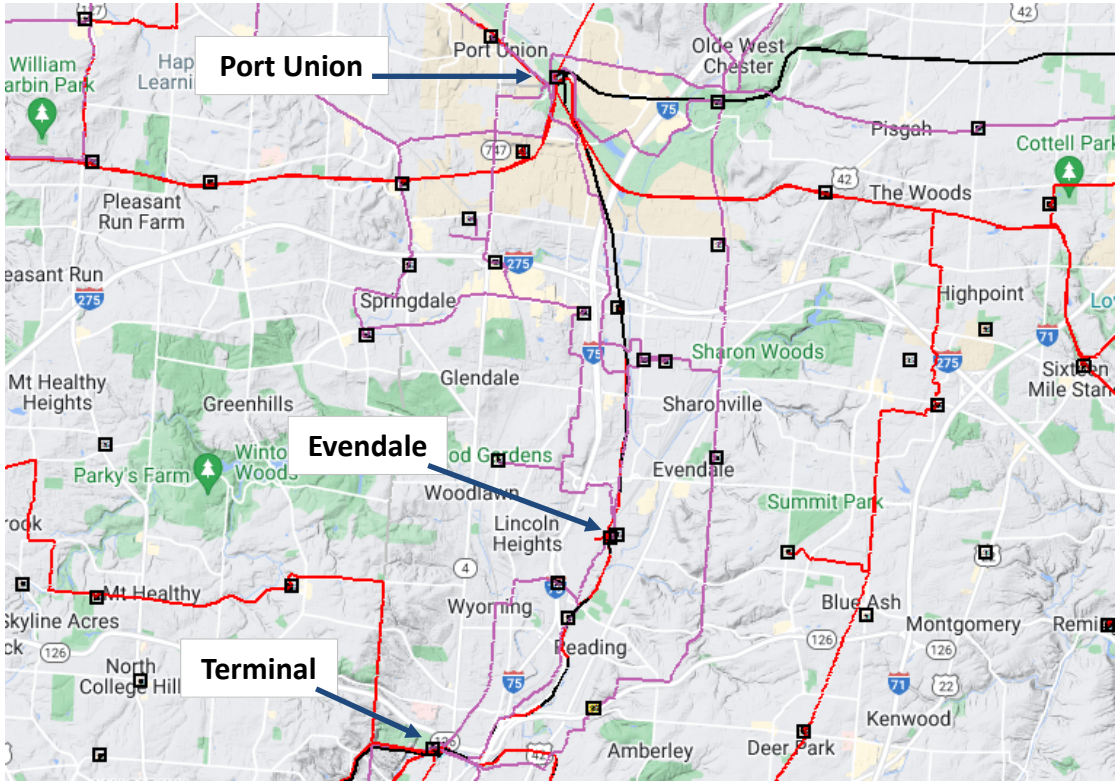
Project Drivers: Infrastructure Resilience, Equipment condition, performance and risk

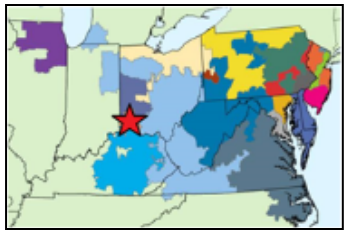
Specific Assumption References:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 7-8, 10

Problem Statement:

Evendale substation supplies a large industrial customer. 138 kV Buses 1 and 2 are tied together with a single breaker, CB930. A CB930 failure will trip both Bus 1 and Bus 2 resulting in a complete interruption of service to the customer, and the tripping of two 138/69 kV transformers that supply the 69 kV network in this industrial area. Port Union CB835 connects the feeder from Port Union to Evendale. It's a 53-year-old, oil filled breaker. Oil spills are frequent with breaker failures presenting an environmental hazard. Spare parts for this older style breaker are more difficult to find.





345kV
138kV
69kV

DEOK Transmission Zone M-3 Process
Markley

Need Number: DEOK-2024-003

Process Stage: Needs Meeting 02/16/2024

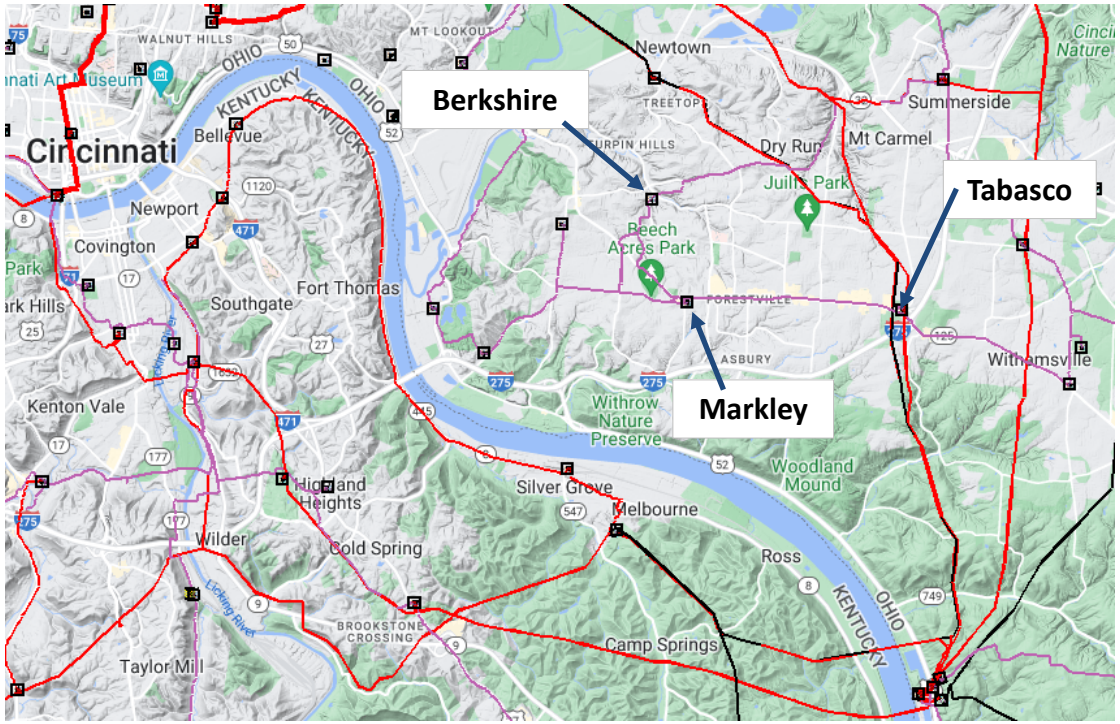
Project Driver: Infrastructure Resilience, Equipment condition, performance and risk

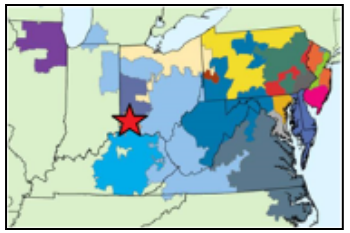
Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 7-8, 10

Problem Statement:

Markley substation has three 69/13 kV distribution transformers that feed two feeders each. The substation is a straight bus configuration with a switch connected feeder at each end. Restoration time is slower due to not having an automatic throw-over scheme and the lack of bus section isolation. SW 684 at one end is more than twenty years old. The manufacture date is unknown, but the last version of this switch was produced in 2004. It has worn contacts and linkages. Spare parts are difficult to find. 69 kV circuit breakers CB677 and CB684 connect the bus to the high side of transformers TB1 and TB2. The breakers are 45 and 44 years old, oil filled and in declining condition. The mechanisms, linkages, & interrupters of these breakers are worn to the point where proper measurements are difficult to maintain. This can lead to mis-operations jeopardizing reliability. Spare parts for these older oil breakers are becoming difficult to find and are no longer available from the vendor. TB1 is 57 years old and has an arcing in oil tap changer. The tap changer has been problematic requiring several extensive services and expensive repairs. Switchgear 1 is also 57 years old and in declining condition, showing rust on the top and sides. Holes are forming allowing moisture to penetrate the enclosure.





345kV
138kV
69kV

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

2/6/2024 – V1 – Original version posted to pjm.com