



SRRTEP Committee: Western DEOK Supplemental Projects

November 22, 2019

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: DEOK 2019-023

Process Stage: Needs Meeting 11-22-2019

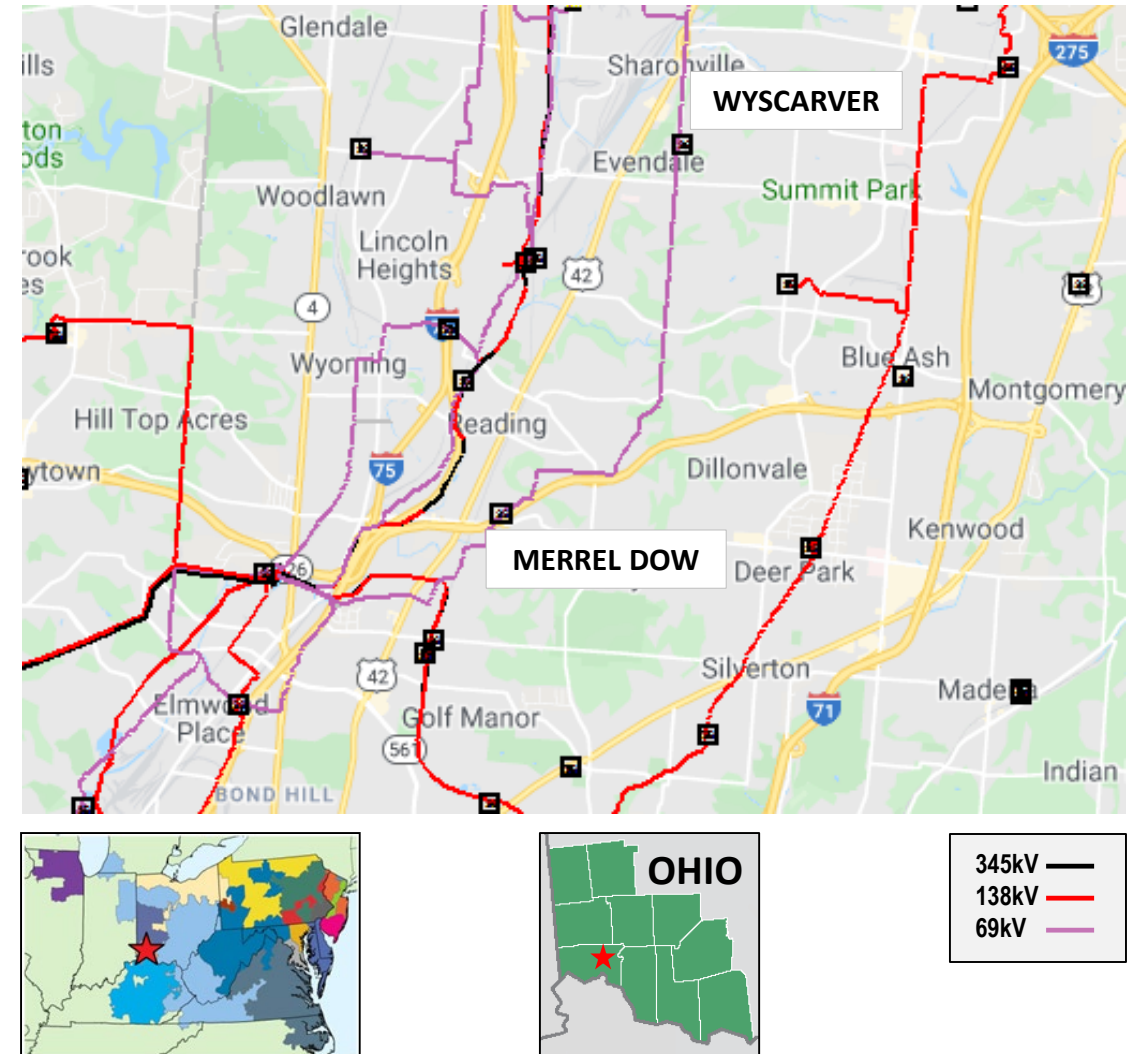
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6 - 7

Problem Statement:

The 69kV feeder from Wyscarver to Marion Merrel Dow is in deteriorating condition. Constructed in 1940 with wooden mono poles and cross arms, and 300 and 400 kcmil copper conductor, 18% of the 101 structures were rejected and 12 open conditions were reported during a recent inspection. The line has had one momentary and eight sustained outages in the last five years with 5,042 customers experiencing an average outage time of 574 minutes.



Need Number: DEOK 2019-024

Process Stage: Needs Meeting 11-22-2019

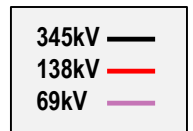
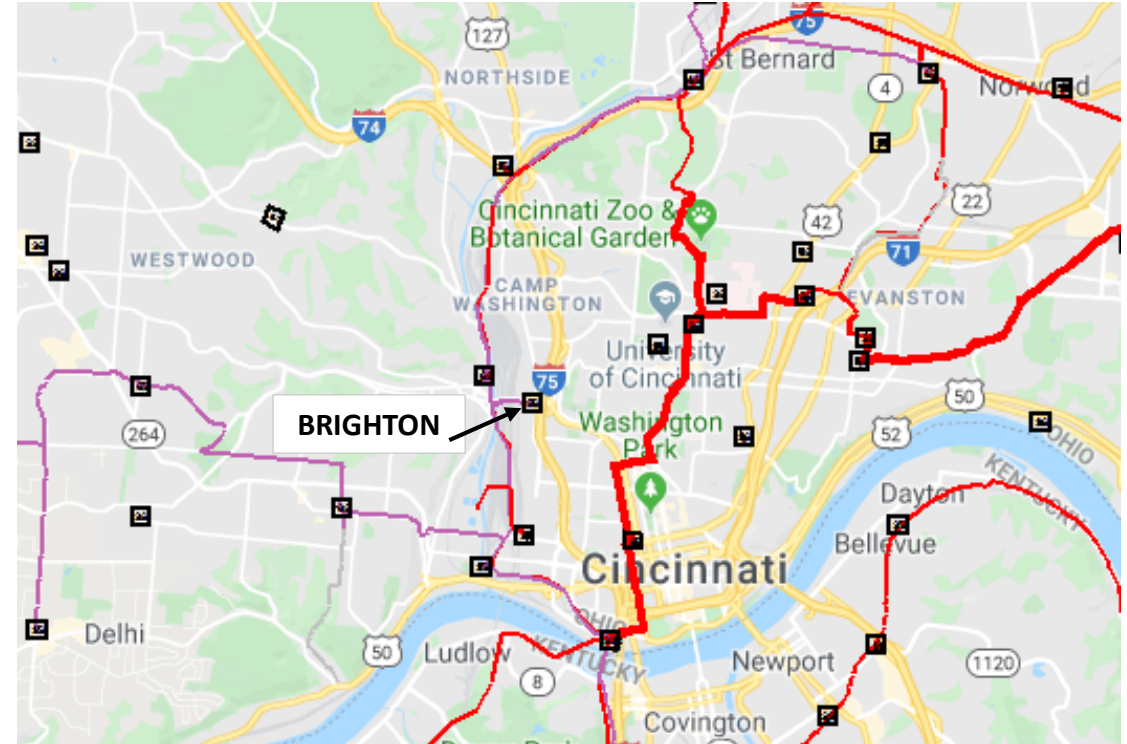
Project Driver: Other

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 11

Problem Statement:

The City of Cincinnati is planning to replace the Western Hills Viaduct. The new roadway will be constructed immediately south of the existing roadway. Brighton substation is in the path of the new roadway. Brighton serves 40MW of residential, commercial and light industrial load with two 69/13kV 35MVA transformers connected to five feeder exits each.





DEOK Transmission Zone M-3 Process

Need Number: DEOK 2019-025

Process Stage: Needs Meeting 11-22-2019

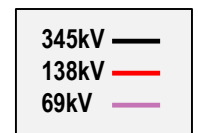
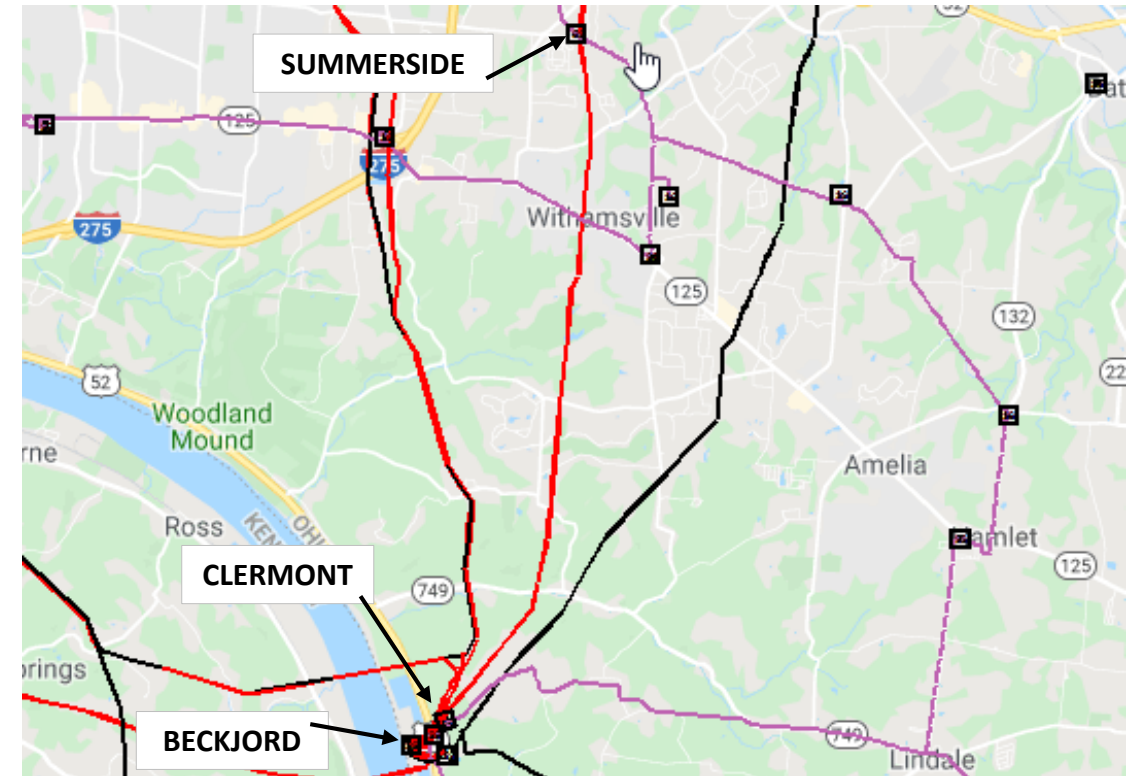
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6-7

Problem Statement:

Clermont substation is one of three sources of supply to the far eastern 69kV system serving large portions of Clermont and Brown Counties. The vintage 1950's substation is in deteriorating condition. Structural steel is rusting. Concrete footings are starting to crack and spall. There are 138kV & 69kV cap and pin insulators which are prone to failure. Clermont has two 138/69kV 33MVA transformers. TB1 was manufactured in 1953. TB2 was manufactured in 1962. Both transformers continue to show increasing levels of gassing. Elevated levels of acetylene indicate internal problems. Doble testing indicates the insulation on the windings is deteriorating. Ground switches are used as high side protective devices. This old design causes a fault on the 138kV system when they operate, interrupting the 138kV Circuit from Beckjord to Summerside. If there is a fault on a transformer or bus it could result in a sustained outage to the 138kV circuit, effectively causing all of Clermont substation to be de-energized. It is impossible to install high side circuit switchers as protective devices and 138kV line switches for sectionalizing due to the configuration of the substation. To do this would require a complete substation rebuild. The hillside site is too small to reconfigure or rebuild to current standards.



Need Number: DEOK 2019-026

Process Stage: Needs Meeting 11-22-2019

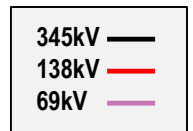
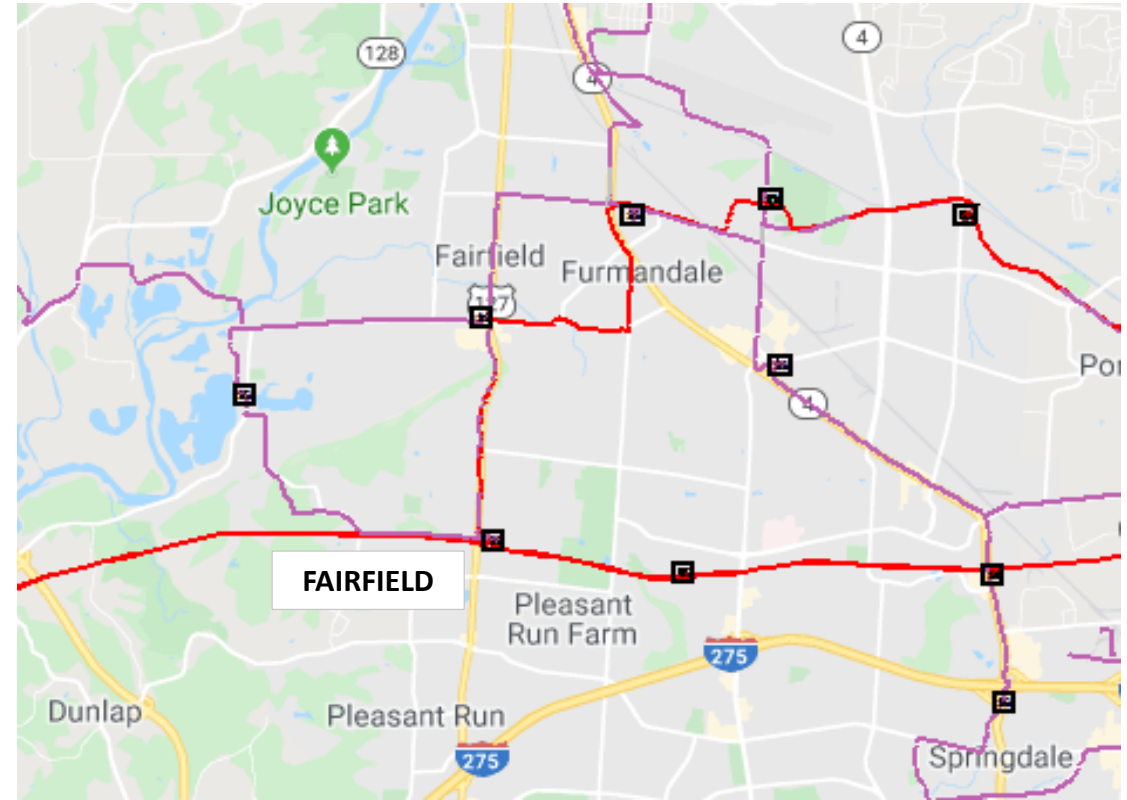
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6-7

Problem Statement:

At Fairfield substation 138/34kV 56MVA TB1 is showing high levels of dissolved combustible gasses, especially acetylene indicating arcing in this 54 year old transformer. 138/69/34kV TB2's tertiary winding is connected to a grounding transformer and a 34kV distribution bus. This old system design exposes the transmission system to greater risk due to faults on the distribution system.





DEOK Transmission Zone M-3 Process

Need Number: DEOK 2019-027

Process Stage: Needs Meeting 11-22-2019

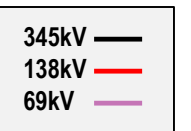
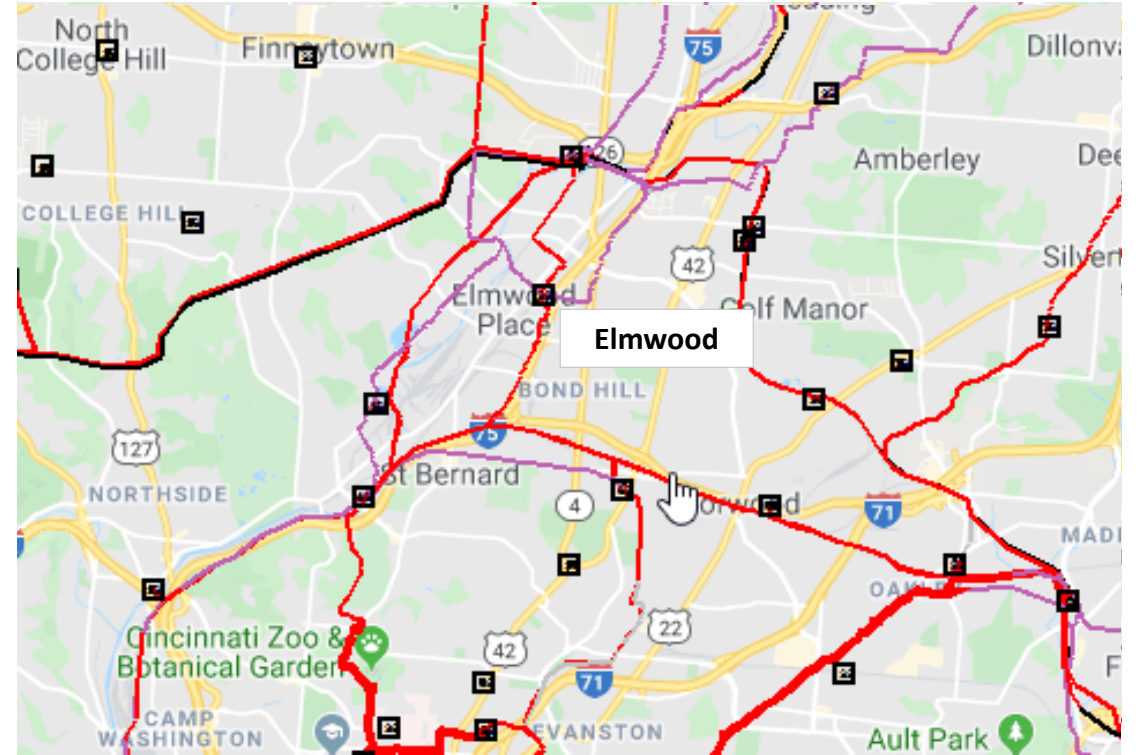
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 6-7

Problem Statement:

At Elmwood substation Duke Distribution is replacing switchgear on 13kv Bus 1 and 13kv Bus 2 with open air switches. Buses 1 and 2 presently have a single feed, the tertiary winding of 138/69/13kV 55MVA TB6. The transmission system is exposed to faults from five distribution feeders through this tertiary winding.



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

11/12/2019 – V1 – Original version posted to pjm.com