Sub Regional RTEP Committee: Western
DEOK Supplemental Projects

October 20, 2023

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

DEOK Transmission Zone M-3 Process
Dayton Technologies, Worthington Steel

Need Number: DEOK-2023-007

Process Stage: Solutions Meeting 10/20/2023

Previously Presented: Needs Meeting 08/18/2023

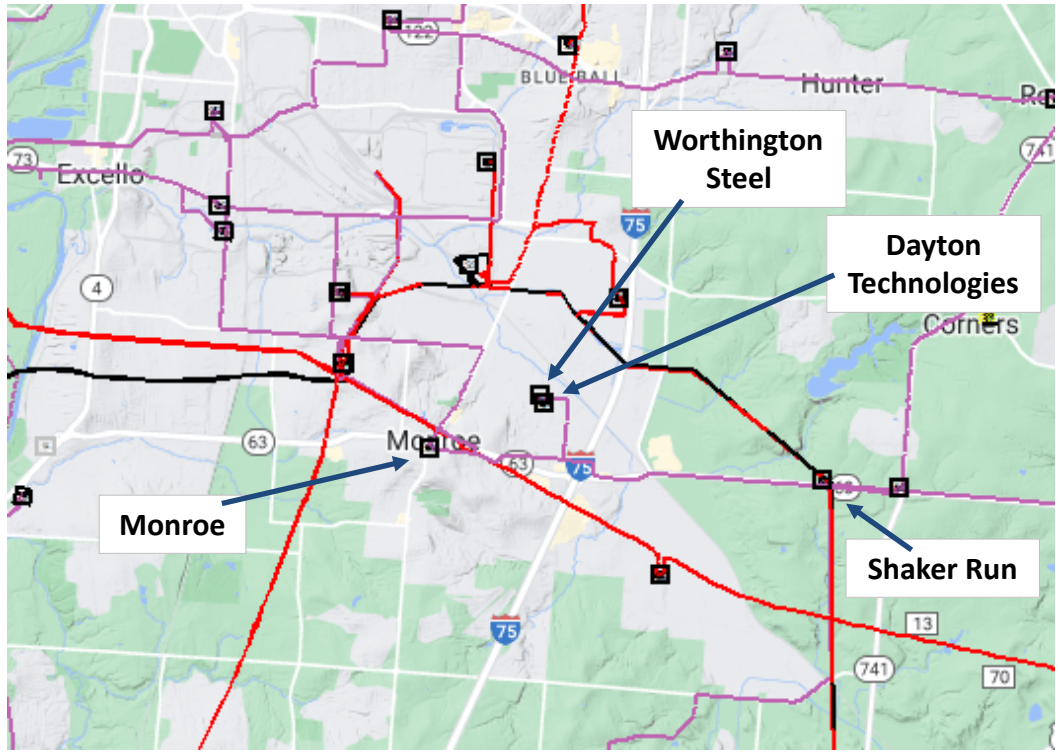
Project Driver: Operational Flexibility and Efficiency

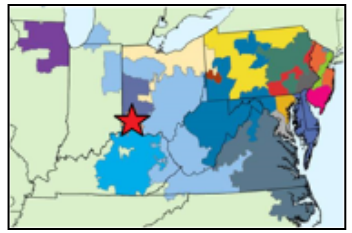
Specific Assumption Reference:

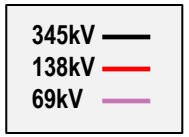
Duke Energy Ohio & Kentucky Local Planning Assumptions slide 8

Problem Statement:

Dayton Technologies and Worthington Steel substations supply industrial customers. They are fed from a 69 kV line tapped into the Monroe – Shaker Run feeder. Damage to the tap line or the feeder results in the inability to supply the customers for the time required to repair the damage. Scheduled work requires coordination of outage windows with both customers. In the past it's been necessary to perform maintenance work with the line energized due the inability of the customers to take an outage.







DEOK Transmission Zone M-3 Process
Dayton Technologies, Worthington Steel

Need Number: DEOK-2023-007

Process Stage: Solutions Meeting 10/20/2023

Previously Presented: Needs Meeting 08/18/2023

Project Driver: Operational Flexibility and Efficiency

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 8

Potential Solution:

Tap into the 69 kV Todhunter-Monroe feeder. Replace a 600A switch between Todhunter and the new tap with a 2000A switch to increase the capacity of the feeder. Install 0.9 miles of feeder from the new tap to Dayton Technologies using 17 steel poles with 954 ACSR conductor. Install a tap with a switch and drop to connect Worthington Steel. This configuration allows Worthington Steel and Dayton Technologies to be fed from either direction and the isolation of both individually.

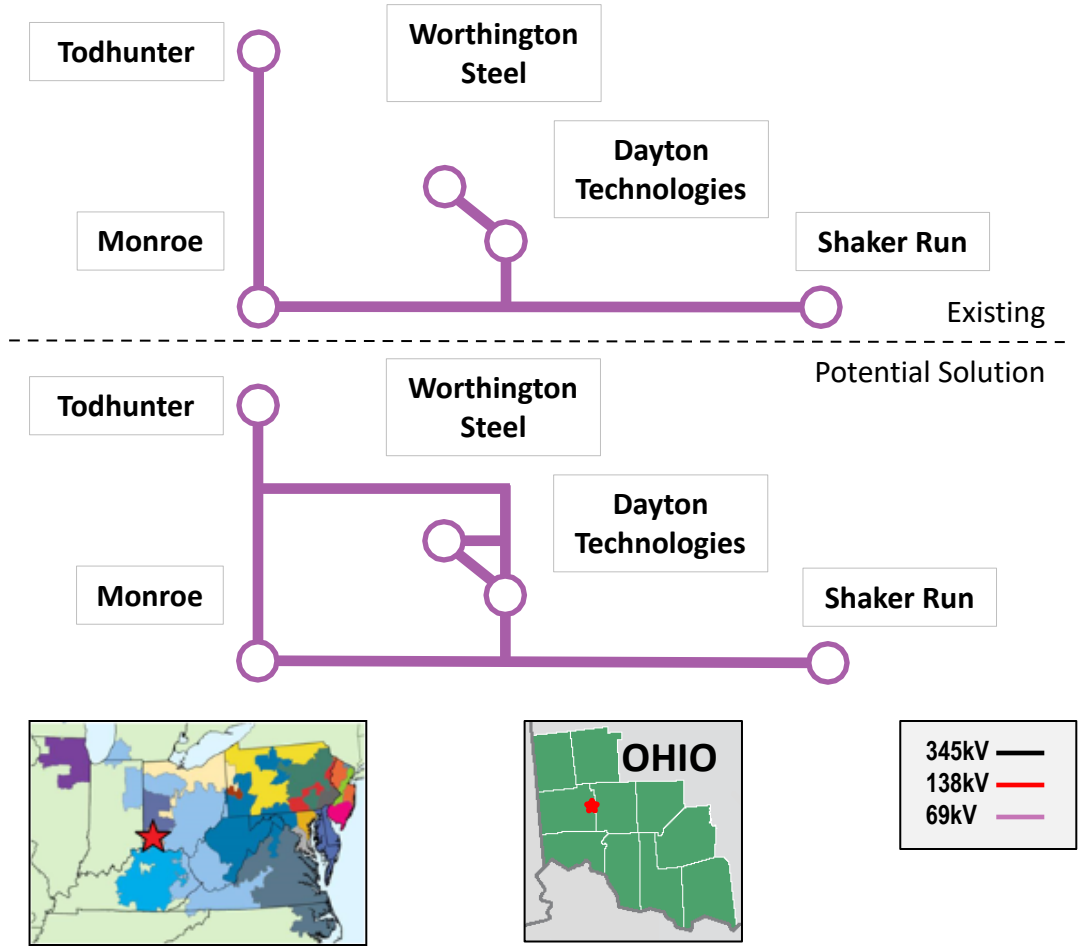
Ancillary Benefits: Loop flow between Todhunter and Shaker Run is maintained when maintenance is required at Monroe.

Estimated Transmission Cost: $5,733,438

Proposed In-Service Date: 12-31-2025

Project Status: Scoping

Model: 2023 RTEP



Need Number: DEOK-2022-008

Process Stage: Solutions Meeting 10-20-2023

Previously Presented: Needs Meeting 11-18-2022

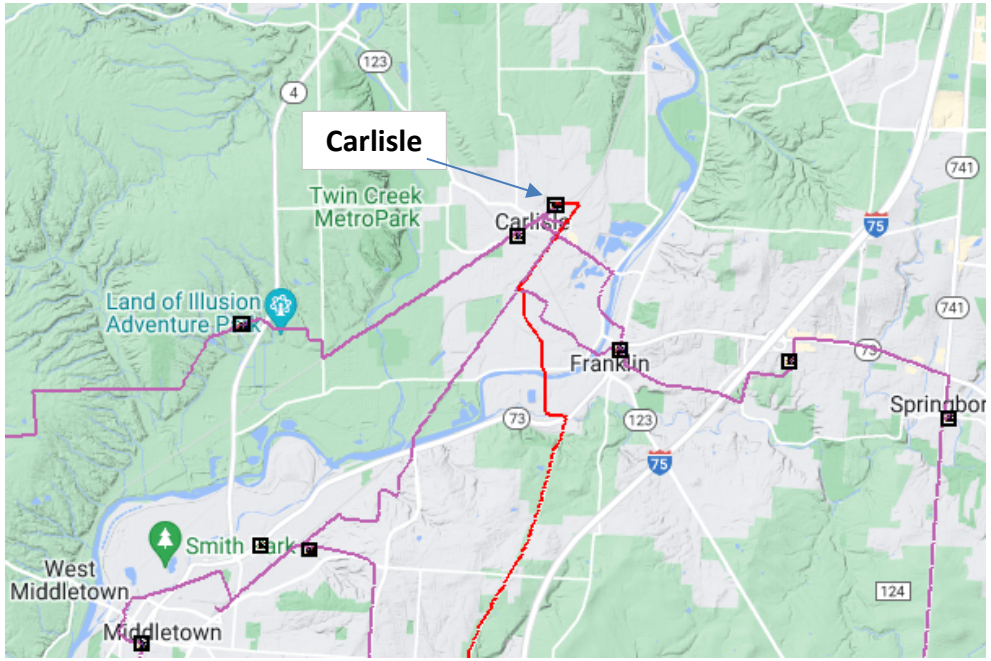
Project Driver: Equipment Condition, Performance and Risk, and Infrastructure Resilience

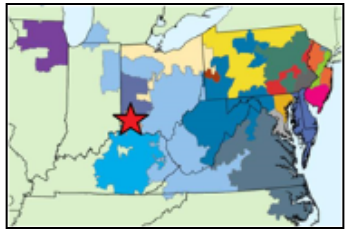
Specific Assumption Reference:

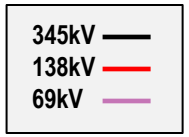
Duke Energy Ohio & Kentucky Local Planning Assumptions slides 5, 6, & 8

Problem Statement:

138/69/13 kV Transformer TB2 at Carlisle feeds two distribution buses through a tertiary winding. This exposes the transformer to faults on the distribution system. 2000A, 69 kV breakers 619, 621, 622 and 623 are 39 years old and oil filled, requiring more maintenance due to oil handling. The mechanisms, linkages, & interrupters of these breakers are worn to the point where proper measurements are difficult to obtain & maintain. This often leads to mis-operations which could jeopardize system reliability. Spare parts for these older oil breakers are becoming difficult to find and are no longer available from the vendor. 39.6 MVAR, 69 kV Capacitor 2 is 31 years old and has reached the end of its useful life. Replacement of this fused-barrel type capacitor is recommended after 25 years.







DEOK Transmission Zone M-3 Process
Carlisle

Need Number: DEOK-2022-008

Process Stage: Solutions Meeting 10-20-2023

Previously Presented: Needs Meeting 11-18-2022

Project Driver: Equipment Condition, Performance and Risk, and Infrastructure Resilience

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slides 5, 6, & 8

Potential Solution:

Disconnect the 13 kV tertiary winding on TB2. Install a new 138/13 kV, 22.4 MVA transformer to feed the distribution buses. Replace 69 kV breakers 619, 621, 622 and 623 with 2000A breakers. Replace Capacitor 2 with a non-fused, rack style 36.9 MVAR capacitor. Install two new 138 kV breakers to form a ring bus with the one existing breaker.

Ancillary Benefits: The 138 kV ring bus configuration provides operational options for switching, provides more options to deal with non-standard operating conditions, improves the system's ability to absorb and recover from an interruption, and reconfigures infrastructure to limit load loss.

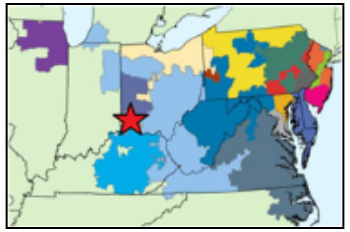
Estimated Transmission Cost: $10,239,263

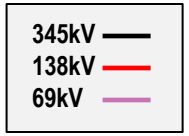
Proposed In-Service Date: 04-24-2026

Project Status: Scoping

Model: 2022 RTEP

Bubble Diagram Not Applicable
Station Modifications Only





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

10/5/2023 – V1 – Original version posted to pjm.com