Sub Regional RTEP Committee: Western
DEOK Supplemental Projects

November 18, 2022

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
Carlisle

Need Number: DEOK-2022-008

Process Stage: Needs Meeting 11-18-2022

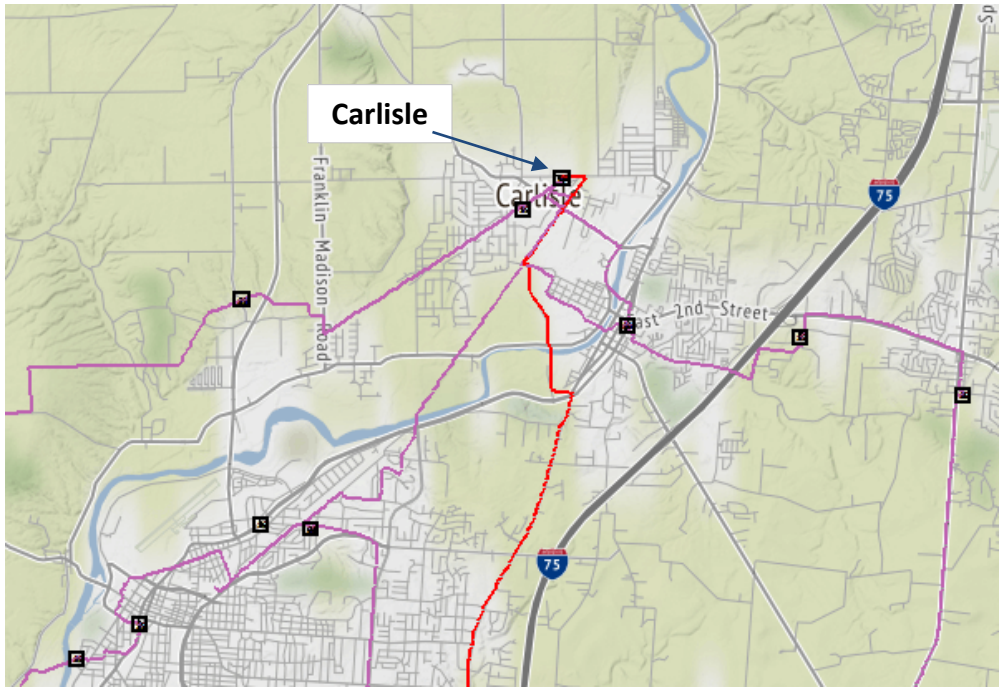
Project Driver: Equipment Condition, Performance and Risk, and Infrastructure Resilience

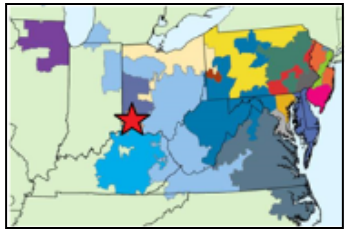
Specific Assumption Reference:

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. 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 can lead 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. 69 kV Capacitor 2 is 31 years old and has reached the end of its useful life. Replacement of this fuse-barrel type capacitor is recommended after 25 years.





345kV
138kV
69kV

DEOK Transmission Zone M-3 Process
Oakbrook

Need Number: DEOK-2022-009

Process Stage: Needs Meeting 11-18-2022

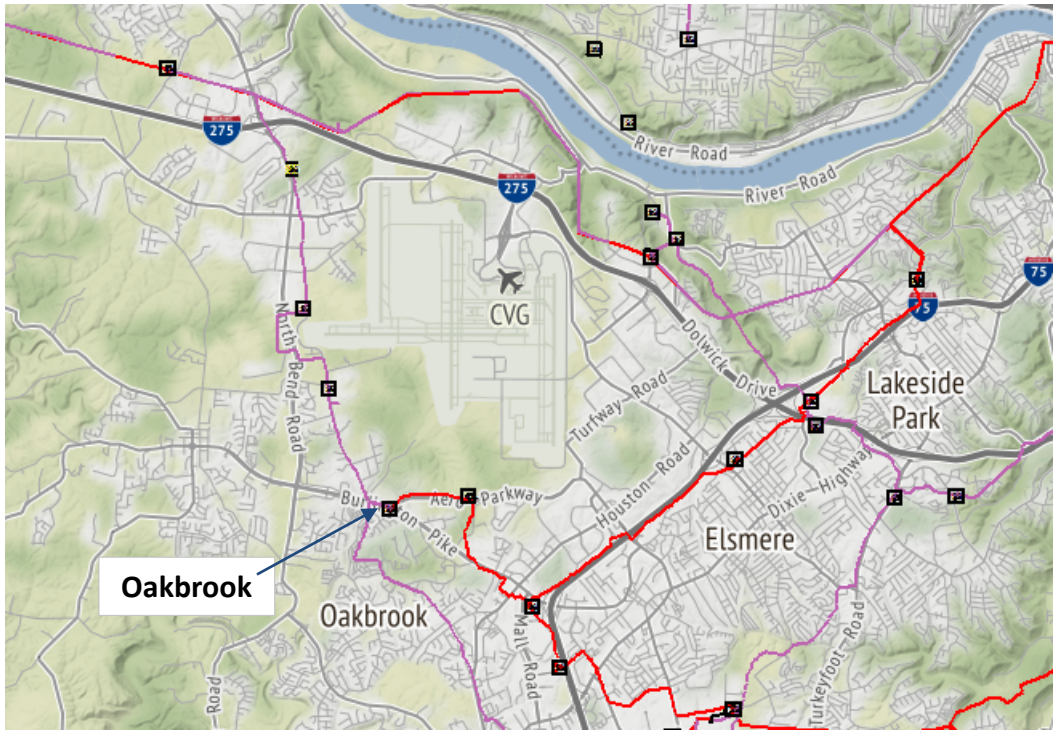
Project Driver: Customer Service

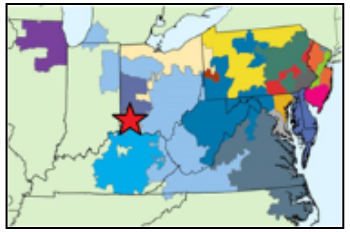
Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Problem Statement:

Due to continued commercial and industrial load growth in the area near the Cincinnati/Northern Kentucky International Airport, Duke Energy Distribution has requested the installation of a second 69/13 kV, 22 MVA transformer at Oakbrook substation. An additional 10 MVA of load is expected by Q4 2026.





345kV
138kV
69kV

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
Brown

Need Number: DEOK-2021-006

Process Stage:

Solutions Meeting 11-18-2022

Needs Meeting 04-16-2021

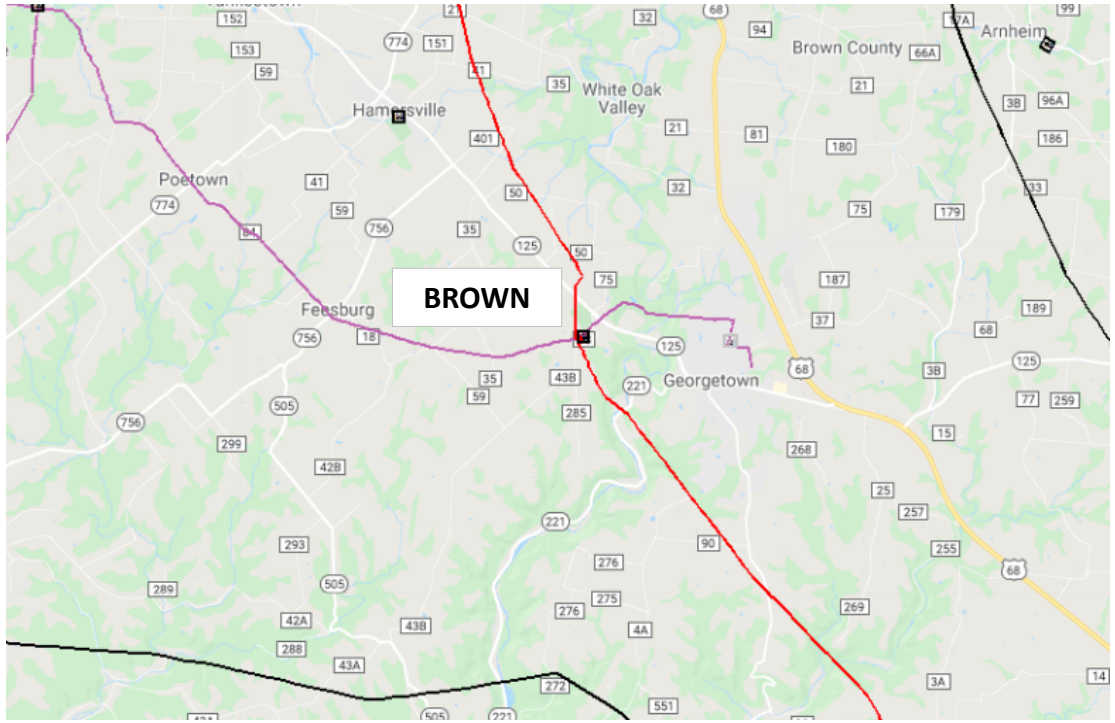
Project Driver: Infrastructure Resilience

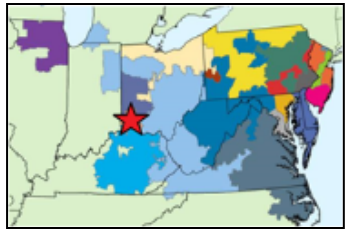
Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 8

Problem Statement:

Brown TB1 is a 138/69/34 kV 3-winding transformer. The tertiary winding is connected to a 34 kV distribution bus. This old design exposes the transformer to faults on the distribution system.





345kV
138kV
69kV

DEOK Transmission Zone M-3 Process
Brown

Need Number: DEOK-2021-006

Process Stage:

Solutions Meeting 11-18-2022

Needs Meeting 04-16-2021

Project Driver: Infrastructure Resilience

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 8

Potential Solution:

Disconnect Brown TB1's 34 kV tertiary winding. Install a new 138 kV circuit breaker into the ring bus to create a new position. Connect a new 138/34 kV, 60 MVA transformer in this position. Feed the 34 kV distribution bus from the new transformer. Expand the substation to make room for the new transformer and equipment.

Alternatives: none

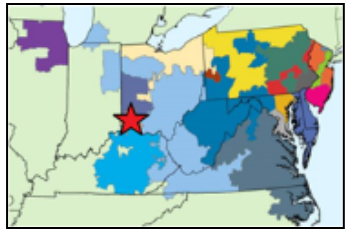
Estimated Transmission Cost: $1,260,073

Proposed In-Service Date: 02-02-2026

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

11/8/2022 – V1 – Original version posted to pjm.com