

Submission of Supplemental Projects for Inclusion in the Local Plan

Need Number: DEOK-2021-008

Process Stage: Local Plan Submission 01-21-2022

Selected Solution:

Expand the substation. Install three 138 kV breakers to form a ring bus. Relocate the 138 kV feeder terminals. Replace TB1 with a new 138/69 kV, 150 MVA transformer. Install three 69 kV breakers to form a ring bus. Relocate the 69 kV feeder terminals. Install a control building with relaying and communications equipment. (S2659)

Estimated Transmission Cost: \$12.7M

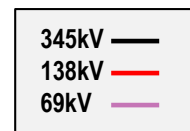
Projected In-Service Date: 07-05-2023

Supplemental Project ID: s2659

Project Status: Engineering

Model: 2021 RTEP

**Bubble Diagram Not Applicable
Station Modifications Only**



Need Number: DEOK-2021-010

Process Stage: Local Plan Submission 02-15-2022

Previously Presented:

Solutions Meeting 11-19-2021

Needs Meeting 9-17-2021

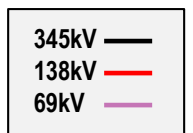
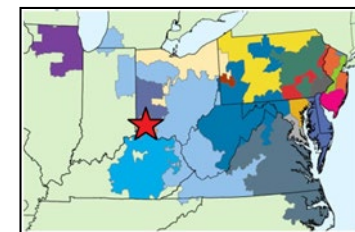
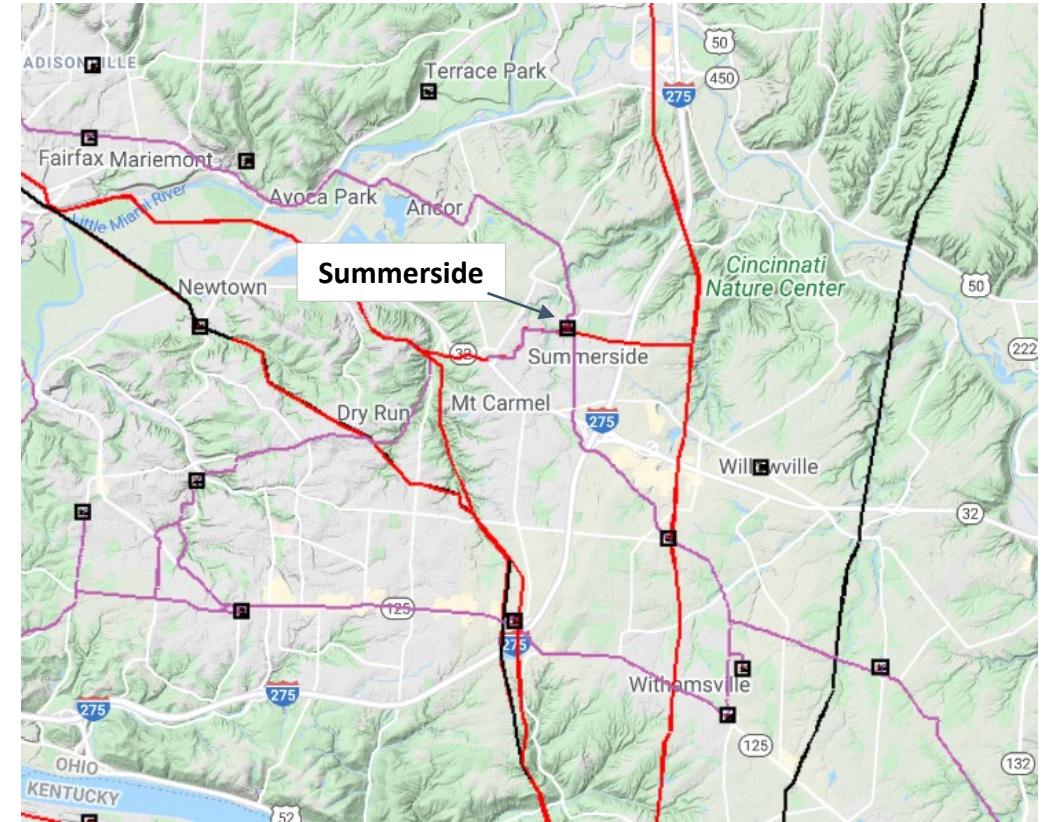
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

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

Problem Statement:

The 69 kV section of Summerside substation is nearly 60 years old, utilizes cap and pin insulators, has buses constructed of strain bus and an obsolete fault bus protection system. The capacitor on this bus is fuse connected, over 30 years old and at the end of its useful life. 69/34 kV Transformer 4 is 58 years old and showing signs of arcing in oil and has an old LTC design that is a high maintenance item.



Need Number: DEOK-2021-010

Process Stage: Local Plan Submission 02-15-2022

Selected Solution:

Remove existing structures, bus work, the capacitor, transformer and foundations. Expand and rebuild the 69 kV section of Summerside. Install new foundations, 2 new box structures and bus work. Reuse the existing circuit breakers and install a new zero-crossing circuit breaker connecting a new 43.2 MVAR capacitor. Install a new 69/34 kV 22.4 MVA transformer. Install a control house for relaying and communications equipment.

Estimated Transmission Cost: \$10.3M

Proposed In-Service Date: 12-31-2023

Supplemental Project ID: s2661

Project Status: Engineering

Model: 2021 RTEP

**Bubble Diagram Not Applicable
Station Modifications Only**



Need Number: DEOK-2021-011

Process Stage: Local Plan Submission 02-15-2022

Previously Presented:

Solutions Meeting 11-19-2021

Needs Meeting 9-17-2021

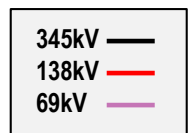
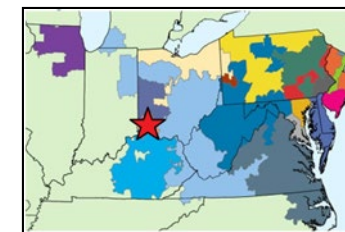
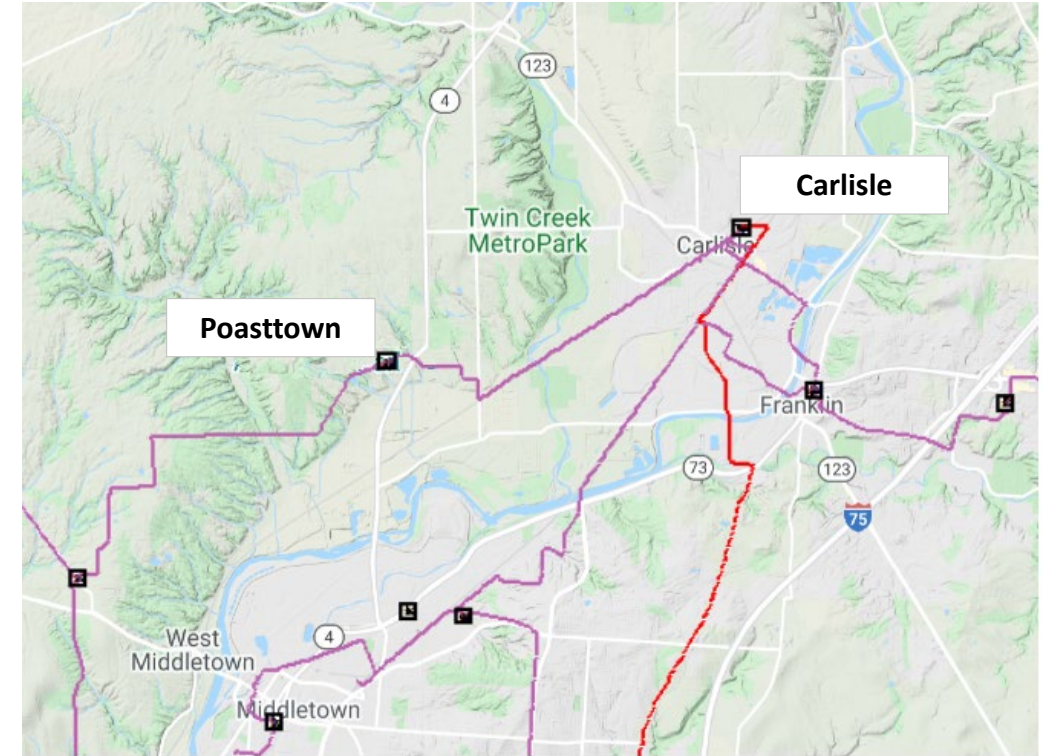
Project Driver: Equipment Condition, Performance and Risk

Specific Assumption Reference:

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

Problem Statement:

The six mile long 69 kV feeder from Carlisle to Poasttown serves one wholesale and 8,165 residential customers. It is an average 70 years old and constructed with wooden crossarms on 89 single wood poles. The structures have an 18% rejection rate. In the past five years there have been 11 sustained and 7 momentary outages averaging 94,972 CMI/outage.



Need Number: DEOK-2021-011

Process Stage: Local Plan Submission 02-15-2022

Selected Solution:

Rebuild the section of feeder between Carlisle and Poasttown with steel poles, new hardware and conductor. Remove two switches and a tap to an industrial customer. The capacity of the line will increase from 77 MVA to 93 MVA.

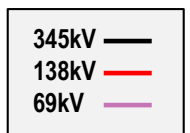
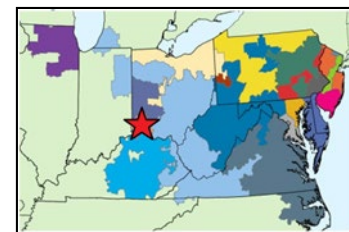
Estimated Transmission Cost: \$15.1M

Proposed In-Service Date: 12-31-2024

Supplemental Project ID: s2662

Project Status: Engineering

Model: 2021 RTEP



Need Number: DEOK-2021-001

Process Stage: Local Plan Submission 03-03-2022

Previously Presented:

Solutions Meeting 12-17-2021

Needs Meeting 02-17-2021

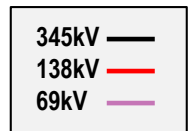
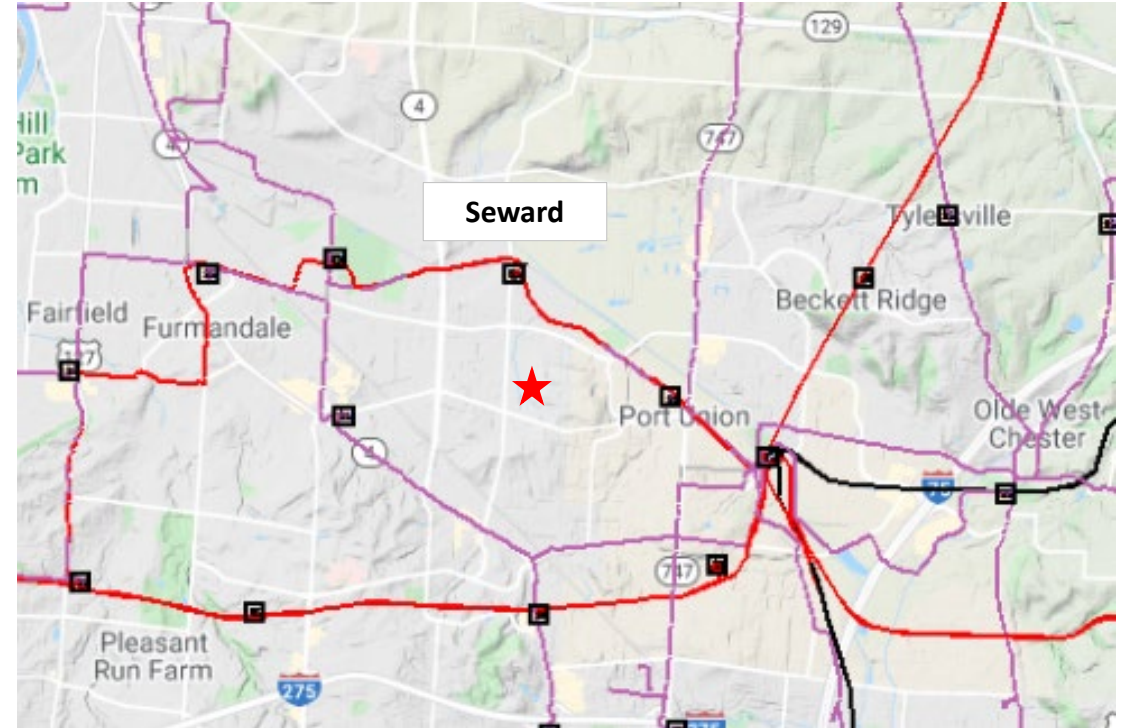
Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Problem Statement:

An existing customer has requested an additional 20MW of distribution service by summer of 2022. This exceeds the capability of the existing distribution infrastructure in the local area. Duke Energy Distribution has requested additional capacity delivery through Seward substation.



Need Number: DEOK-2021-001

Process Stage: Local Plan Submission 03-03-2022

Previously Presented:

Solutions Meeting 12-17-2021

Needs Meeting 02-17-2021

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Potential Solution:

Install a new box structure. Move the Seward-Port Union feeder termination from a monopole to the new box structure. Install CCVTs and a line disconnect for the new feeder connection. Install two new switches and 138 kV bus work to form a ring bus. Install a 138/13 kV, 22 MVA transformer with a bus disconnect, circuit switcher and wave trap on the high side of the transformer. Install protection and controls for the new equipment in the existing control enclosure.

Estimated Transmission Cost: \$2.4M

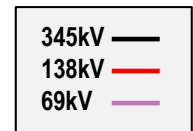
Proposed In-Service Date: 12-31-2022

Supplemental Project ID: s2666

Project Status: Engineering

Model: 2021 RTEP

**Bubble Diagram Not Applicable
Station Modifications Only**



Need Number: DEOK-2018-003

Process Stage: Local Plan Submission 04-22-2022

Previously Presented:

Solutions Meeting 01-21-2022

Needs Meeting 11-29-2018

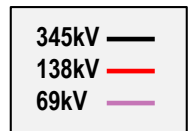
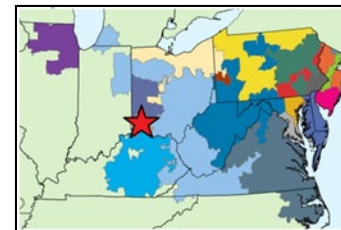
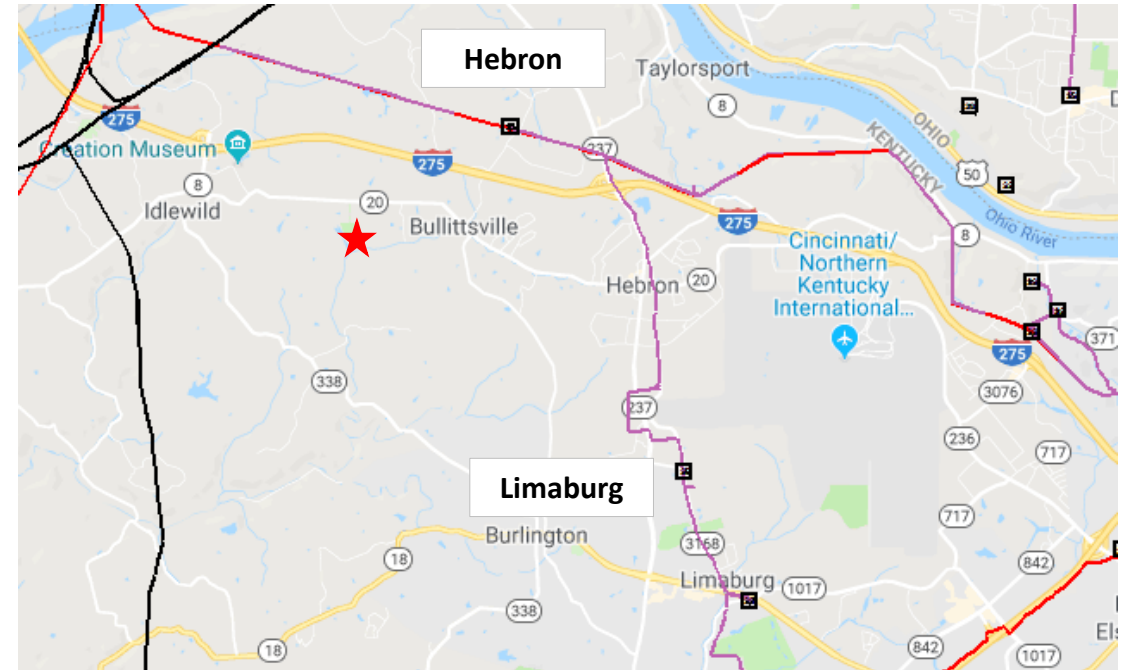
Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Problem Statement:

New and existing industrial load growth in the area west of the Cincinnati/Northern Kentucky International Airport is predicted to exceed the capacity of the local distribution system. An additional 40MWs is requested.





Need Number: DEOK-2018-003

Process Stage: Local Plan Submission 04-22-2022

Previously Presented:

Solutions Meeting 01-21-2022

Needs Meeting 11-29-2018

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Potential Solution:

Install a new substation, Litton, with two take-off structures, bus work, eight motorized bus disconnects, two motorized line disconnects and two CCVTs for use in an ATO scheme. Loop the 69kV feeder from Hebron to Limaburg through the substation. Retire eight wooden poles. Install 12 light duty steel poles with 750 feet of 954 ACSR and OPGW. Transfer the static from the wooden poles to the new steel poles.

Alternatives: none

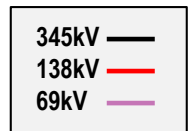
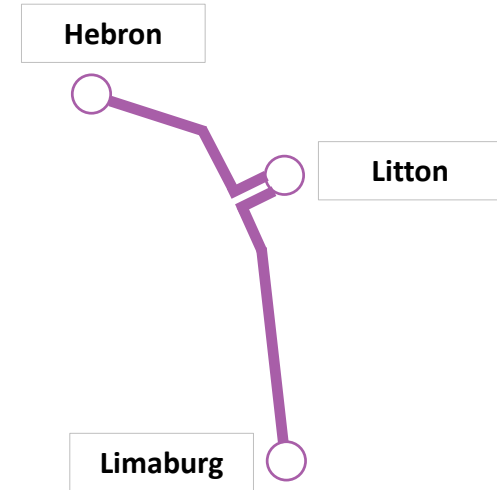
Transmission Cost Estimate: \$4.8M

Proposed In-Service Date: 06-01-2024

Supplemental Project ID: s2681

Project Status: Engineering

Model: 2021 RTEP





DEOK Transmission Zone M-3 Process Dicks Creek Gas Substation

Need Number: DEOK-2022-002

Process Stage: Local Plan Submission 04-28-2022

Previously Presented:

Solutions Meeting 02-18-2022

Needs Meeting 01-21-2022

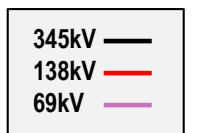
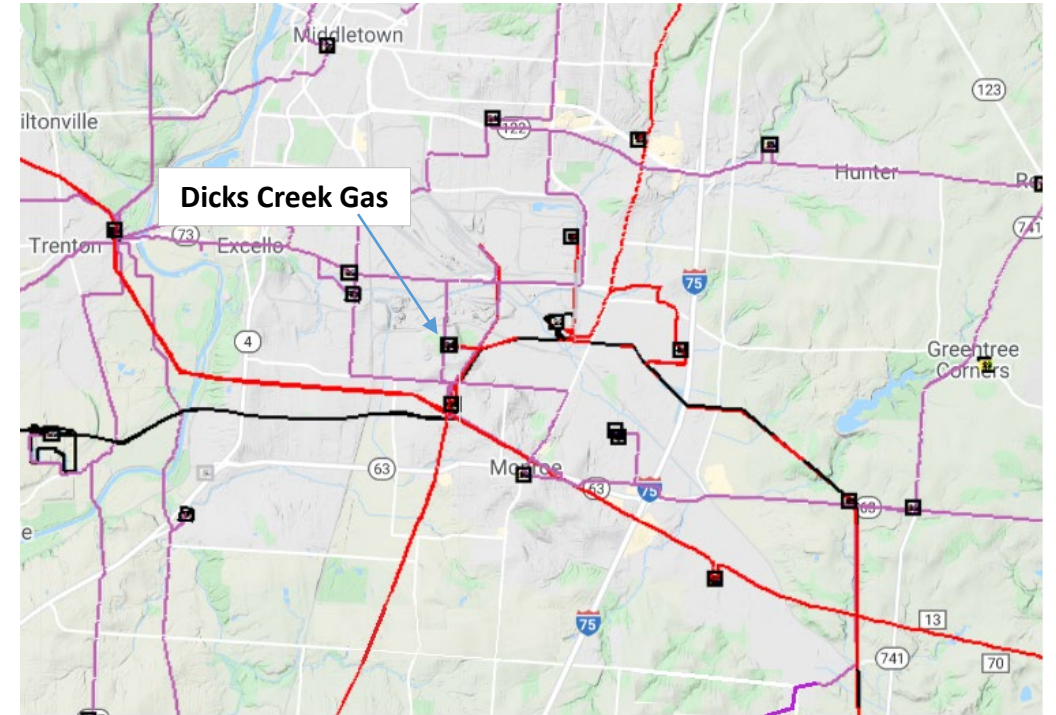
Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Problem Statement:

Duke Energy Distribution is retiring and demolishing Dicks Creek Gas substation. They have requested removal of the transmission system connection.





DEOK Transmission Zone M-3 Process Dicks Creek Gas Substation

Need Number: DEOK-2022-002

Process Stage: Local Plan Submission 04-28-2022

Previously Presented:

Solutions Meeting 02-18-2022

Needs Meeting 01-21-2022

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 9

Selected Solution:

Retire the one wood pole between the tap and substation. Retire 2 spans of conductor. Install post insulators for jumper support at the former tap.

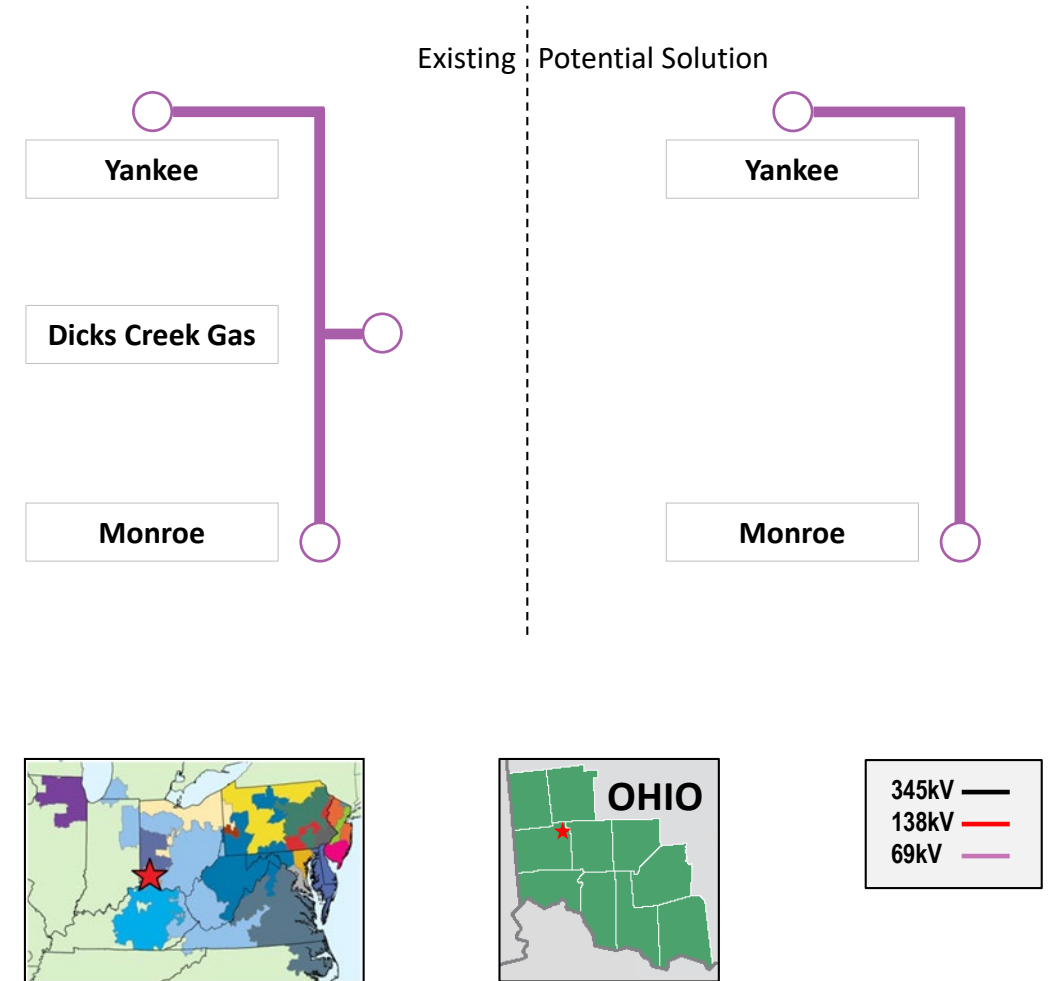
Estimated Transmission Cost: \$80,419

Projected In-Service Date: 07-06-2022

Supplemental Project ID: s2689

Project Status: Engineering

Model: 2021 RTEP



Revision History

1/22/2022 – V1 – Added Slides #2-3, S2659

2/15/2022 – V2 – Added Slides #4-7, S2661 and S2662

3/3/2022 – V3 – Added Slides #8-9, S2666

4/22/2022 – V4 – Added Slides #10-11, S2681

4/29/2022 – V5 – Added Slides #12-13, S2689