

Transmission Expansion Advisory Committee DEOK Supplemental Projects

July 8, 2025

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

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 07/08/2025

Previously Presented: Needs Meeting 05/06/2025

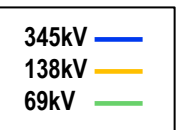
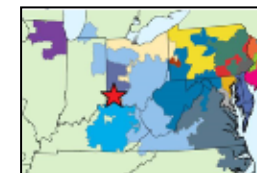
Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

Problem Statement:

A new customer has requested transmission service near Trenton in Butler County, OH. The initial load is expected to be 300 MW in 2027, ramping to 800 MW in 2030.



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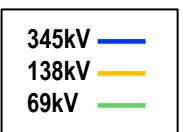
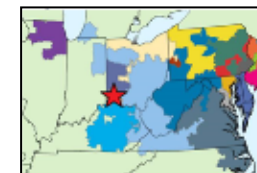
Potential Solution:

This project is planned to be accomplished in four phases. The customer will initially take 300 MW of service in 2027, ramping up to 800 MW by 2030.

Build a new 3-breaker ring-bus switching station “Cotton Run”, approximately 4.0 miles northwest of customer location. Build a new 345 kV 10-breaker, 8 position, breaker-and-a-half switching station “Wayne-Madison” on the customer’s site. Two positions in Wayne-Madison will be used to loop into existing Miami Fort to Woodsdale 345 kV circuit. One position will be used to connect a new circuit to Woodsdale substation, approximately 1.0 mile. One position will be used to connect a new circuit, approximately 5.5 miles of bundled 954 ACSR, to new Cotton Run switching substation. Two positions will be used to connect two feeds to the customer.

Rebuild existing Port Union to Todhunter 138 kV double circuit for 345kV operation, approximately 9.7 miles per circuit (19.4 miles total) of 954 kcmil ACSS. Eastern side of the tower line will be looped through existing Beckett and Millikin distribution substations and continue to operate at 138 kV. A 345 kV breaker will be installed at Port Union substation so that Western side of the tower line will operate at 345 kV.

Alternatives: There are no viable alternatives to supply a load of this magnitude at this location.





DEOK Transmission Zone M-3 Process Customer Load Request

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 07/08/2025

Previously Presented: Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

Potential Solution:

This project is planned to be accomplished in four phases coming into service in 2027 and completing by 2030.

Phase 1 (Temporary Feed, Service up to 300 MW):

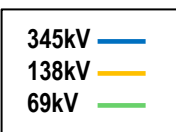
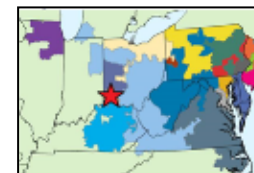
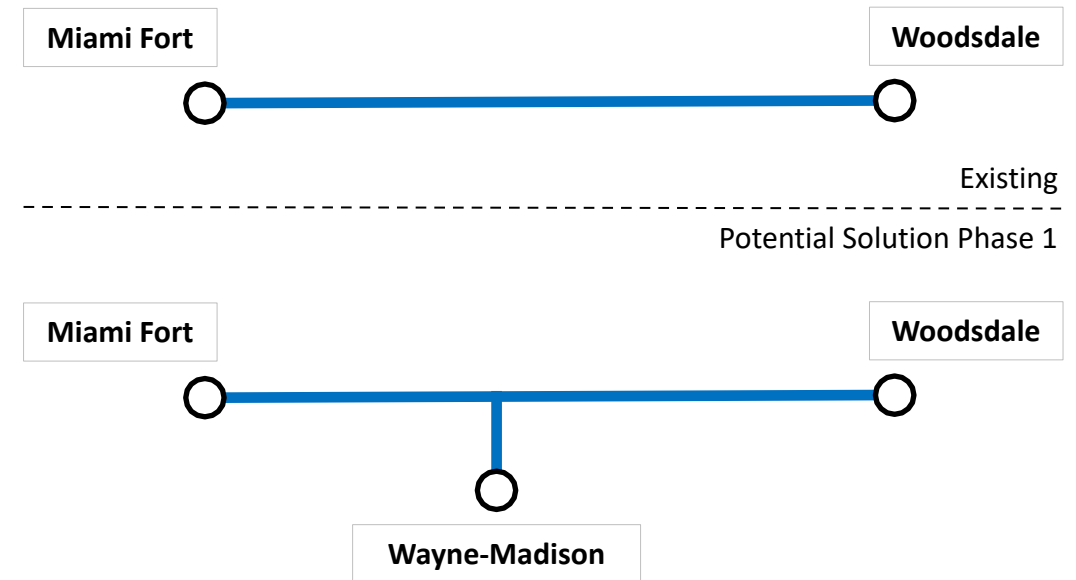
Duke Energy will temporarily tap the Miami Fort to Woodsdale 345 kV line for initial service to the customer.

Estimated Transmission Cost: \$0.0M (customer to reimburse costs for temporary service)

Proposed In-Service Date: 12/31/2027

Project Status: Scoping

Model: 2024 RTEP



Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 07/08/2025

Previously Presented: Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

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Potential Solution:

Phase 2 (New Wayne-Madison Substation; Service up to 300 MW):

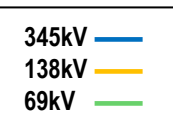
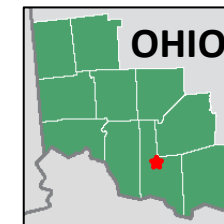
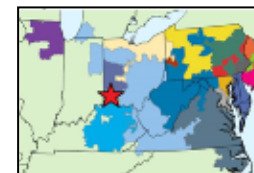
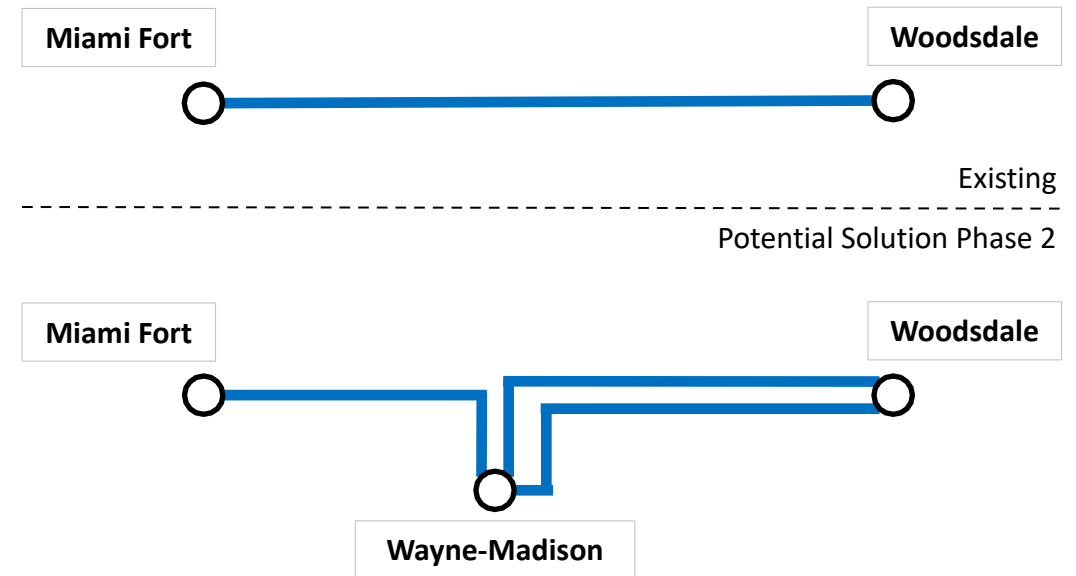
Duke Energy will discontinue the temporary tap feed to customer and construct a new 10-breaker 345 kV breaker-and-a-half switching substation, currently named “Wayne-Madison” at customer location. Wayne-Madison will be looped into existing Woodsdale to Miami Fort 345 kV circuit. Duke will then install two 4000 A, 50 kA, 345 kV circuit breakers in Woodsdale substation for a new circuit, approximately 1.0 mile of bundled 954 ACSR, from Woodsdale to Wayne-Madison. Customer will utilize one or two positions in Wayne-Madison for service.

Estimated Transmission Cost: \$40.0M

Proposed In-Service Date: 12/31/2028

Project Status: Scoping

Model: 2024 RTEP





DEOK Transmission Zone M-3 Process Customer Load Request

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 07/08/2025

Previously Presented: Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

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Potential Solution:

Phase 3 (New Cotton Run Substation; Service up to 500 MW):

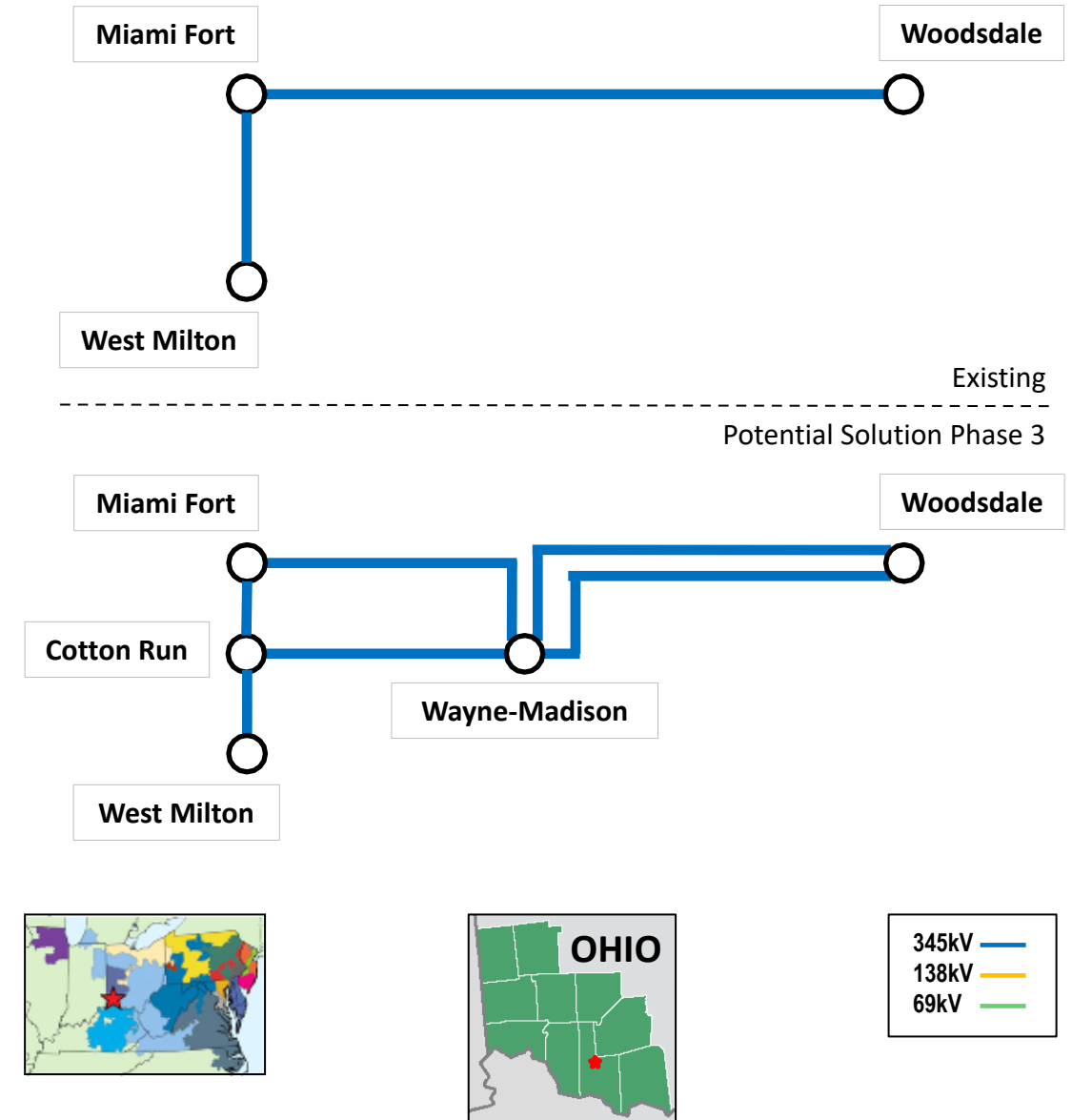
Duke Energy will construct a new switching substation, currently named “Cotton Run”, with a 3-breaker ring bus configuration, utilizing 4000 A, 50 kA, 345 kV circuit breakers, approximately 4.0 miles northwest of Wayne-Madison substation. This substation will be looped through existing Miami Fort to West Milton 345 kV circuit. Approximately 5.5 miles of 954 ACSR, extending from Cotton Run to Wayne-Madison substation.

Estimated Transmission Cost: \$45.0M

Proposed In-Service Date: 6/1/2029

Project Status: Scoping

Model: 2024 RTEP





DEOK Transmission Zone M-3 Process Customer Load Request

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 07/08/2025

Previously Presented: Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

Potential Solution:

Phase 4 (Todhunter to Port Union Rebuild; Service up to 800 MW):

Duke Energy will rebuild two 138 kV circuits 3887 & 3888 connecting Port Union and Todhunter substations, replacing approximately 9.7 miles of each circuit. These circuits are located on both sides of transmission tower infrastructure and will be replaced with bundled 954 kcmil ACSS to allow operation of up to 200 C.

On the eastern side of the shared towers, circuit 3887 will continue to operate at 138 kV. The existing circuit is rated 302/302 MVA summer and 379/379 MVA winter. The updated rating of the circuit will be 480/480 MVA summer and 520/520 MVA winter.

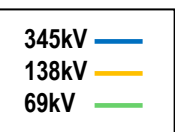
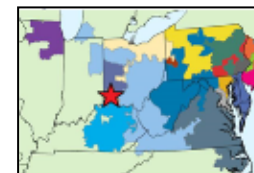
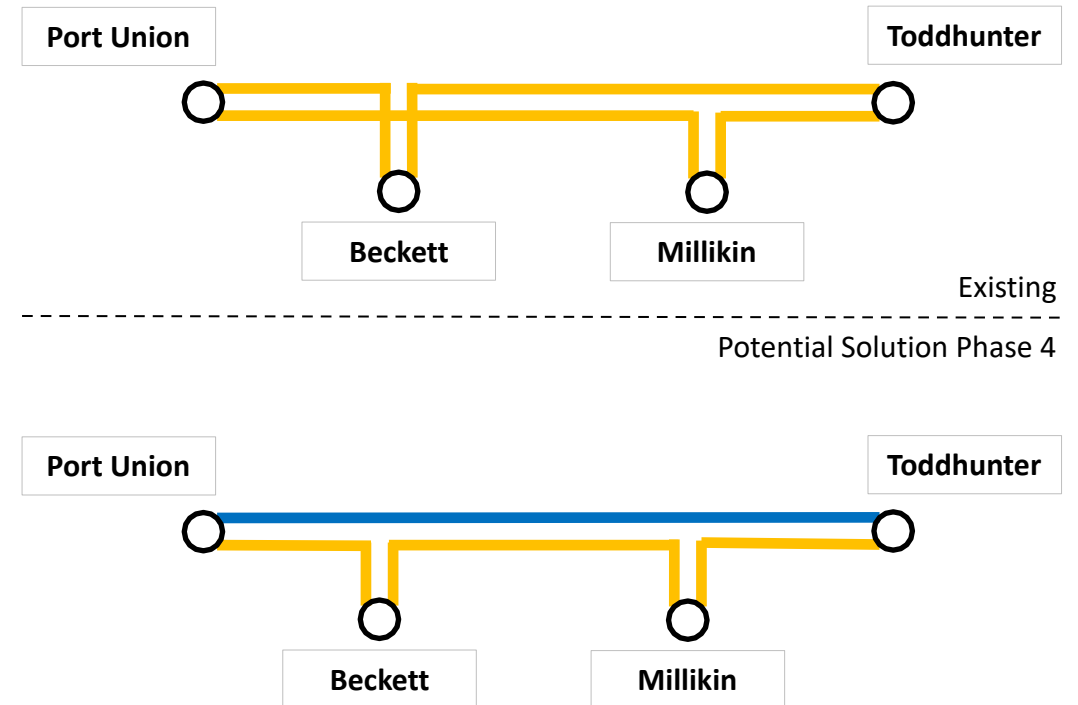
The western side will operate at 345 kV with a rating of 2403/2403 MVA summer and 2604/2604 MVA winter. This circuit will be enabled by the addition of a 345 kV circuit breaker at the Port Union substation and termination in an existing position at Todhunter substation.

Estimated Transmission Cost: \$101.0M

Proposed In-Service Date: 12/31/2030

Project Status: Scoping

Model: 2024 RTEP



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

06/27/2025 – V1 – Original version posted to pjm.com