Transmission Expansion Advisory Committee
DEOK Supplemental Projects

September 8, 2026

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 09/08/2026

Previously Presented:

Solutions Meeting 07/08/2025

Needs Meeting 05/06/2025

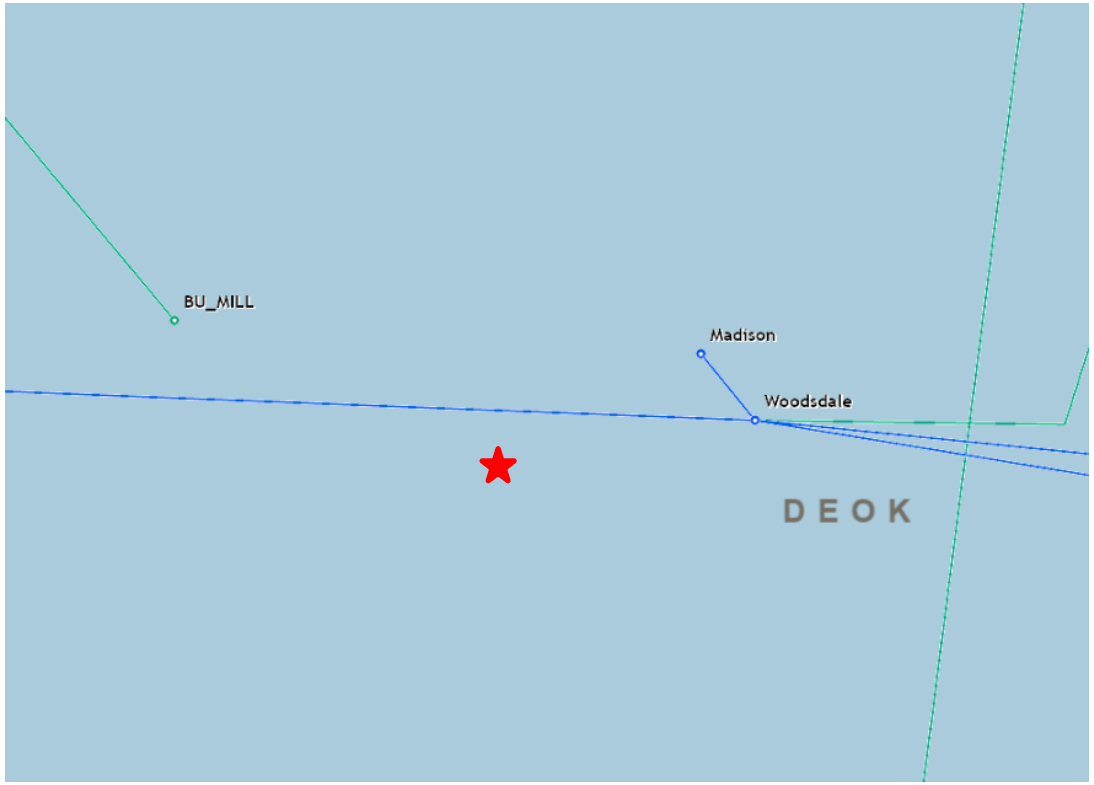
Project Driver: Customer Service

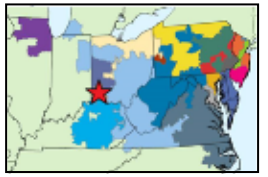
Specific Assumption Reference:

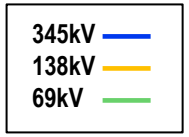
Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

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.







DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Changes Overview

Changes are marked in red

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Previously Presented:

Solutions Meeting 07/08/2025

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~~ three phases. The customer will initially take 300 MW of service in 2027, ramping up to 800 MW by ~~2030~~ 2031.

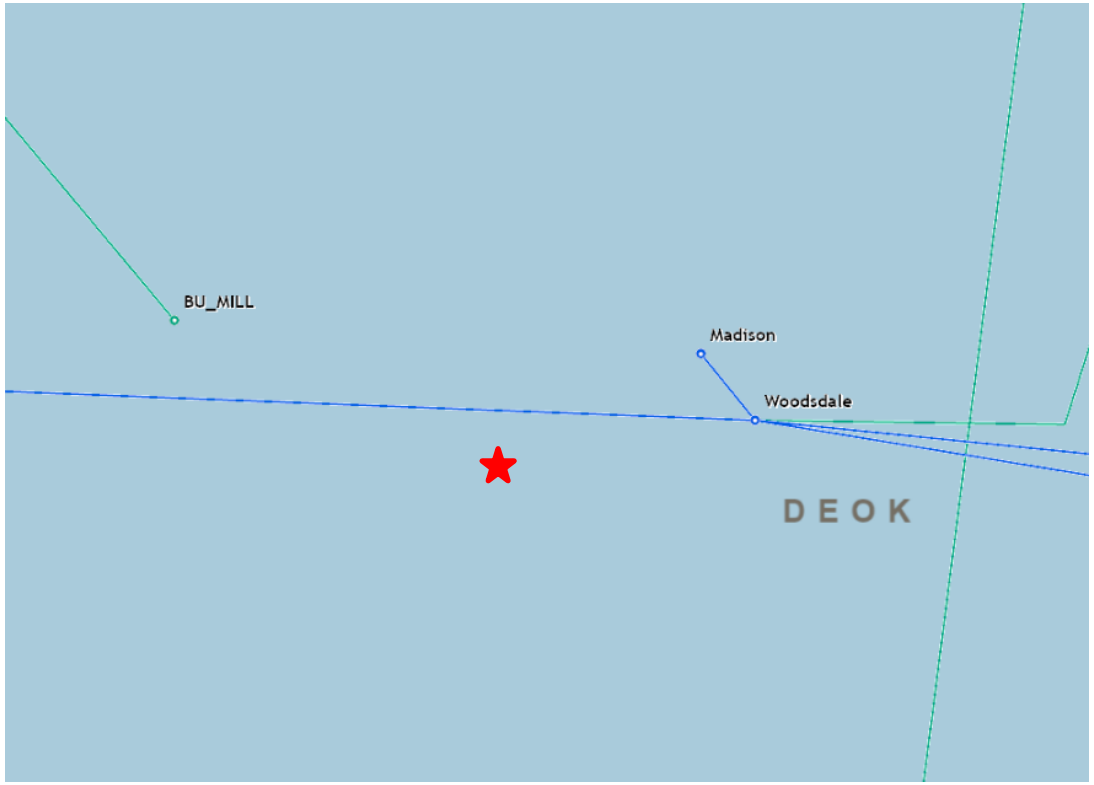
Build a new 3-breaker ring-bus switching station "Cotton Run", approximately 4.0 miles northwest of customer location. Build a new 345 kV 10-breaker, 8 position, breaker-and-a-half switching station "Wayne-Madison" on the customer's site. Two positions in Wayne-Madison will be used to loop into existing 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.

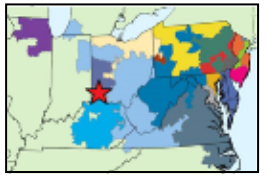
Rebuild existing Port Union to Todhunter 138 kV double circuit for 345kV operation, approximately 9.7 miles per circuit (19.4 miles total) of 954 kcmil ACSS. Eastern side of the tower line will be looped through existing Beckett and Millikin distribution substations and continue to operate at 138 kV.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

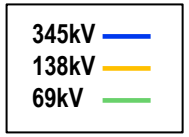
Alternatives: There are no viable alternatives to supply a load of this magnitude at this location

Reasons for Revisions (08/24/26):

DEOK-2026-004 will render all of Phase 1 and elements of Phase 2 unnecessary. Additional Phase 4 project scope was added due to ratings violations identified in the PJM Phase 1 Do-No-Harm analysis.







DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Change #1

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Changes are marked in red

Previously Presented:

Solutions Meeting 07/08/2025

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~~ three phases (numbered 2-3) coming into service in 2027 and completing by ~~2030~~ 2031.

~~**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)~~

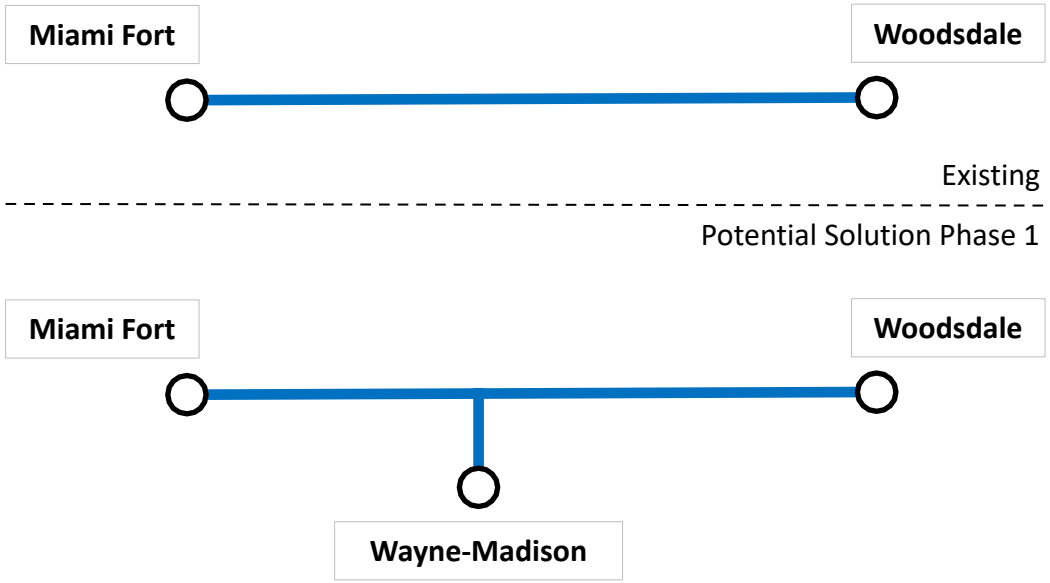
~~**Proposed In-Service Date:** 12/31/2027~~

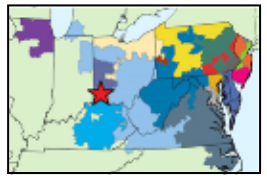
~~**Project Status:** Scoping~~

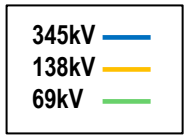
~~**Model:** 2024 RTEP~~

Reason for Revision (08/24/26):

DEOK-2026-004 will render this project phase unnecessary.







DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Change #2

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Changes are marked in red

Previously Presented:

Solutions Meeting 07/08/2025

Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

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~~ $25.9M

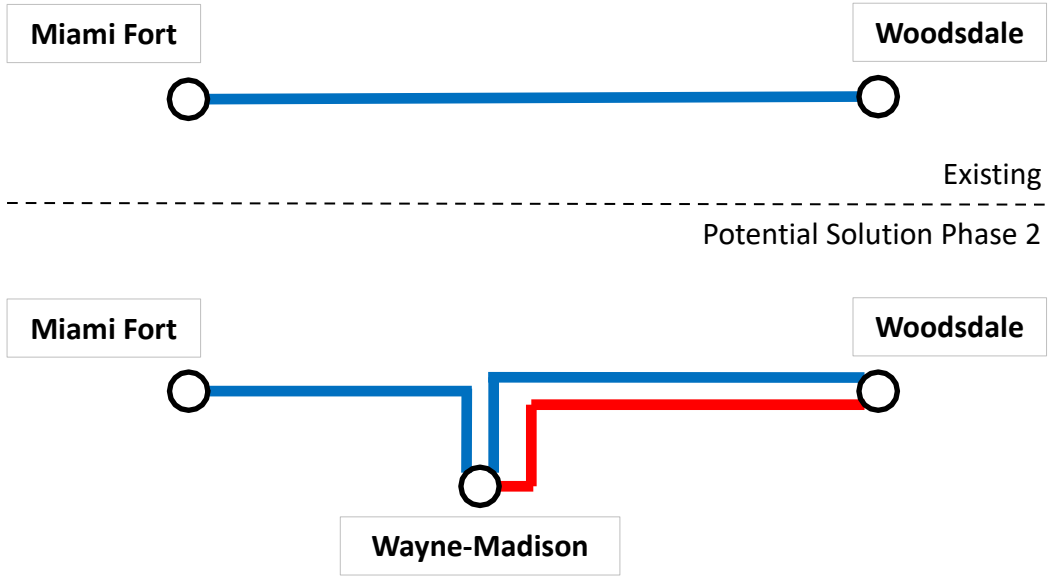
Proposed In-Service Date: 12/31/2028

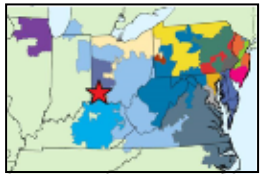
Project Status: ~~Scoping~~ Engineering

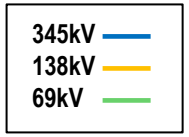
Model: ~~2024~~ 2025 RTEP

Reason for Revision (08/24/26):

DEOK-2026-004 will render elements of this project phase unnecessary. Project elements now completed by DEOK-2026-004 are shown in the diagram to the right in **RED**.







DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Change #2

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Changes are marked in red

Previously Presented:

Solutions Meeting 07/08/2025

Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

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

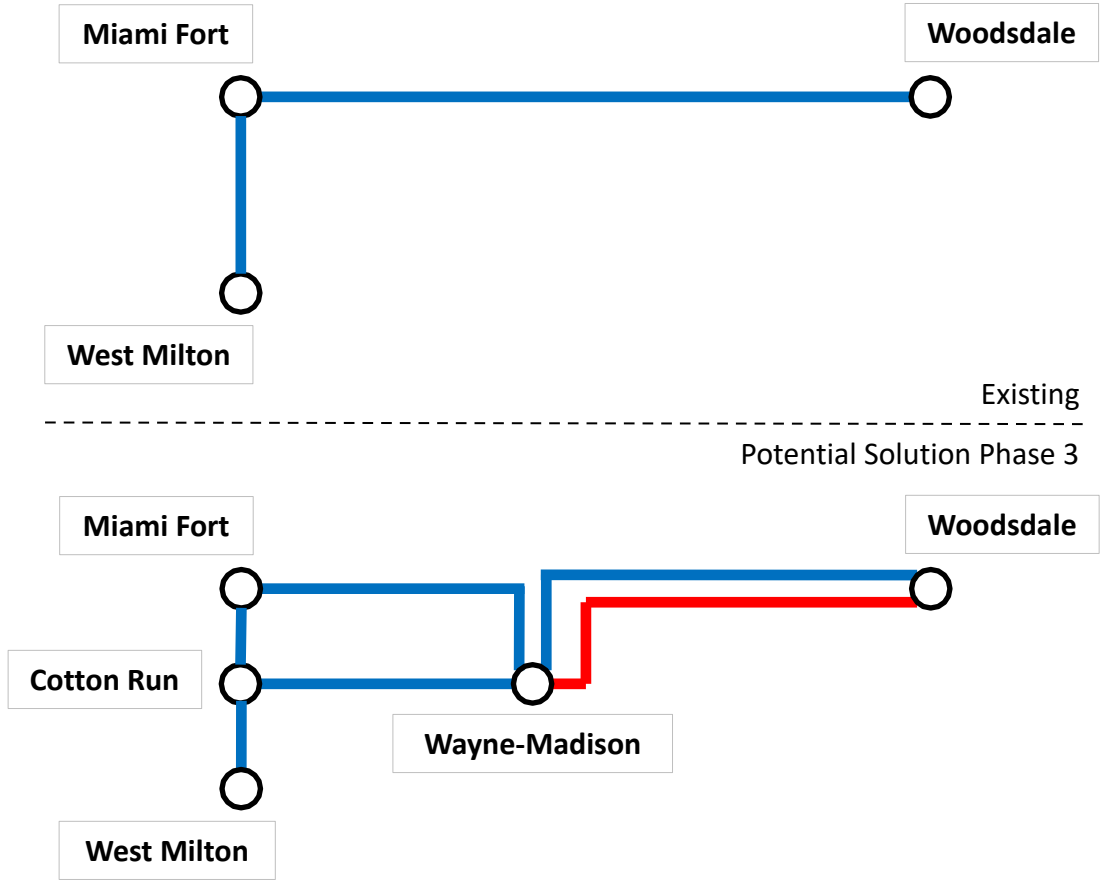
Proposed In-Service Date: 6/1/2029

Project Status: ~~Scoping~~ Engineering

Model: ~~2024~~ 2025 RTEP

Note (08/24/26):

Project elements now completed by DEOK-2026-004 are shown in the diagram to the right in **RED**.



DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Change #3

Changes are marked in red

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Previously Presented:

Solutions Meeting 07/08/2025

Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

Potential Solution:

Phase 4.1 (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.

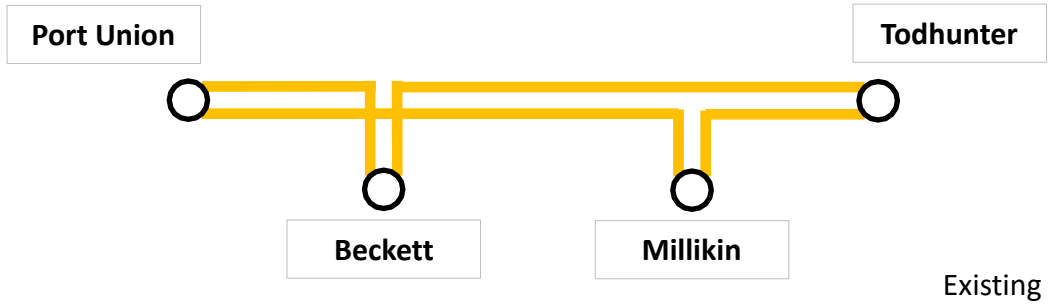
On the eastern side of the shared towers, circuit 3887 will continue to operate at 138 kV. The existing circuit is rated 302/302 MVA summer and 379/379 MVA winter. The updated rating of the circuit will be 480/480 MVA summer and 520/520 MVA winter.

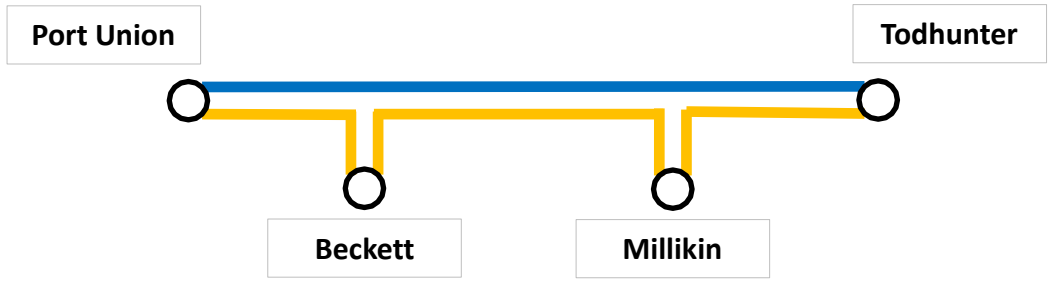
The western side will operate at 345 kV with a rating of 2403/2403 MVA summer and 2604/2604 MVA winter. This circuit will be enabled by the addition of a 345 kV circuit breaker at the Port Union substation and termination in an existing position at Todhunter substation.

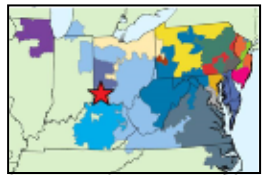
(Phase 4 solution continued on next slide)

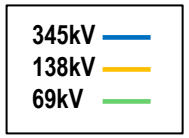
Estimated Transmission Cost: $101.0M
Proposed In-Service Date: 12/31/2030
Project Status: Scoping
Model: ~~2024~~ 2025 RTEP

Reason for Revision (08/24/26):
Additional Phase 4 project scope was added due to ratings violations identified in the PJM Phase 1 Do-No-Harm analysis.









DEOK Transmission Zone M-3 Process
Customer Load Request – Scope Change #3

Need Number: DEOK-2025-003

Process Stage: Solutions Meeting 09/08/2026

Previously Presented:

Solutions Meeting 07/08/2025

Needs Meeting 05/06/2025

Project Driver: Customer Service

Specific Assumption Reference:

Duke Energy Ohio & Kentucky Local Planning Assumptions slide 6

Changes are marked in red

Phase 4.2 (cont.) (Miami Fort – Willey 138 kV Reconductor; Service up to 800 MW):
Duke Energy will rebuild 138 kV circuits 9784, 1689 and 5783 from Miami Fort to Willey. Circuit 9784 is approximately 15 miles long, and will be reconductored with 1 Cond/Ph 954 ACSS TW 20X7. This will require the replacement of 78 tower structures with engineered poles as well as replacement of bus conductor at Miami Fort and Willey 138 kV substations. These project elements combined will result in a line ratings increase to 480/480 MVA SUM and 520/520 MVA WIN. These project elements are estimated to cost $45M.

In anticipation of future load increases and capacity constraints, Duke Energy will reconductor the circuits which share the towers with circuit 9784, to the same 1 Cond/Ph 954 ACSS TW 20X7. This includes approximately 7.4 miles of circuit 1689 from Miami Fort – Morgan substation, as well as approximately 7.2 miles of circuit 5783 from Morgan to the Willey substation area. The ratings on these lines will not change. These project elements are estimated to cost $20M.

Estimated Transmission Cost: $65M

Proposed In-Service Date: 11/30/2031

Project Status: Scoping

Model: 2025 RTEP

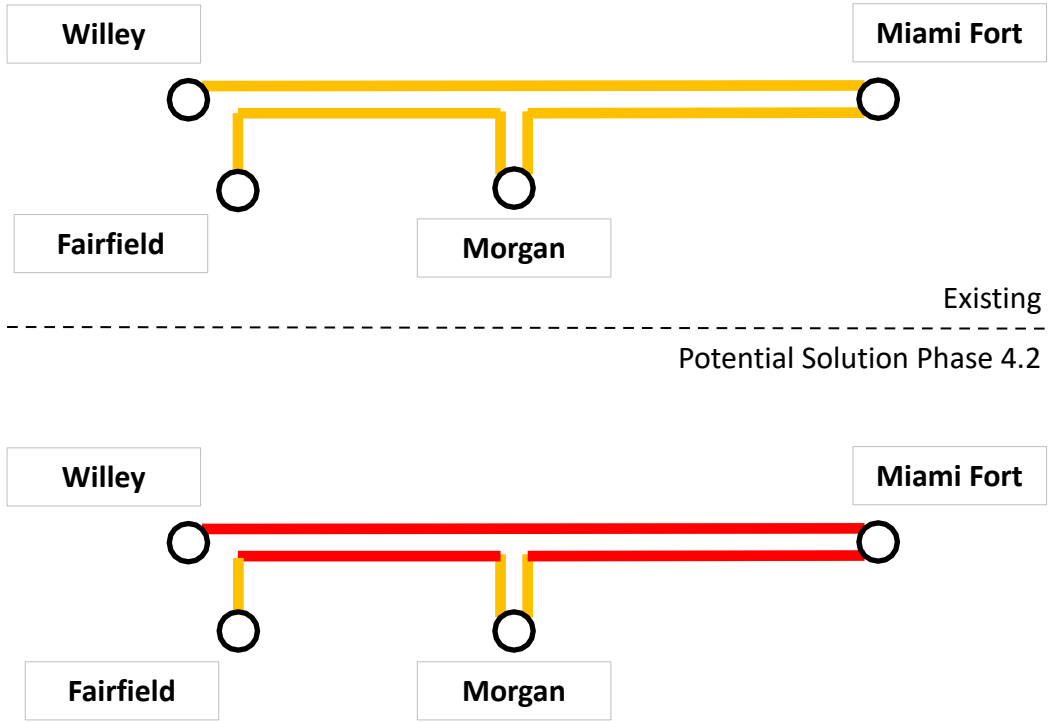
Alternatives Considered: Building an additional 138 kV line from Miami Fort to Willey. This alternative was more costly and limited by available space at both Miami Fort and Willey substations

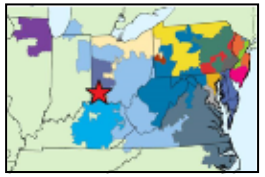
Reason for Revision (08/24/26):

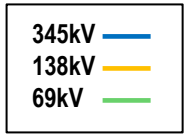
Additional Phase 4 project scope was added due to ratings violations identified in the PJM Phase 1 Do-No-Harm analysis.

Note (08/24/26):

The diagram to the right displays the line to be reconductored in **RED**







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

8/28/2026 – V1 – Original version posted to pjm.com