Transmission Expansion Advisory Committee FirstEnergy Supplemental Projects

January 7, 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

APS Transmission Zone M-3 Process
Pruntytown No. 3 500/138 kV Transformer

Need Numbers: APS-2024-071

Process Stage: Solution Meeting 01/07/2025

Previously Presented: Need Meeting 08/06/2024

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Projects Global Factors

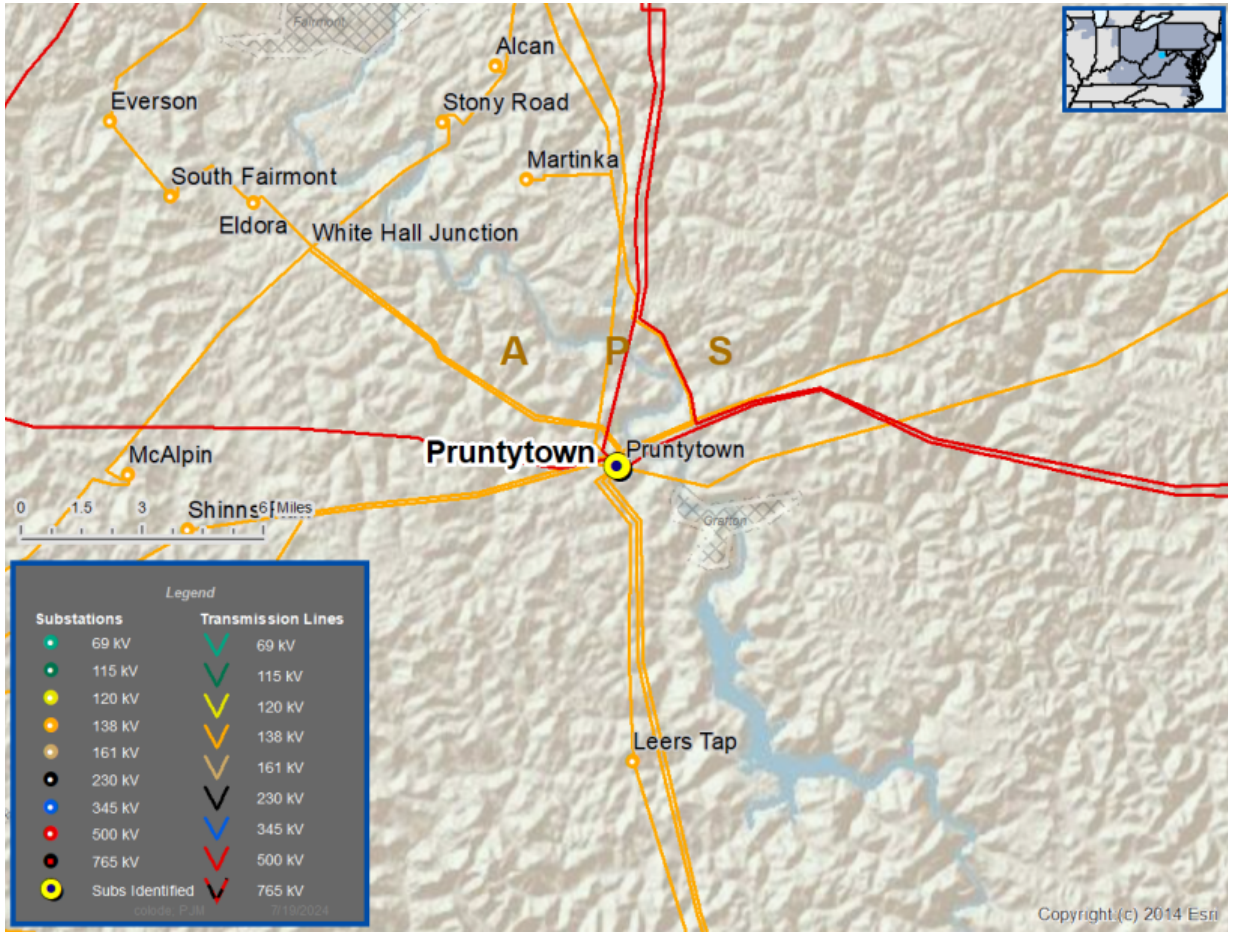
- System reliability and performance

Add/Replace Transformers

Past System Reliability/Performance

Problem Statement:

- The Pruntytown No. 3 500/138 kV Transformer is approximately 48 years old and is approaching end of life.
- The transformer has experienced an increase in moisture content.
- The transformer parts and relaying are obsolete.
- The transformer and relaying equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.
- Existing transformer ratings:
  - 430 / 552 MVA (SN / SSTE)
  - 505 / 585 MVA (WN / WSTE)



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APS Transmission Zone M-3 Process
Pruntytown No. 3 500/138 kV Transformer

Need Number: APS-2024-071

Process Stage: Solution Meeting 1/07/2025

Proposed Solution:

- At Pruntytown Substation:
  - Replace the existing 500/138 kV Transformer No. 3
  - Replace transformer conductor, circuit breakers, disconnect switches and relaying

Anticipated Transformer Circuit Ratings:

- 500/138 kV Transformer No. 3 :
  - Before Proposed Solution: 430 / 552 / 505 / 585 MVA (SN / SSTE / WN / WSTE)
  - After Proposed Solution (anticipated): 448 / 582 / 527 / 618 MVA (SN / SSTE / WN / WSTE)

Alternatives Considered:

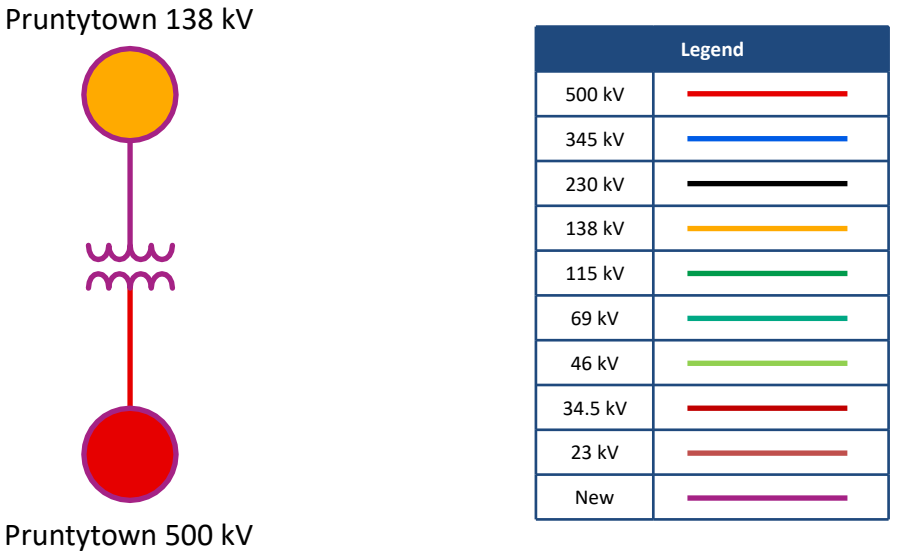
- Maintain the transformer with increased risk of failure.

Estimated Project Cost: $ 15.77 M

Projected In-Service: 6/30/2029

Project Status: Conceptual

Model: 2024 RTEP model for 2029 Summer (50/50)



Re-Present 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

APS Transmission Zone M-3 Process
New Customer

Need Number: APS-2023-029 (s3150.1, s3150.2)

Process Stage: Re-Present Solutions Meeting – 01/07/2025

Previously Presented: Solution Meeting – 02/06/2024
Need Meeting – 7/11/2023

Project Driver(s):

Customer Service

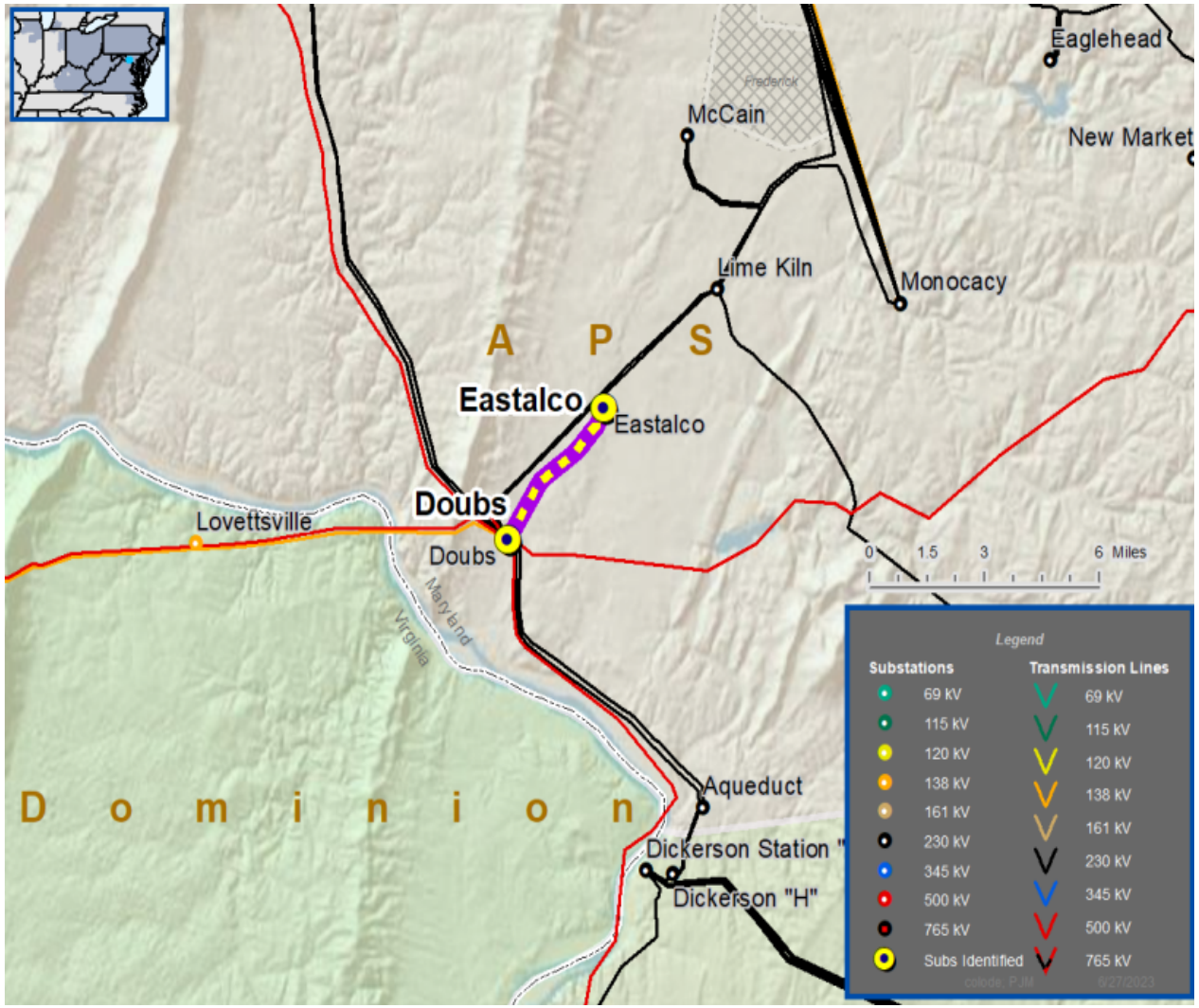
Specific Assumption Reference(s)

New customer connection request will be evaluated per FirstEnergy's "Requirements for Transmission Connected Facilities" document and "Transmission Planning Criteria" document.

Problem Statement

New Customer Connection- A customer has requested 230 kV transmission service for approximately 300 MW of load near the Doubs-Sage #206 230 kV Line.

Requested In-Service Date: May 15, 2025



APS Transmission Zone M-3 Process

Need Number: APS-2023-029 (s3150.1, s3150.2)

Process Stage: Re-Present Solutions Meeting – 01/07/2025

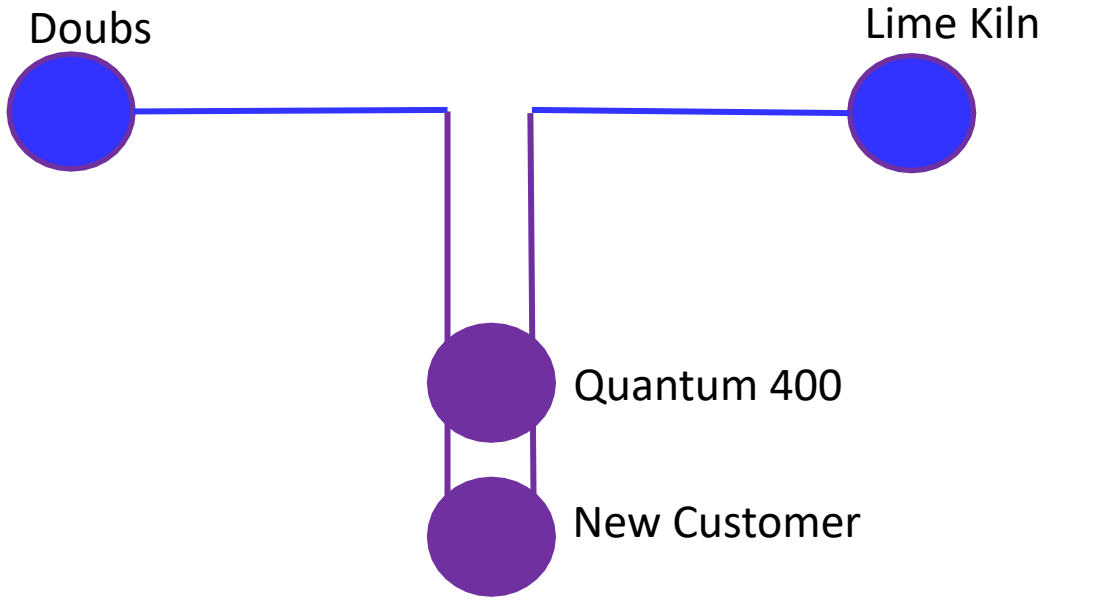
Proposed Solution:

- Build a six breaker, ~~two~~ three bay (expandable to four bays), breaker-and-a-half substation (Quantum 400)
- Loop the Doubs – Lime Kiln #231 230 kV Line in and out of the new substation
- Modify line relay settings at Doubs and Lime Kiln substations
- Provide two feeds to the customer facility

Estimated Project Cost: ~~$20.8M~~ 23.2M

Projected In-Service: ~~09/01/2025~~ 12/31/2025

Status: ~~Pre-Engineering~~ Engineering



Legend	
500 kV	
230 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

APS Transmission Zone M-3 Process
New Customer

Need Number: APS-2023-029 (s3150.1, s3150.2)

Process Stage: Re-Present Solutions Meeting – 01/07/2025

Proposed Solution:

230 kV Transmission Substation (Quantum 400)

- Expand Quantum 400 station to a ~~nine~~ ten breaker, breaker-and-a-half substation
- Loop the Doubs – Sage #206 230 kV Line in and out of the new substation
- Modify line relay settings at Doubs and Sage substations

Alternatives Considered:

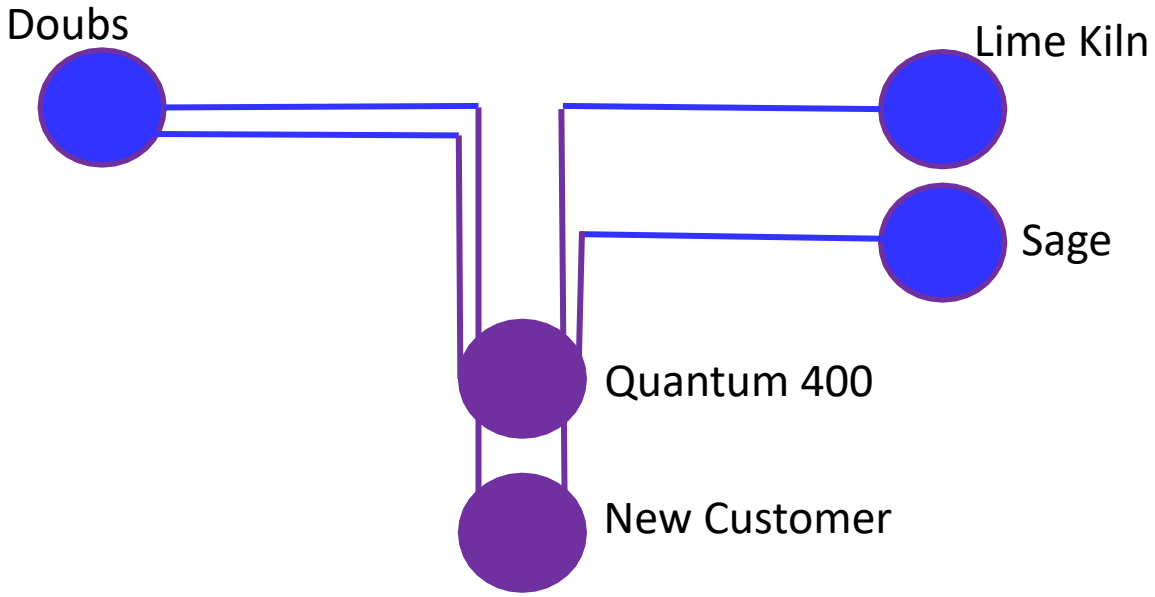
- No other feasible alternatives to serve the customer's load

Estimated Project Cost: ~~$14.6M~~ $8M

Projected In-Service: 12/31/2027 (coordinate with APS-2023-017)

Status: ~~Conceptual~~ Engineering

Model: 2028 RTEP case with 2022W3 solution



Legend	
500 kV	
230 kV	
138 kV	
69 kV	
34.5 kV	
23 kV	
New	

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

12/27/2024– V1 – Original version posted to pjm.com