Transmission Expansion Advisory Committee – FirstEnergy (ATSI) Supplemental Projects

July 12, 2022

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

ATSI Transmission Zone M-3 Process
Delta/Wauseon Area

Need Number: ATSI-2021-027
Process Stage: Solution Meeting – 07/12/2022
Previously Presented: Need Meeting – 11/30/2021

Supplemental Project Driver(s):
Operational Flexibility and Efficiency
Infrastructure Resilience

Specific Assumption Reference(s)

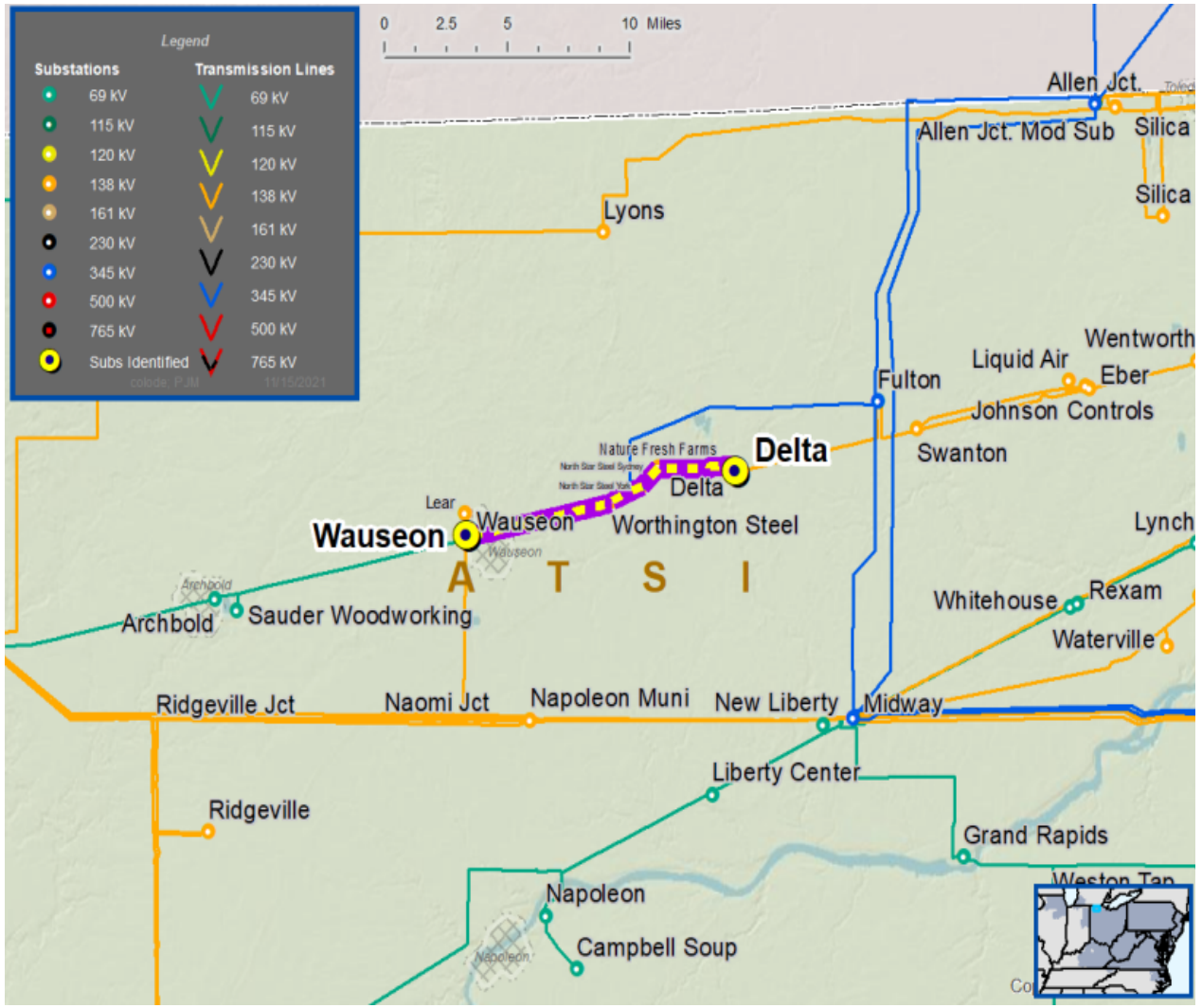
- System Reliability and Performance
- Load at risk in planning and operational scenarios
- Load and/or customers at risk on single transmission lines

Add/Expand Bus Configuration

- Loss of substation bus adversely affects transmission system performance
- Reduce amount of exposed potential local load loss during contingency conditions.
- Accommodate future transmission facilities

Add/Replace Transformers

- System concerns related to loss of an existing transformer or other contingency scenarios at a specific voltage level(s)



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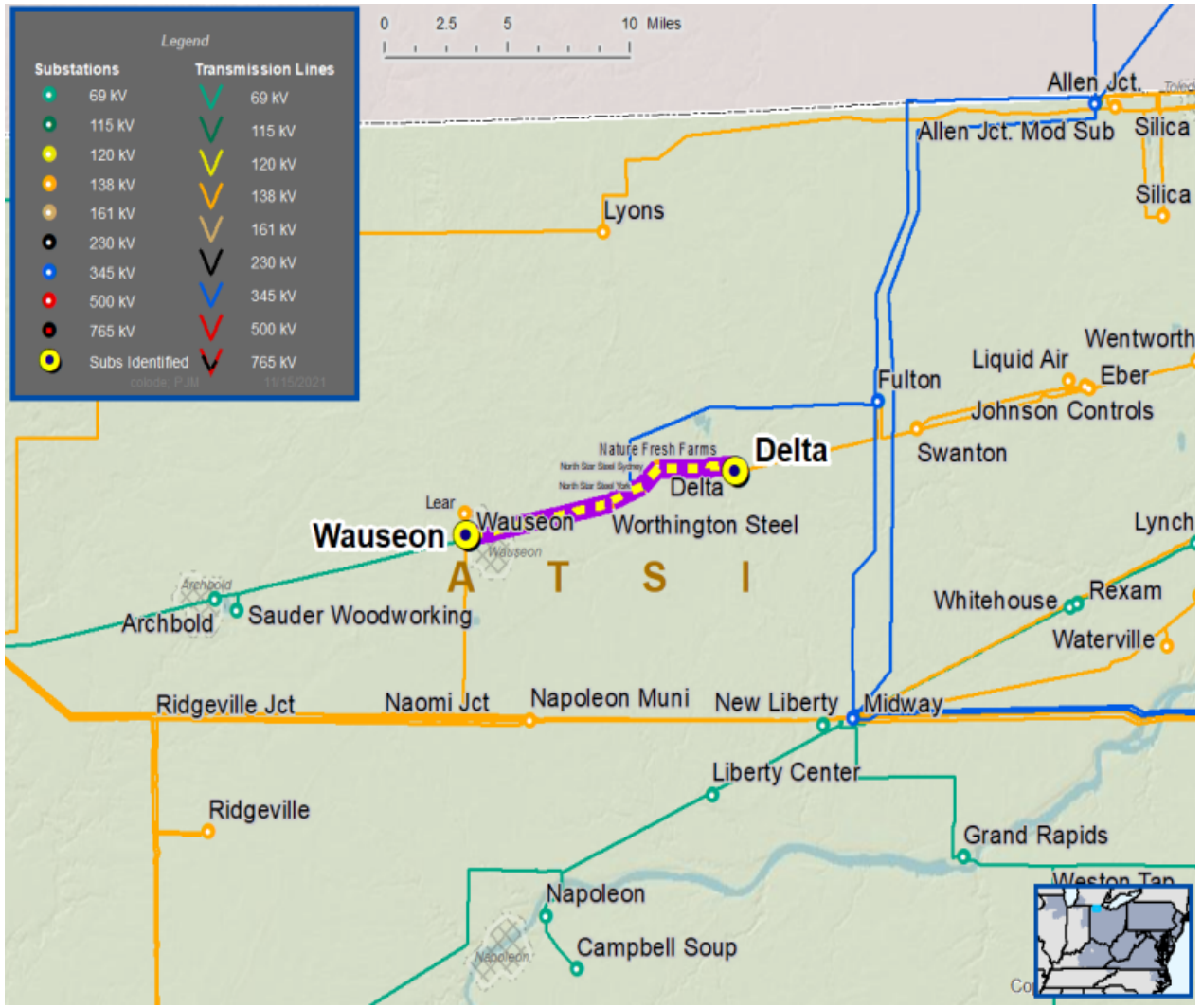
ATSI Transmission Zone M-3 Process
Delta/Wauseon Area

Need Number: ATSI-2021-027
Process Stage: Solution Meeting – 07/12/2022
Previously Presented: Need Meeting – 11/30/2021

Problem Statement

- The Delta/Wauseon area is a concentrated load pocket with future load growth expected. Existing customers planning for future load growth, and new transmission load connections in progress with load expected to grow to approximately 500 MVA and 9,000 customers in the near term.
- Under an N-1-1 contingency, post-contingency voltage on 138 kV busses is near emergency minimum of 0.92 p.u. with approximately 200 MVA and 9,000 customers at risk. Under same contingency set, and area capacitor bank off, low voltages with near voltage collapse on the 138 kV system in the area.
- Also, under an N-1-1 contingency results in voltage near criteria limits on a radial 345 kV line with approximately 300 MVA of load at risk.



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ATSI Transmission Zone M-3 Process
Delta/Wauseon Area

Need Number: ATSI-2021-027
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Proposed Solution:

- Install two 345 kV circuit breakers at Melbourne 345 kV Substation
- Install two 345-138 kV transformers
- Construct a four breaker (future 6) 138 kV ring bus at Melbourne Substation
- Loop in the Delta-Wauseon 138 kV line into Melbourne 138 kV Substation
- Install two 138 kV line switches, one near Lear tap and one near Worthington tap
- Install one 138 kV circuit breaker at Delta 138 kV Substation

Line Ratings:

Wauseon-Melbourne 138 kV Line:

After proposed project: 278/343 MVA SN/SE

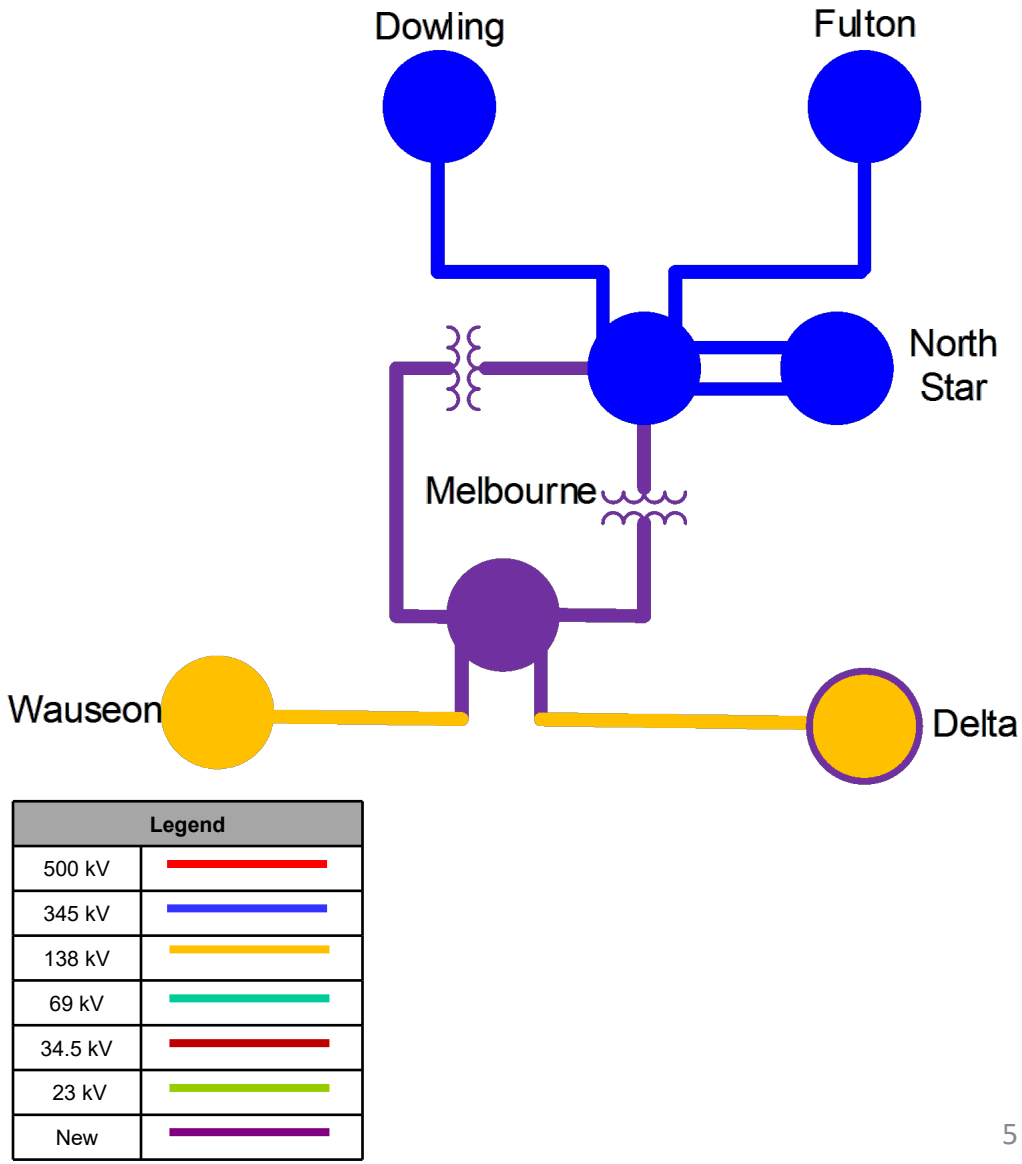
Delta-Melbourne 138 kV Line:

After proposed project: 278/343 MVA SN/SE

Alternatives Considered:

- Construct a new four breaker 345 kV ring bus. Construct a six breaker 138 kV ring bus and tie it to the 345 kV station with transformation. Re-terminate the Fulton-North Star Steel Sydney 345 kV line into the new 345 kV station. Expand Fulton substation to install a second 345/138 kV transformer. Expand Delta substation to install a second line from Fulton-Delta 138 kV. Rebuild the Delta Wauseon 138 kV line as double circuit and loop in the double circuit line into the new 138 kV Ring Bus. ($107.2M)

Estimated Project Cost: $25.1M
Projected In-Service: 12/01/2025
Status: Pre-Engineering
Model: 2021 Series 2026 Summer RTEP 50/50



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

07/01/2022 – V1 – Original version posted to pjm.com