

Transmission Expansion Advisory Committee – FirstEnergy (ATSI) Supplemental Projects

April 11, 2023

Needs

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

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

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



ATSI Transmission Zone M-3 Process

Customer - North Star BlueScope Steel 345 kV Expansion

Need Number: ATSI-2019-082
Process Stage: [Re-Present Solutions Meeting – 04/11/2023](#)
Previously Presented: Need Meeting – 11/22/2019
Solutions Meeting – 11/04/2020

Supplemental Project Driver(s):
Customer Service

Specific Assumption Reference(s)

Customer connection request will be evaluated per FirstEnergy’s “Requirements for Transmission Connected Facilities” document and “Transmission Planning Criteria” document.

Problem Statement

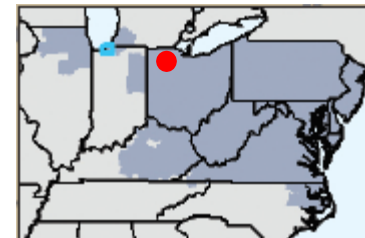
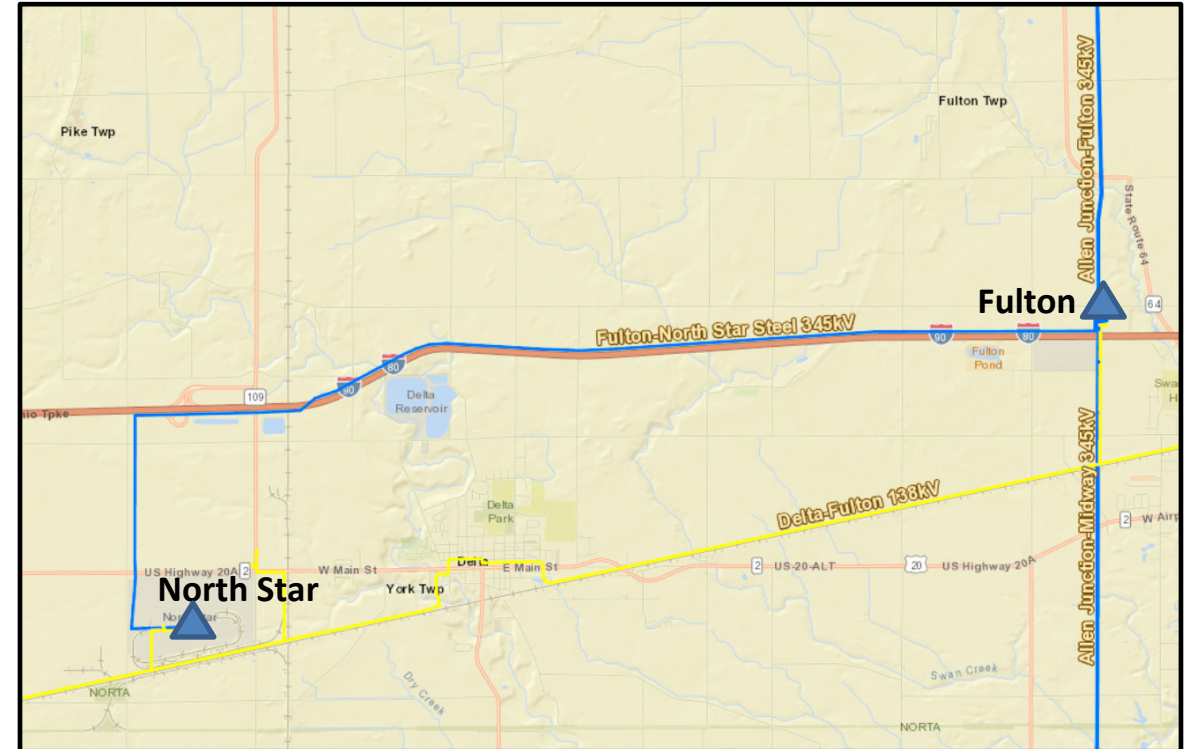
Existing Customer Connection – Load Increase

An existing transmission customer (North Star BlueScope Steel) is requesting load demand increase for the existing 345/34.5 kV substation to a new peak of 300 MVA on the Fulton-North Star Steel 345 kV line.

Requested In-Service Date: 03/01/2021

The customer is also requesting load demand increase for its existing 138/34.5 kV substation to a new peak load of 40 MVA on the Delta-Wauseon 138 kV line.

Requested In-Service Date: 11/01/2020



Legend	
345 kV	
138 kV	
69 kV	



ATSI Transmission Zone M-3 Process

Customer - North Star BlueScope Steel 345 kV Expansion

Need Number: ATSI-2019-082
Process Stage: [Re-Present Solutions Meeting – 04/11/2023](#)
Previously Presented: Need Meeting – 11/22/2019
Solutions Meeting – 11/04/2020

Proposed Solution:

When the additional 40 MVA from the customer is energized on the Delta-Wauseon 138 kV line, the N-1-1 contingency of losing the Midway-Wauseon 138 kV line and the Delta-Fulton 138 kV line results in voltage of 0.90 PU.

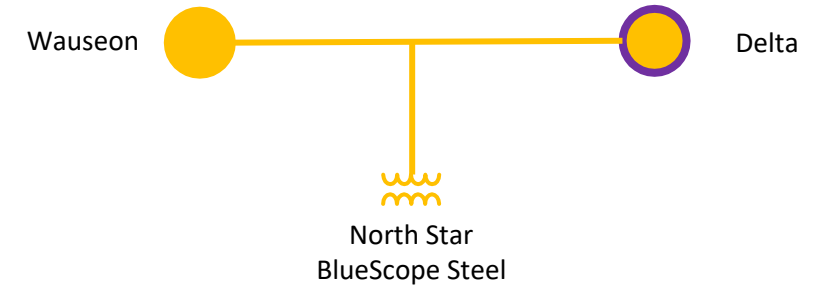
- Install two (2) 26 MVAR Capacitor Bank at Delta 138 kV substation.

Estimated Project Cost: \$2.3 M

Alternatives Considered:

- None (obligation to serve)

In-Service: 4/27/2021
Status: In-Service
Model: 2019 Series 2024 Winter RTEP 50/50



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

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New additional scope to mitigate load loss criteria violation (§2237.2):

Contingency: P6 Loss of the Fulton-North Star Steel 345 kV Line and any additional line.

Ex. Loss of Fulton-North Star Steel 345 kV Line (300 MW) and loss of the Allen Junction-Westgate 138 kV line (79 MW) totaling over 379 MW of load loss.

Proposed Solution - Continued:

- Construct a new 345 kV four breaker ring bus.
- De-energize approx. 1.0 mile of the Dowling-Fulton 345 kV line.
- Construct 8.7 miles of 345 kV line to connect the Dowling 345 kV line into the new 345 kV station with 954 ACSR 45/7 bundled (2 conductors per phase). ~~New 345 kV line to be built and share structures with the Delta-Wauseon 138 kV line and Delta-Fulton 138 kV line.~~ New greenfield 345 kV line to be built as preferred option based on the results of route selection study that was conducted. This route also avoids more densely populated areas near the town of Delta. The line will primarily be constructed on steel monopole structures.
- Replace the wave trap at Dowling 345 kV line to ensure the Dowling-New 345 kV station 345 kV transmission line is the limiting element.
- Re-terminate the Fulton 345 kV line that serves North Star Steel Sydney into the new 345 kV station.
- Provide two feeds from the new 345 kV station to North Star Steel Sydney with 954 ACSR 45/7 bundled (2 conductors per phase).
- Since conceptual estimate previously presented, material prices for the 345 kV line and the four breaker ring bus have escalated. In addition, a more extensive real estate review has been conducted and anticipate much higher ROW acquisition costs.

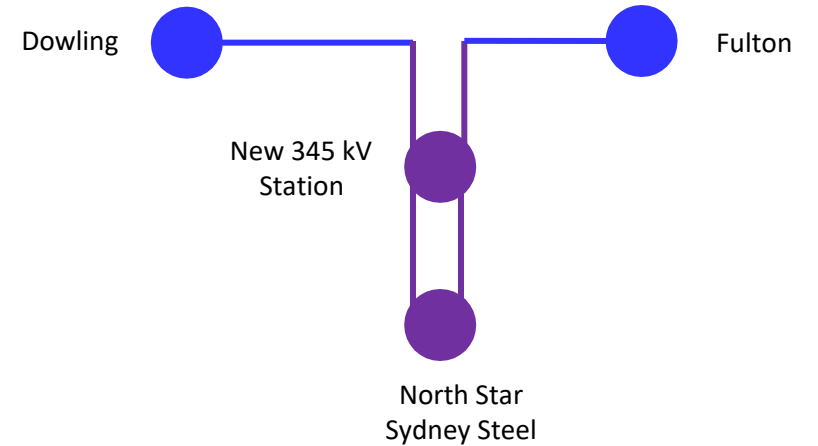
Transmission Line Ratings:

Dowling-New 345 kV Station Rating:

- 1542/1878 MVA SN/SE, 1746/2225 MVA WN/WE

Fulton-New 345 kV Station Rating:

- 1542/1878 MVA SN/SE, 1746/2225 MVA WN/WE



Legend	
500 kV	—
345 kV	—
138 kV	—
69 kV	—
34.5 kV	—
23 kV	—
New	—

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ATSI Transmission Zone M-3 Process

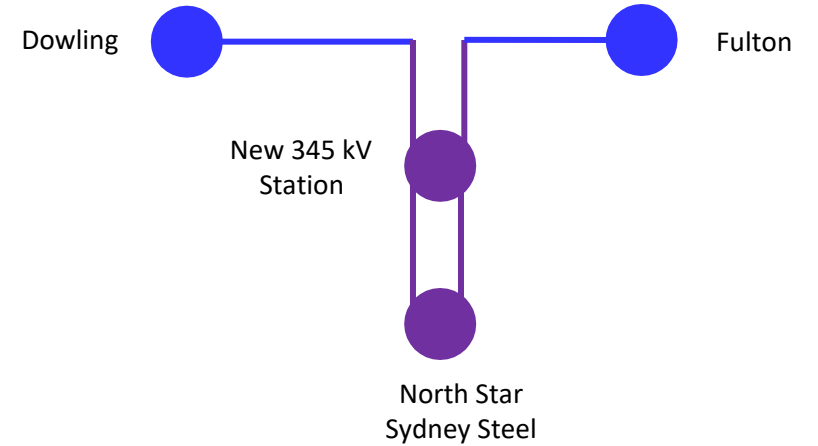
Customer - North Star BlueScope Steel 345 kV Expansion

New additional scope to mitigate load loss criteria violation (§2237.2):

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~~-\$128.2M, Conceptual Estimate)

Estimated Project Cost: ~~\$67M~~ \$104.3M
Projected In-Service: ~~6/1/2024~~ 6/1/2026
Status: ~~Conceptual~~ Pre-Engineering
Model: 2020 Series 2025 Summer RTEP 50/50



Legend	
500 kV	
345 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

3/31/2023 – V1 – Original version posted to pjm.com