



ATSI Supplemental Projects

Transmission Expansion Advisory Committee
March 7, 2019

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: ATSI-2019-050
Process Stage: TEAC Solution Meeting
Solutions Meeting: 03/07/2019
Needs Meeting: 02/07/2019

Project Driver(s):

*Equipment Material, Condition, Performance and Risk
 Operational Flexibility and Efficiency
 Infrastructure Resilience*

Specific Assumption Reference(s)

Global Factors

- System reliability and performance
- Load at risk in planning and operational scenarios

Reconductor / Rebuild Transmission Lines

- Three or more terminal transmission lines

Upgrade Relay Schemes

- Relay schemes that have a history of misoperation
- Obsolete and difficult to repair communication equipment



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Problem Statement

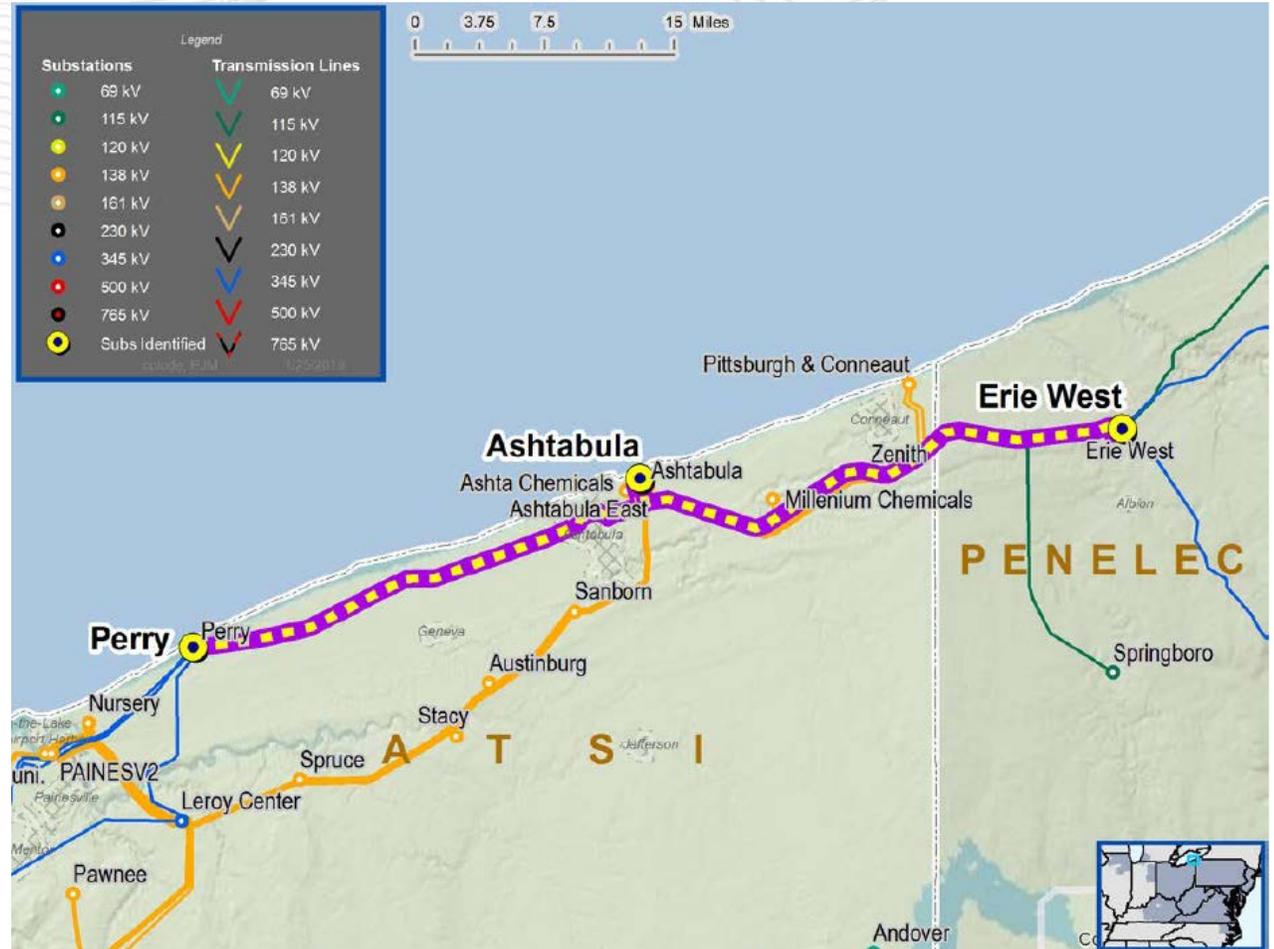
Perry-Ashtabula-Erie West 345 kV Line and Surrounding Areas

- Perry-Ashtabula-Erie West 345 kV Line is a three terminal line.
- Three terminal lines are prone to mis-operations, lengthy fault locating analysis and longer restoration efforts.
- Existing transmission relay communication equipment is approaching end of life, is obsolete, and is difficult to maintain and repair.
- Non-planning criteria violation voltage concerns on the > 100 kV system under contingency conditions.
 - Loss of the Perry-Ashtabula-Erie West 345 kV (FE-P1-2-CEI-345-700T), or the Ashtabula 345/138kV TR (FE-P1-3-SYS-345-722), followed by the loss of Leroy Center-Stacy Q3 138 kV line (FE-P1-2-CEI-138-087).

OR

- Loss of Leroy Center-Ashtabula Q4 138 kV line followed by the loss of the Leroy Center-Stacy Q3 138 kV line (FE-P7-1-CEI-138-058)

Results in low voltage (< 88 %), large voltage drop (11.3%), and/or potential local voltage collapse at Stacy substation; load shed of approximately 75 MWs is necessary to maintain system voltages.





ATSI Transmission Zone

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Potential Solution:

Perry-Ashtabula-Erie West 345 kV Three-Terminal Line Elimination Project

- Rebuild 1.5 miles of the Perry-Ashtabula-Erie West 345 kV tap line as double circuit, match existing tap conductor.

- Reconfigure the existing Ashtabula tap location to create:
 - Erie West – Ashtabula 345 kV line (1560 MVA SN / 1900 MVA SE)
 - Ashtabula – Perry 345 kV line (1560 MVA SN / 1900 MVA SE)

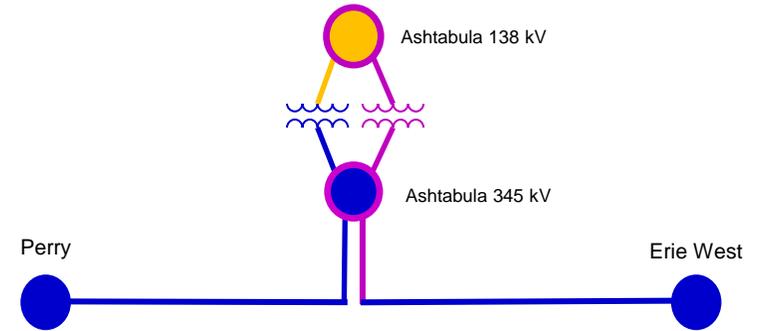
- Expand the existing 345 kV substation at Ashtabula to a six (6) breaker ring bus
- Add a second 345/138 kV 448 MVA transformer between the new 345 kV ring bus and the existing 138 kV bus at Ashtabula.
- Add a new 138 kV circuit breaker to terminate the new transformer to the 138 kV bus.

Alternatives Considered: Maintain existing configuration.

Estimated Project Cost: \$23.7M

Projected IS Date: 12/31/2020

Status: Conceptual



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



V1 – 2/22/2019 – Original Slides Posted