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.
ATSI Transmission Zone

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

Continued on next slide…
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- Existing transmission relay communication equipment is approaching end of life, is obsolete, and is difficult to maintain and repair.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.
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
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<td>Stakeholder comments</td>
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