Transmission Expansion Advisory Committee
FirstEnergy Supplemental Projects

October 6, 2020
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
Doubs – Goose Creek 500 kV Line Rebuild

Need Number: APS-2020-011
Process Stage: Solutions Meeting 10/6/2020
Previously Presented: Need Meeting 6/2/2020

Project Driver:
Equipment Material Condition, Performance and Risk

Specific Assumption Reference:
Line Condition Rebuild/Replacement
- Age/condition of steel tower or steel pole transmission line structures
- Age/condition of transmission line conductors

System Performance Projects
- Substation/line equipment limits

Problem Statement:
Doubs – Goose Creek 500 kV line is exhibiting deterioration.
- The transmission line was constructed in 1966.
- Total line distance is approximately 18 miles (FirstEnergy owns 15 miles).
- FirstEnergy owns 77 structures of the transmission line which consists of 69 COR-TEN steel lattice structures and eight galvanized steel structures.
- Independent assessment was conducted on a sample of 11 structures.
  - 10 of the 11 structures failed inspection (90% failure rate).
- Failure reasons include packout, corrosion, tension cracking, and structure foundation cracks/deterioration.

Transmission line ratings are limited by external ratings and terminal equipment
- Existing line rating: 2442/2442 MVA (SN/SE)
- Existing conductor rating: 3151/3894 MVA (SN/SE)

Note: The End of Life issue identified for the Doubs – Goose Creek 500 kV line is linked to Dominion baseline FERC FORM 715 (FG DOM-05)
Need Number: APS-2020-011
Process Stage: Solutions Meeting 10/6/2020
Previously Presented: Need Meeting 6/2/2020
Proposed Solution:
Doubs – Goose Creek 500 kV Line Rebuild

- Rebuild and reconductor the FE portion of the Doubs – Goose Creek 500 kV line (approximately 14.8 miles of steel lattice tower construction) utilizing existing Right-of-Way.

Doubs 500 kV Substation – Equipment to be replaced includes:

- Breaker disconnect switches, line metering and relaying, substation conductor, and breakers

Transmission Line Rating:
Doubs – Goose Creek 500 kV Line

- Before Proposed Solution: 2442/2442 MVA (SN/SE)
- After Proposed Solution: 4330/4330 MVA (SN/SE)
  4980/5023 MVA (WN/WE)

Alternatives Considered:

- Maintain existing condition with elevated risk of failure
- Construct a new 500 kV line between Doubs and Goose Creek substation

Estimated Project Cost: $60 M
Projected In-Service: 6/1/2025
Project Status: Conceptual
Model: 2020 RTEP Model for 2025

Note: The End of Life issue identified for the Doubs – Goose Creek 500 kV line is linked to Dominion baseline FERC FORM 715 (FG DOM-05)
Questions?
Appendix
### High level M-3 Meeting Schedule

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<th>Assumptions</th>
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<td>Posting of TO Assumptions Meeting information</td>
<td>20 days before Assumptions Meeting</td>
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<td>Stakeholder comments</td>
<td>10 days after Assumptions Meeting</td>
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<th>Needs</th>
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<td>10 days before Needs Meeting</td>
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<td>Stakeholder comments</td>
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<th>Solutions</th>
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<td>Do No Harm (DNH) analysis for selected solution</td>
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<td>Post selected solution(s)</td>
<td>Following completion of DNH analysis</td>
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<td>Stakeholder comments</td>
<td>10 days prior to Local Plan Submission for integration into RTEP</td>
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<td>Local Plan submitted to PJM for integration into RTEP</td>
<td>Following review and consideration of comments received after posting of selected solutions</td>
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Revision History

9/25/2020 – V1 – Original version posted to pjm.com