

# 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

**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:**

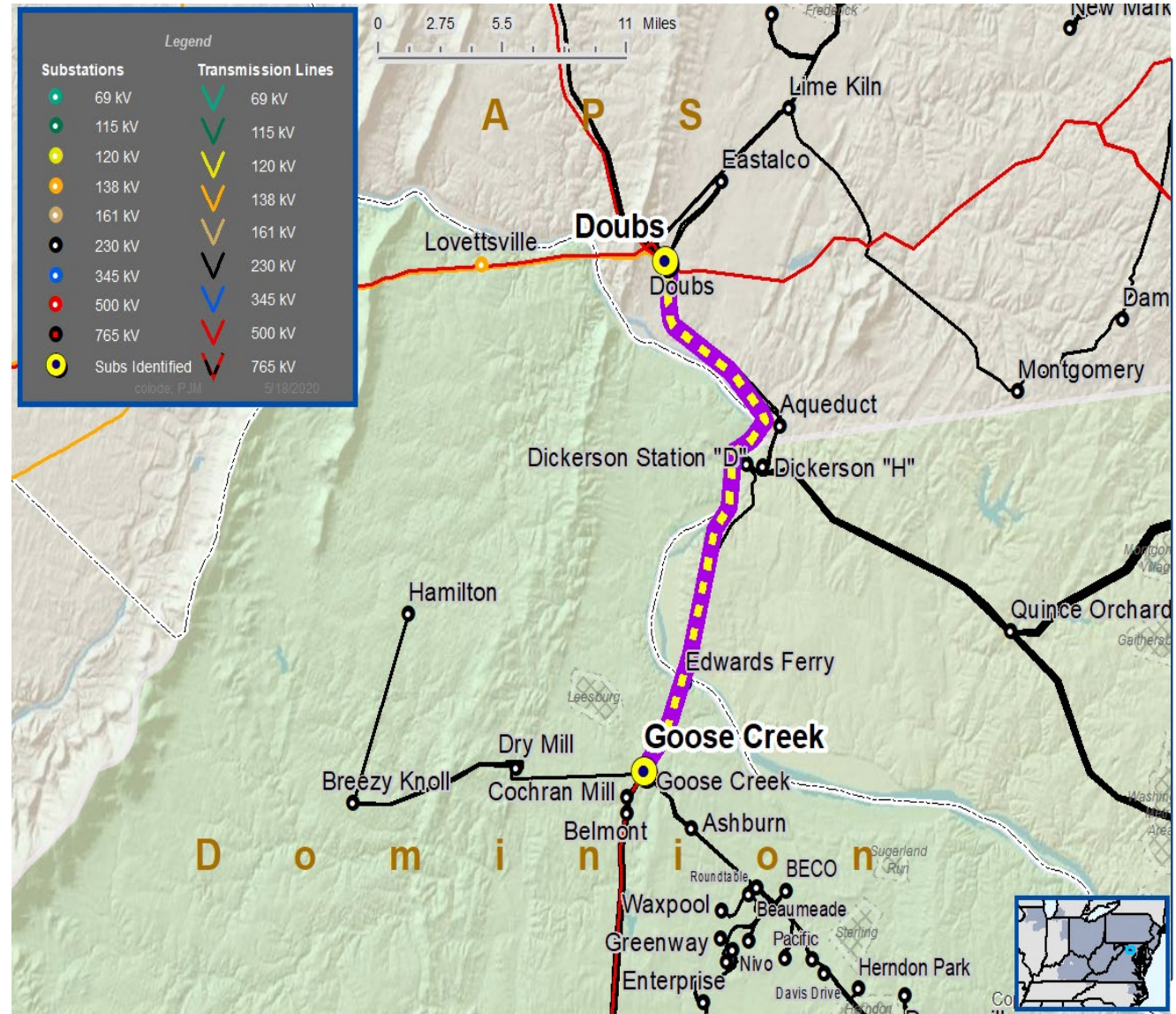
Doubts – Goose Creek 500 kV line is exhibiting deterioration.

- 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 Doubts – Goose Creek 500 kV line is linked to Dominion baseline FERC FORM 715 (FG DOM-05)



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**Proposed Solution:**

*Doubts – Goose Creek 500 kV Line Rebuild*

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

*Doubts 500 kV Substation – Equipment to be replaced includes:*

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

Transmission Line Rating:

Doubts – 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 Doubts and Goose Creek substation

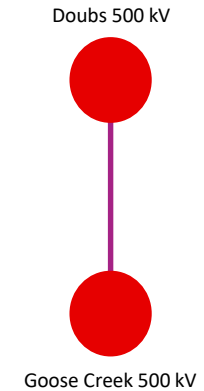
**Estimated Project Cost:** \$60 M

**Projected In-Service:** 6/1/2025

**Project Status:** Conceptual

**Model:** 2020 RTEP Model for 2025

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Legend	
500 kV	
345 kV	
230 kV	
138 kV	
115 kV	
69 kV	
46 kV	
34.5 kV	
23 kV	
New	

# Questions?



# 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

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