

# Subregional RTEP Committee – Western FirstEnergy Supplemental Projects

September 11, 2020

# 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

**Need Number:** ATSI-2020-040  
**Process Stage:** Need Meeting – 09/11/2020

**Supplemental Project Driver(s):**  
*Customer Service*

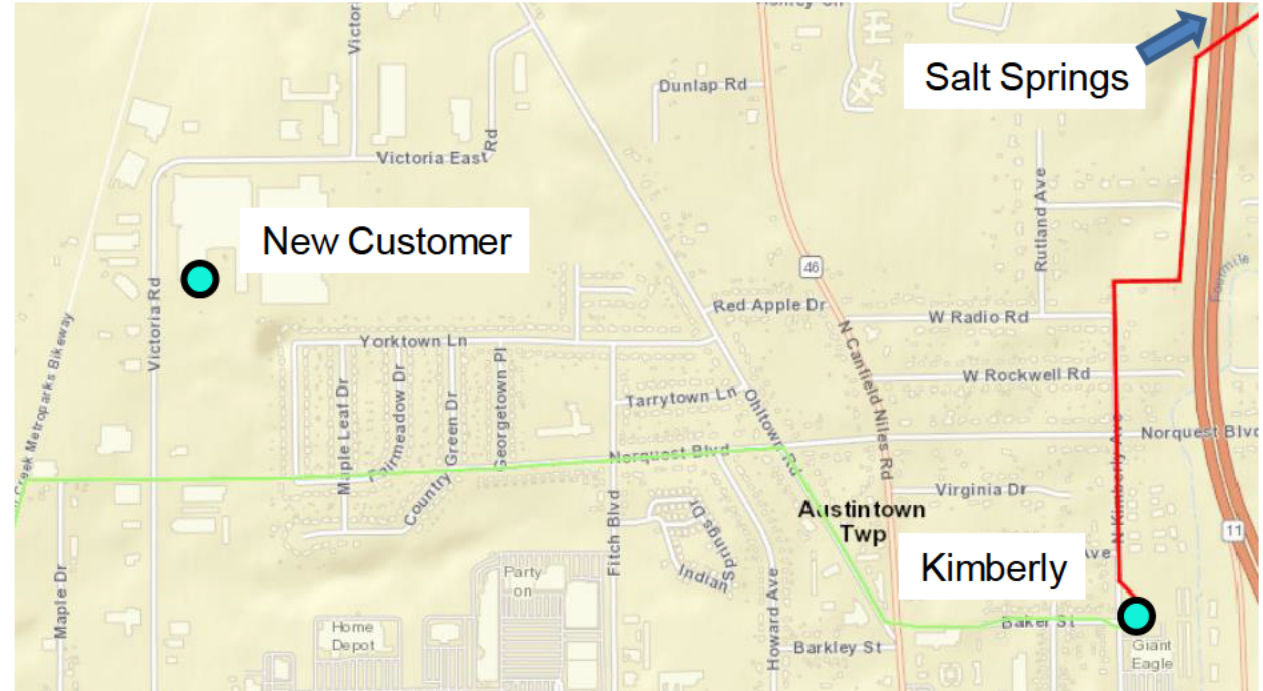
**Specific Assumption Reference(s)**

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

**Problem Statement**

New Customer Connection – A customer requested 69 kV transmission service for approximately 4.2 MVA of total load near the Kimberly-Salt Springs 69 kV Line.

**Requested In-Service Date:** April 6, 2020



Legend	
69 kV	
23 kV	

# 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-2020-005  
**Process Stage:** Solution Meeting – 09/11/2020  
**Previously Presented:** Need Meeting – 04/20/2020

**Supplemental Project Driver(s):**

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

**Specific Assumption Reference(s)**

**Global Considerations**

- System Reliability and Performance
- Substation/line equipment limits
- Reliability of Non-BES Facilities
- Load at risk in planning and operational scenarios.
- Load and/or customers at risk on single transmission lines

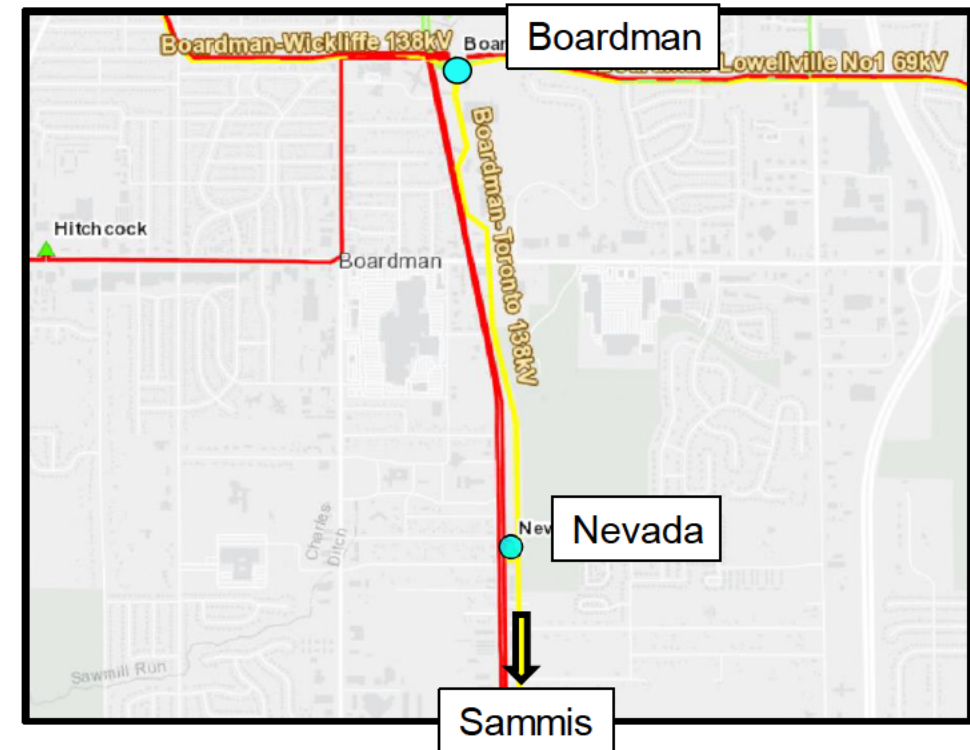
**Add/Expand Bus Configuration**

- Loss of substation bus adversely impacts transmission system performance

**Automatic Sectionalizing Scheme**

- Projects are developed under this methodology by evaluating load at risk and/or customers impacted

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Legend	
345 kV	
138 kV	
69 kV	



**Need Number:** ATSI-2020-005  
**Process Stage:** Solution Meeting – 09/11/2020  
**Previously Presented:** Need Meeting – 04/20/2020

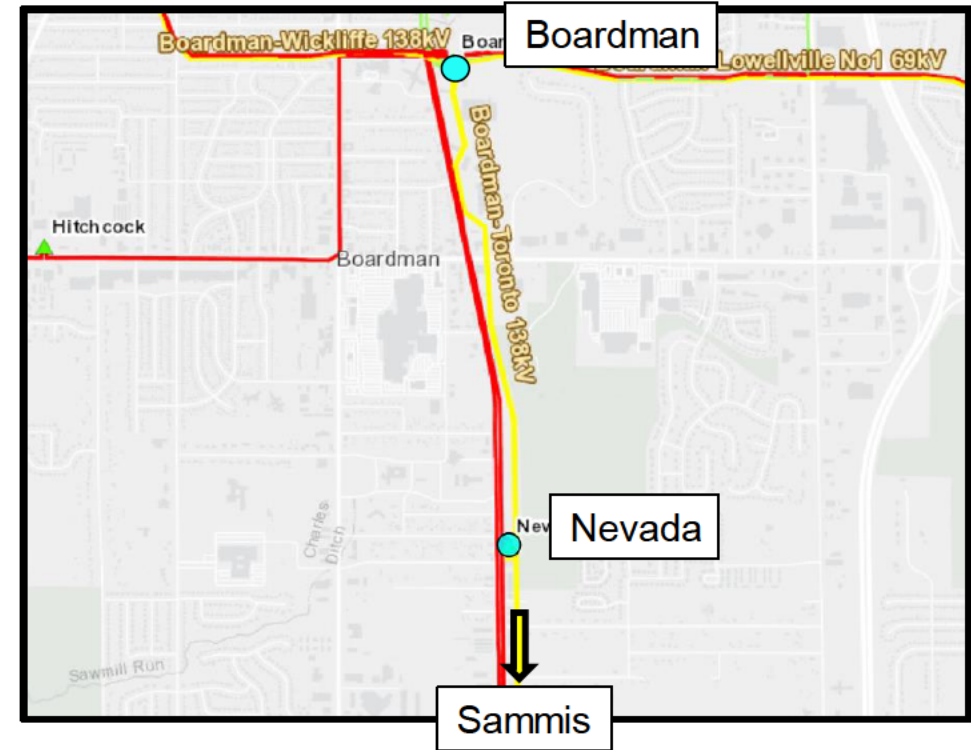
**Problem Statement**

**Boardman-Sammis 138 kV Line**

- The Nevada substation serves 42 MW and 5,729 customers via the Boardman-Sammis 138 kV Line.
- The P1-2 contingency (ATSI-P1-2-OEE-138-024) for the loss of the Boardman-Sammis 138 kV Line will outage roughly 42 MW and 5,729 customers.
- Boardman-Sammis 138 kV Line has experienced seven outages in the past five years (two sustained)
- Circuit limiting substation conductor located at Nevada substation for both the Boardman-Nevada and Nevada-Sammis 138 kV circuit

**Model:** 2019 Series 2024 Summer RTEP 50/50

**ATSI Transmission Zone M-3 Process**  
**Boardman-Sammis 138 kV Line**



Legend	
345 kV	
138 kV	
69 kV	



# ATSI Transmission Zone M-3 Process Boardman-Sammis 138 kV Line

**Need Number:** ATSI-2020-005  
**Process Stage:** Solution Meeting – 09/11/2020  
**Previously Presented:** Need Meeting – 04/20/2020

**Proposed Solution:**

***Nevada 138 kV Ring Bus***

- Convert the Nevada 138 kV substation into a 4-breaker ring bus, using two existing 138 kV breakers
- Upgrade substation conductor at the Nevada substation from 795 ACSR to 954 ACSR
- Establish two redundant fiber paths between Boardman and Nevada for line relaying
- Upgrade relays at Sammis and Boardman

**Transmission Line Ratings:**

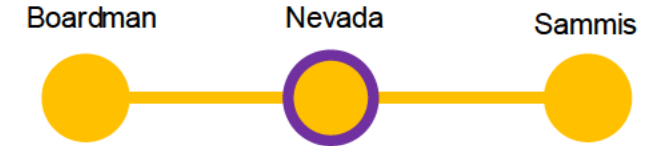
- **Boardman-Nevada 138 kV Line**
  - Before Proposed Solution: 265 MVA SN / 316 MVA SE
  - After Proposed Solution: 278 MVA SN / 339 MVA SE
- **Nevada-Sammis 138 kV Line**
  - Before Proposed Solution: 265 MVA SN / 316 MVA SE
  - After Proposed Solution: 278 MVA SN / 339 MVA SE

**Alternatives Considered:**

- Maintain existing condition and elevated exposure
- Install auto-sectionalizing scheme at Nevada

**Estimated Project Cost:** \$7.8 M

**Projected In-Service:** 06/01/2023  
**Status:** Conceptual  
**Model:** 2019 Series 2024 Summer RTEP 50/50



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

# Re-Present Solution

The following project(s) were originally presented pre-M-3 process



## Previously Presented: 8/31/2018 SRTEP

### Problem Statement (Scope and Need/Drivers)

#### Equipment Material Condition, Performance and Risk

- Improve system reliability and performance
- Remove obsolete and deteriorated equipment
  - 53 to 82 year old construction
  - ~~57%-83%~~ inspection rejection rate
  - ~~Approximately 29 repair records over the past 3 years; increasing trend~~
  - ~~529 active repair conditions; negative increase in maintenance findings~~
- Upgrade to current standards
- Support shale gas load growth area; multiple (6) transmission service connections

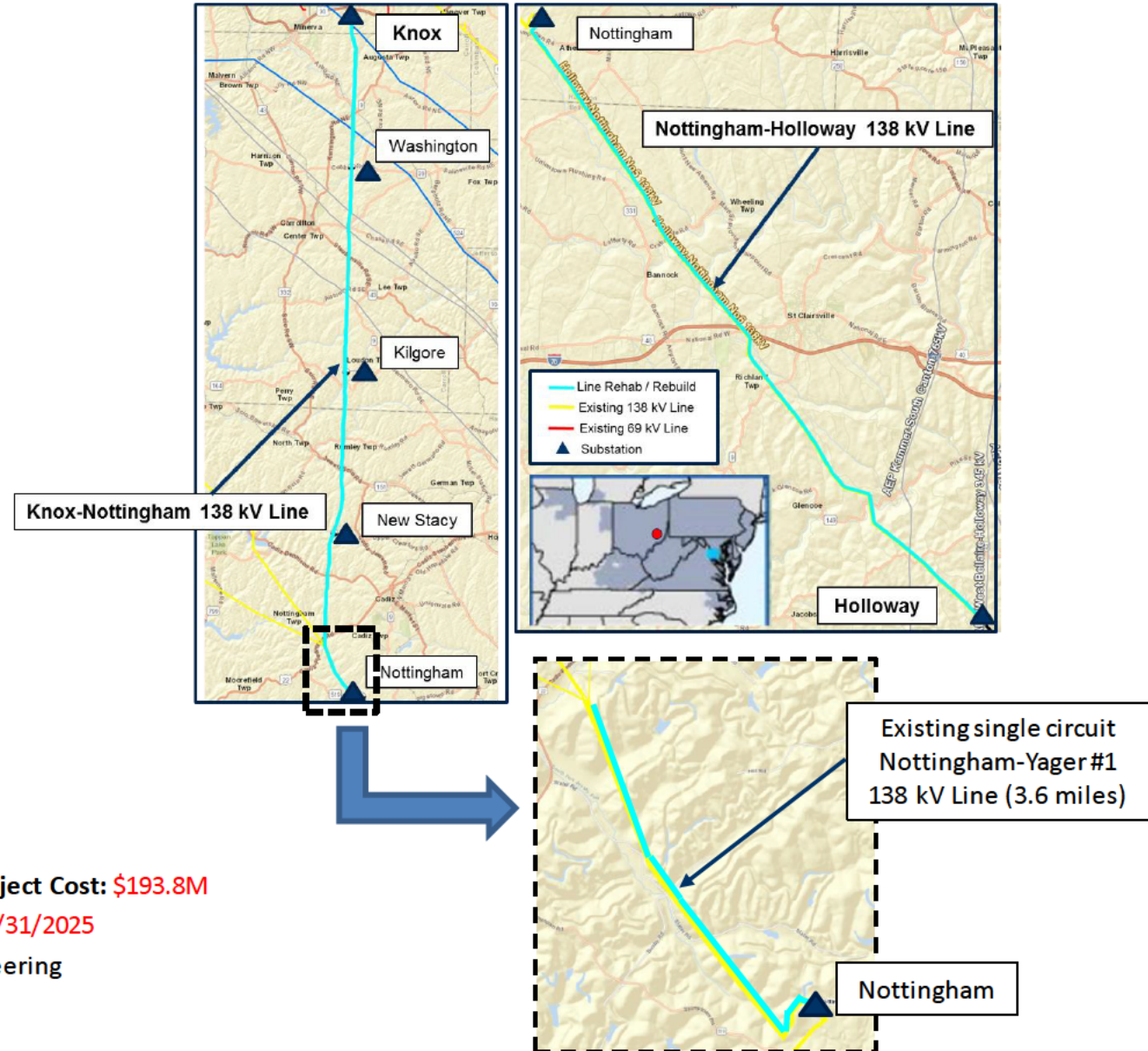
### Potential Solution:

#### Holloway-Nottingham-Knox 138 kV Line Rebuild (s1718)

- Rebuild the existing Knox-Nottingham 138 kV Line (Approximately 44 miles).
- Rebuild the existing Nottingham-Holloway #1 138 kV Line (Approximately 21 miles)
- Existing Conductor: Mixed conductor 795 ACSR & 477 ACSR
- Future Conductor: 795 ACSR
- Old Rating 158 MVA SN    New Rating 275 MVA SN
- Rebuild the existing Nottingham-Holloway #2 138 kV Line (Approximately 21 miles) sharing a structure with the Nottingham-Holloway #1 138 kV Line
- Old Rating 200 MVA SN    New Rating 275 MVA SN
- Rebuild a portion of the Nottingham-Yager #1 138 kV Line (Approximately 3.6 miles) sharing a structure with the Knox-Nottingham 138 kV Line
- Old Rating 200 MVA SN    New Rating 275 MVA SN

Alternatives Considered: Maintain existing condition

## ATSI Transmission Zone Holloway-Nottingham-Knox 138 kV Line



Estimated Project Cost: \$193.8M

Project ISD: 5/31/2025

Status: Engineering

# 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

9/1/2020 – V1 – Original version posted to pjm.com