

# Subregional RTEP Committee – Western FirstEnergy Supplemental Projects

February 18, 2021

# 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-2022-001  
**Process Stage:** Need Meeting – 2/18/2022

**Supplemental Project Driver(s):**  
*Equipment Material Condition, Performance and Risk*

**Specific Assumption Reference(s):**

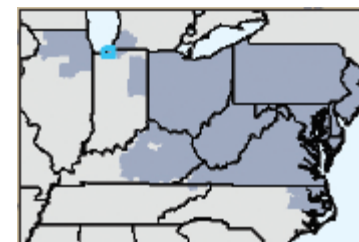
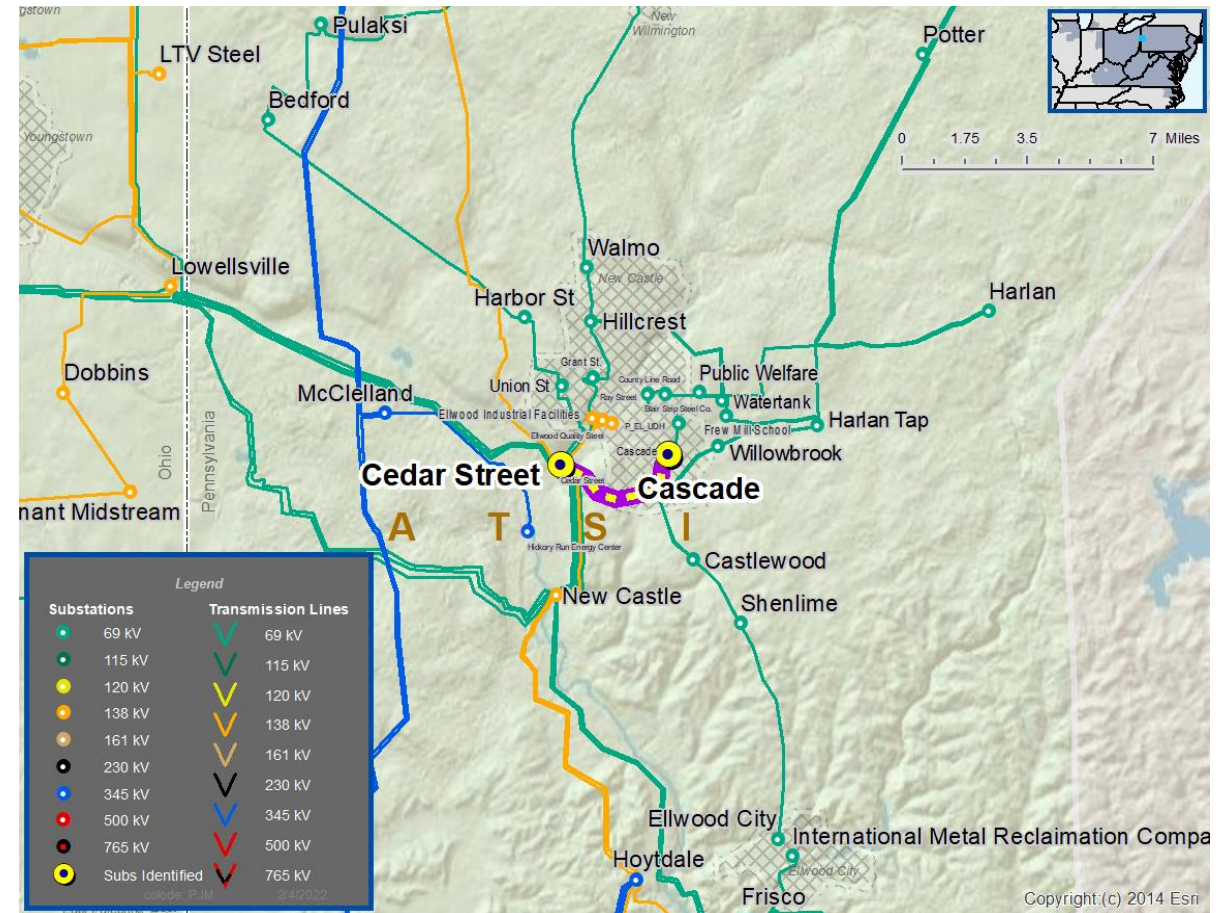
**Line Condition Rebuild / Replacement**

- Aged or deteriorated wood pole transmission line structures
- Negatively impact customer outage frequency and/or durations
- Demonstrate an increasing trend in maintenance findings and/or costs
- Transmission line ratings are limited by terminal equipment

**Problem Statement:**

Cascade 69 kV (~18.3 miles) transmission line:

- The average age of structures on this line are 55 years old.
- The Cascade (Cedar Street) 69 kV line is exhibiting an upward trend in both minor and major maintenance required with 108 open priority conditions.
- Recent inspections show a structure reject rate of 38% (117 of 307). The primary reasons for reject were cracked and deteriorated wood poles, woodpecker holes, and failed insulators.
- 3 out of the 11 line switches on the Cascade (Cedar Street) 69 kV line are obsolete and no longer meet established design standards.
- The Cascade (Cedar Street) 69 kV line has experienced 14 unscheduled outages in the past five years (5 sustained).



Legend	
345 kV	Blue line
138 kV	Yellow line
69 kV	Red line

# 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-2021-025 and ATSI-2021-026  
**Process Stage:** Solution Meeting – 02/18/2022  
**Previously Presented:** Need Meeting - 10/15/2021

**Project Driver:**  
*Equipment Material Condition, Performance and Risk*

**Specific Assumption References:**

*Global Factors*

- System reliability and performance
- Substation / line equipment limits

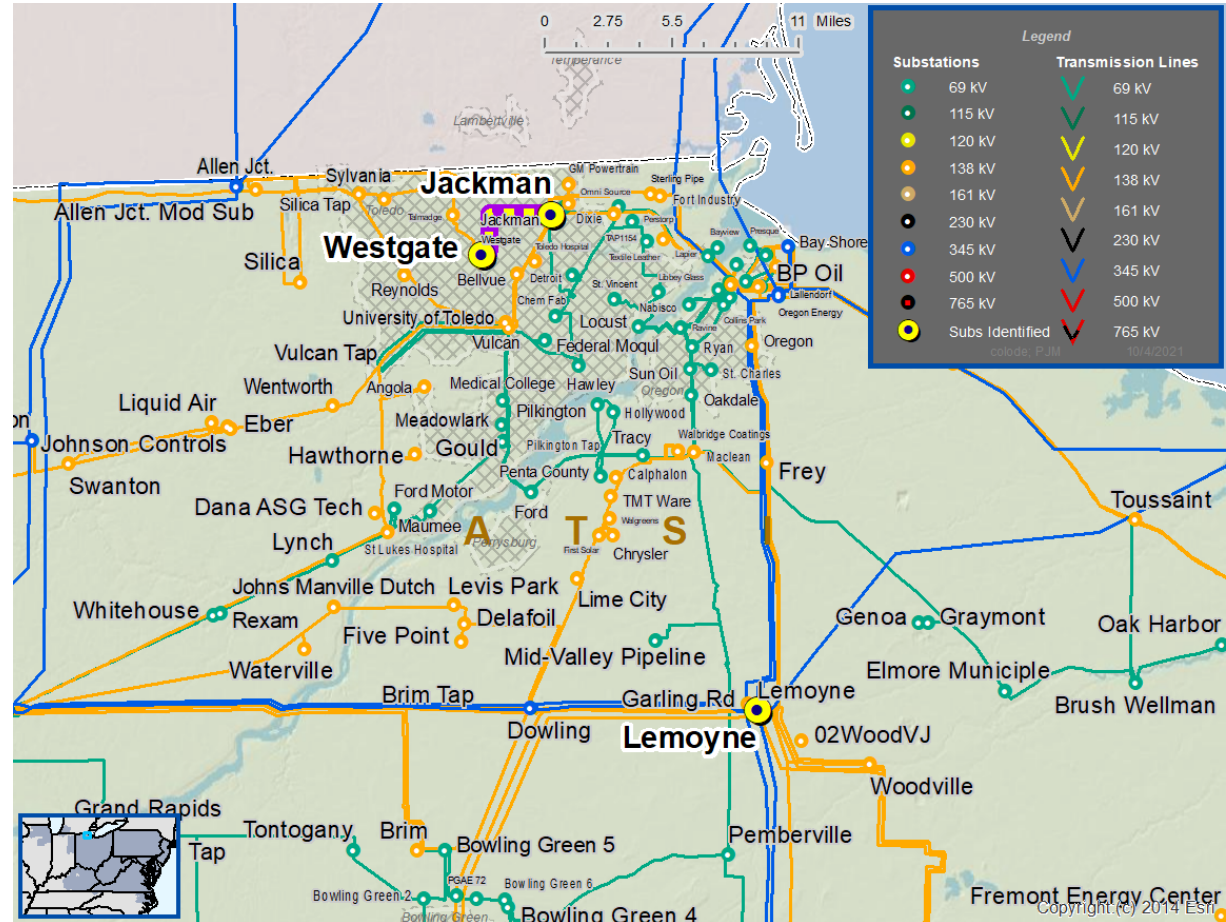
*Upgrade Relay Schemes*

- Relay schemes that have a history of misoperation
- Obsolete and difficult to repair communication equipment (DTT, Blocking, etc.)
- Communication technology upgrades
- Bus protection schemes

**Problem Statement:**

- FirstEnergy has identified protection schemes using a certain vintage of relays and communication equipment that have a history of misoperation.
- Proper operation of the protection scheme requires all the separate components perform adequately during a fault
- In many cases the protection equipment cannot be repaired due to a lack of replacement parts and available expertise in the outdated technology.
- Transmission line ratings are limited by terminal equipment.

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Need Number	Transmission Line / Substation Locations	Existing Line / Terminal Equipment MVA Rating (SN / SE)	Existing Conductor / Transformer MVA Rating (SN / SE)	Limiting Terminal Equipment
ATSI-2021-025	Jackman-Westgate 138 kV	278 / 343 327 (WN) / 396 (WE)	278 / 343 327 (WN) / 420 (WE)	Substation Conductor
ATSI-2021-026	Lemoyne-Troy 345 kV 1. Lemoyne terminal	1,146 / 1,208 1,309 (WN) / 1,352 (WE)	1,542 / 1,878 1,746 (WN) / 2,225 (WE)	CTs, Circuit breaker B1, Substation Conductor, and disconnect switches



# ATSI Transmission Zone M-3 Process Relay Misoperation Projects

**Proposed Solution:**

Need Number	Transmission Line / Substation Locations	New MVA Line Rating (SN / SE)	Scope of Work	Estimated Cost (\$ M)	Target ISD
ATSI-2021-025	Jackman-Westgate 138 kV	278 / 343 327 (WN) / 420 (WE)	<ul style="list-style-type: none"> <li>Replace Jackman-Westgate line relaying with primary and backup line relays</li> <li>Replace 138 kV breakers at Westgate and Jackman substations with associated disconnect switches</li> <li>Replace line traps, CCVTs</li> <li>Replace substation conductor to exceed transmission line ratings</li> </ul>	\$2.5	4/1/2022
ATSI-2021-026	Lemoyne-Troy 345 kV 1. Lemoyne terminal	1,542 / 1,878 1,746 (WN) / 2,225 (WE)	<ul style="list-style-type: none"> <li>Replace 2000 A breaker with 3000 A</li> <li>Replace live parts of disconnect switches to increase amperage rating to 3000 A</li> <li>Replace substation conductor to exceed transmission line ratings</li> </ul>	\$1.8	3/30/2022

**Alternatives Considered:** Maintain existing condition

**Project Status:** Conceptual

**Model:** 2020 RTEP model for 2025 Summer (50/50)

# 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

2/\*\*/2022 – V1 – Original version posted to pjm.com