

Subregional RTEP Committee – Mid-Atlantic FirstEnergy Supplemental Projects

JCPL Transmission Zone

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: JCPL-2026-006

Process Stage: Need Meeting – SRRTEP-MA – 03/18/2026

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption References:

- System Performance Global Factors
 - System reliability/performance
 - Substation/Line equipment limits
- Substation Condition Rebuild/Replacement
 - Age/condition of substation equipment
 - Circuit breakers and other fault interrupting devices

Problem Statement:

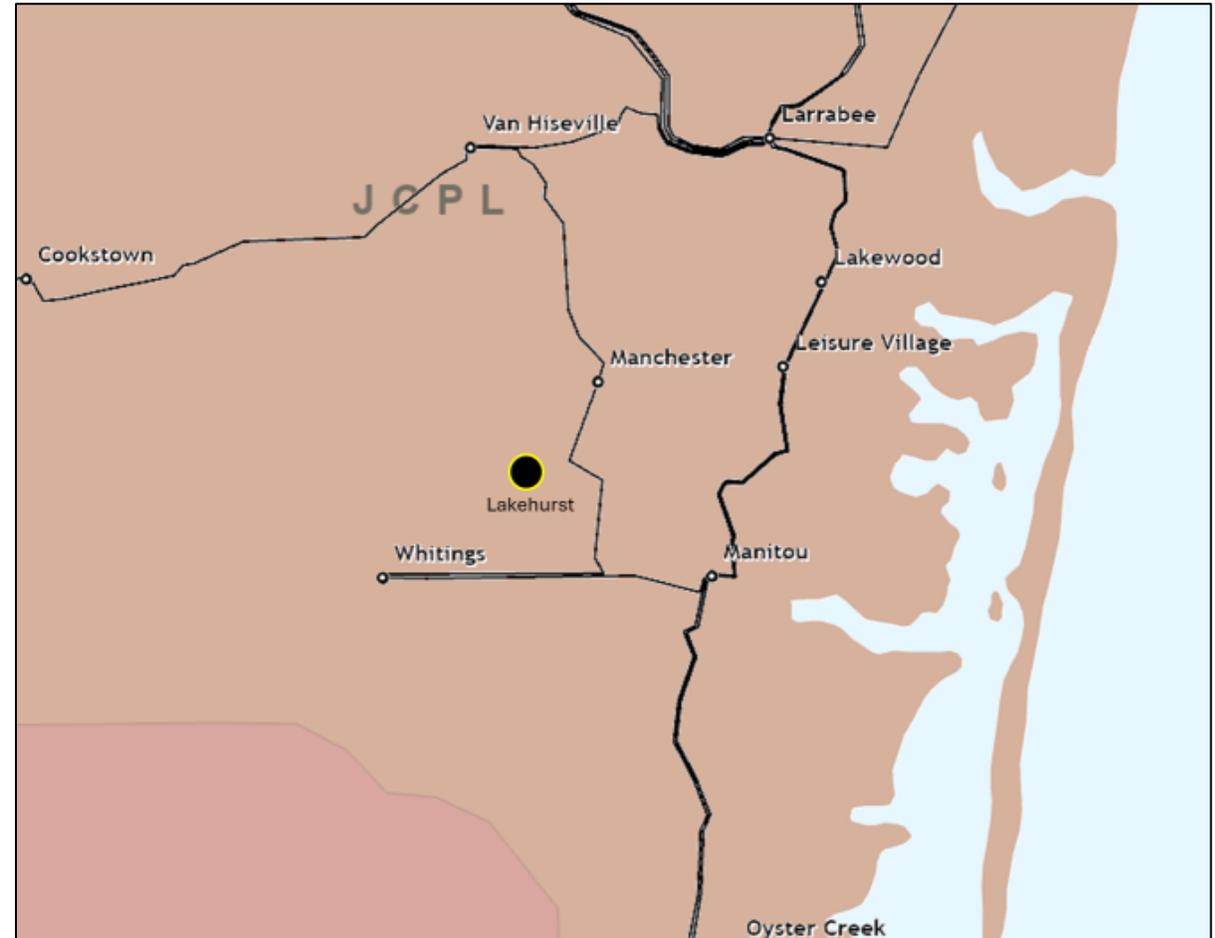
The existing Lakehurst 34.5 kV oil circuit breakers N223, O41, W777, BK2A, BK2B, E109, N140 are over 50 years old and are approaching end of life.

Replacement components are difficult to source leading to non-standard repairs. Breakers this age require frequent maintenance to keep them in service

The line/transformer is currently limited by terminal equipment.

Existing Transmission Line Ratings:

- Lakehurst - Ship Test 34.5 kV E109 Line - 25 / 25 / 25 / 25 MVA (SN/SE/WN/WE)
- Lakehurst - Navy 34.5 kV E109 Line - 18 / 18 / 19 / 19 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-007

Process Stage: Need Meeting – SRRTEP-MA – 03/18/2026

Project Driver:

Operational Flexibility and Efficiency

Specific Assumption References:

- System Performance Projects
 - Add/Expand Bus Configuration
 - Load at risk in planning and operational scenarios
 - Reduce the amount of exposed potential local load loss during contingency conditions
 - Eliminate simultaneous outages to multiple networked elements
 - Substation and line equipment limits

Problem Statement:

A bus fault or breaker fault at McGuire Substation results in the loss of the entire McGuire Substation. McGuire Substation serves 4,000 customers and approximately 30 MW of load.

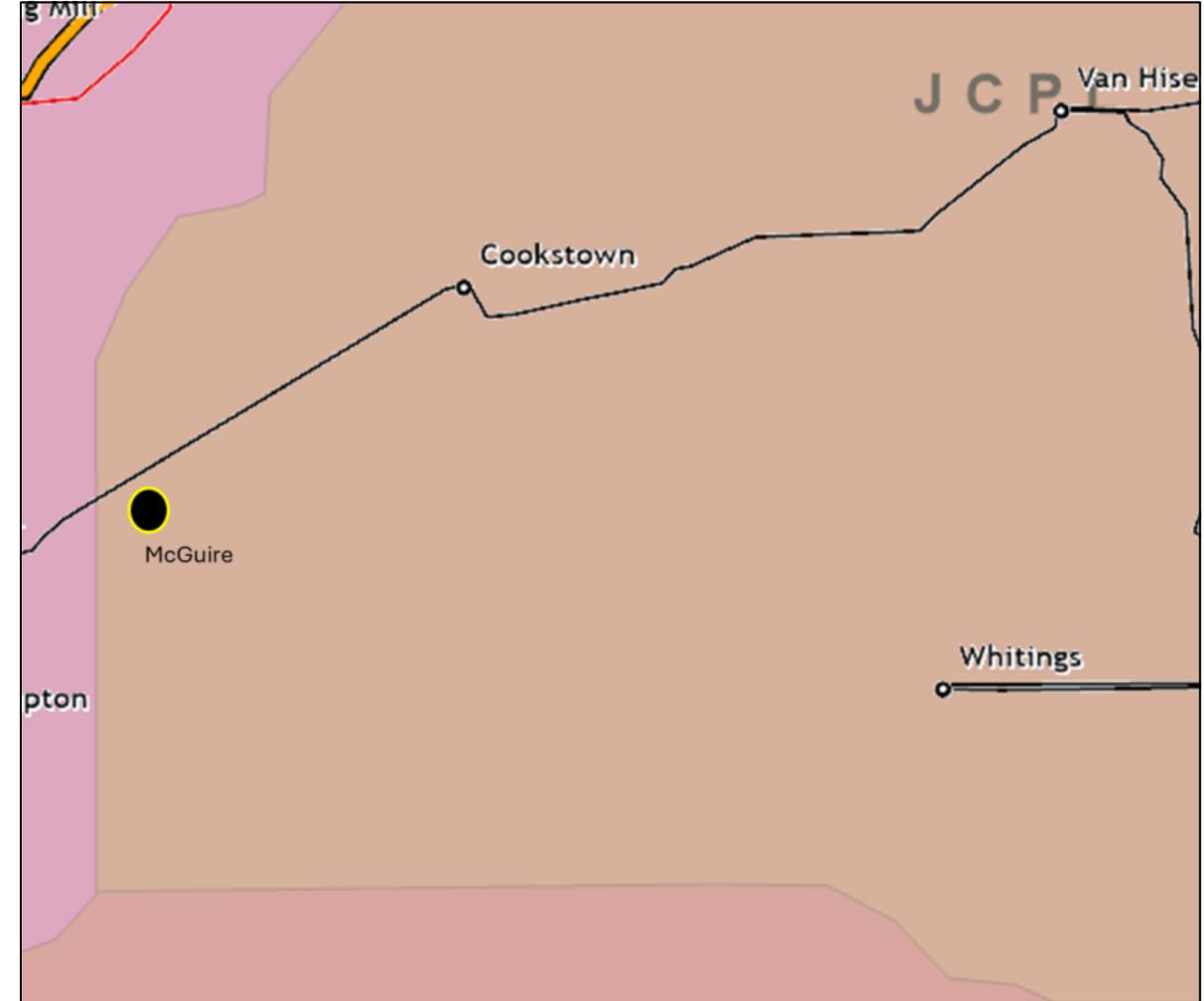
Over the past five years there have been two unscheduled sustained station outages and two unscheduled momentary outages at the station.

Transmission line ratings are limited by terminal equipment:

Cookstown - McGuire 34.5 kV G33 Line:

- Existing line rating: 27 / 34 / 34 / 38 MVA (SN/SE/WN/WE)
- Existing conductor rating: 44 / 53 / 50 / 63 MVA (SN/SE/WN/WE)

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JCPL Transmission Zone M-3 Process McGuire 34.5 kV Substation, NJ

Need Number: JCPL-2026-007

Problem Statement: *(Cont'd from previous slide)*

Cookstown - McGuire 34.5 kV T98 Line:

- Existing line rating: 35 / 46 / 48 / 56 MVA (SN/SE/WN/WE)
- Existing conductor rating: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Cookstown - McGuire 34.5 kV S19 Line:

- Existing line rating: 35 / 46 / 48 / 56 MVA (SN/SE/WN/WE)
- Existing conductor rating: 41 / 50 / 48 / 60 MVA (SN/SE/WN/WE)

Need Number: JCPL-2026-008

Process Stage: Need Meeting – SRRTEP-MA – 03/18/2026

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption References:

- System Performance Global Factors
 - System reliability/performance
 - Substation/Line equipment limits
- Line Condition Rebuild/Replacement
 - Age/condition of wood pole transmission line structures

Problem Statement:

The Manitou - Ortley Beach 34.5 kV V126 Line was constructed approximately 75 years ago and is approaching end of life. It is 9.6 miles long with 238 wood pole transmission line structures.

Per recent inspections, the line is exhibiting deterioration resulting in increased maintenance costs. Inspection findings include:

- 38% of structures require repairs due to deterioration. This includes wood pole decay, damaged grounding system, wood pole cracking, and guy wire slack, indicating that components are approaching end of life.

Over the past five years, the line has had 25 unscheduled outages. These include 11 momentary outages and 14 sustained outages.

Existing Transmission Line Ratings:

- 35 / 44 / 35 / 44 MVA (SN/SE/WN/WE)



Need Number: JCPL-2026-022

Process Stage: Need Meeting – SRRTEP-MA – 03/18/2026

Project Driver:

Equipment Condition/Performance/Risk

Specific Assumption References:

- System Performance Global Factors
 - System reliability/performance
 - Substation/Line equipment limits
- Line Condition Rebuild/Replacement
 - Age/condition of wood pole transmission line structures

Problem Statement:

The Branchville - Newton 34.5 kV F708 Line was constructed approximately 79 years ago and is approaching end of life. It is approximately seven miles long with 142 wood monopole transmission line structures.

The Branchville - Newton 34.5 kV F708 Line has experienced real-time overloads during high-load conditions, particularly when local battery storage facilities charge. These overloads exceed normal and occasionally emergency ratings, requiring operational intervention. Transmission Operations has curtailed the generating unit(s) to alleviate the overload. The Branchville - Newton 34.5 kV F708 Line directly serves 5,500 customers and 10 MVA of load.

Since 2020, the line has had 11 unscheduled sustained outages.

The line is currently limited by terminal equipment.

Existing Transmission Line Ratings:

- 44 / 53 / 50 / 63 MVA (SN/SE/WN/WE)



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: JCPL-2024-012

Process Stage: Solution Meeting – SRRTEP-MA – 03/18/2026

Previously Presented: Need Meeting – SRRTEP-MA – 03/14/2024

Project Driver:

Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

System Performance Global Factors

- System reliability/performance
- Substation/Line equipment limits

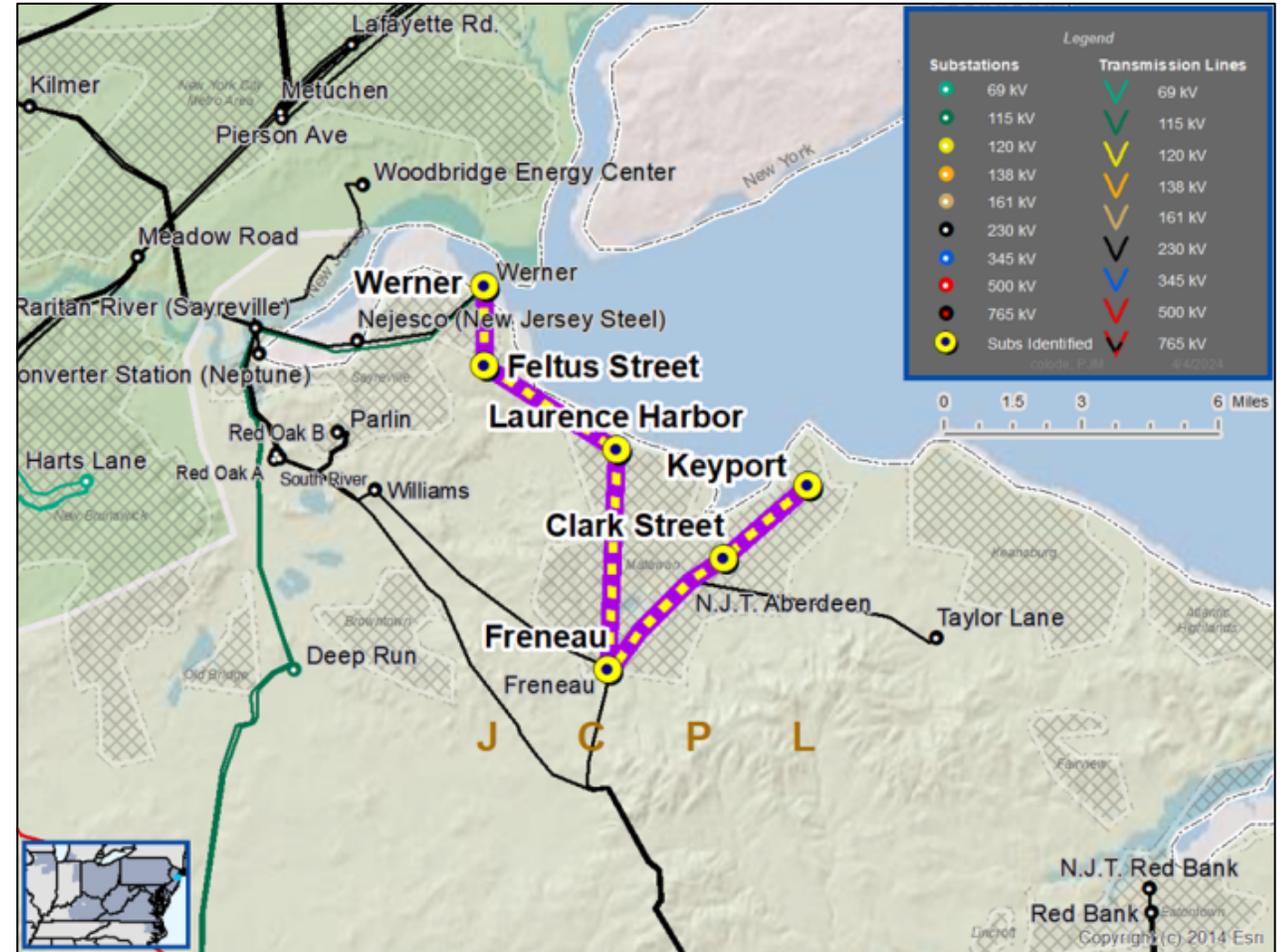
Line Condition Rebuild/Replacement

- Age/condition wood pole transmission line structures

Problem Statement:

- The EH Werner – Freneau – Keyport 34.5 kV E31 Line was constructed approximately 92 years ago and is approaching end of life. It is approximately 13 miles long with 424 wood pole transmission line structures.
- The line is exhibiting deterioration resulting in increased maintenance costs.

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Need Number: JCPL-2024-012

Problem Statement: *(Cont'd from previous slide)*

- Recent inspection findings include:
 - 362 structures are reaching end of life.
 - 299 structures failed inspection due to sound, woodpecker damage, top rot, decay, cracking, and/or delamination of cross-arms.
 - 104 structures failed the sound test requiring repair or replacement due to deterioration.
- Replacement components are difficult to source in quantity leading to non-standard repairs.
- Since 2019, the line has had 17 unscheduled sustained outages.

Need #	Transmission Line / Substation Locations	Existing Line Rating MVA (SN / SE / WN / WE)	Existing Conductor Rating MVA (SN / SE / WN/ WE)
JCPL-2024-012	EH Werner – Feltus St 34.5 kV E31 Line	44 / 53 / 50 / 62	44 / 53 / 50 / 62
JCPL-2024-012	Feltus St – Laurence Harbor 34.5 kV E31 Line	35 / 44 / 35 / 44	35 / 44 / 35 / 44
JCPL-2024-012	Laurence Harbor – Freneau East Tap 34.5 kV E31 Line	35 / 44 / 35 / 44	35 / 44 / 35 / 44
JCPL-2024-012	Freneau East Tap – Clark Street 34.5 kV E31 Line	55 / 67 / 63 / 79	55 / 67 / 63 / 79
JCPL-2024-012	Clark Street – Keyport 34.5 kV E31 Line	44 / 53 / 50 / 63	44 / 53 / 50 / 63
JCPL-2024-012	Freneau East Tap – Freneau 34.5 kV E31 Line	53 / 62 / 63 / 71	53 / 62 / 63 / 71

Need number: JCPL-2024-012

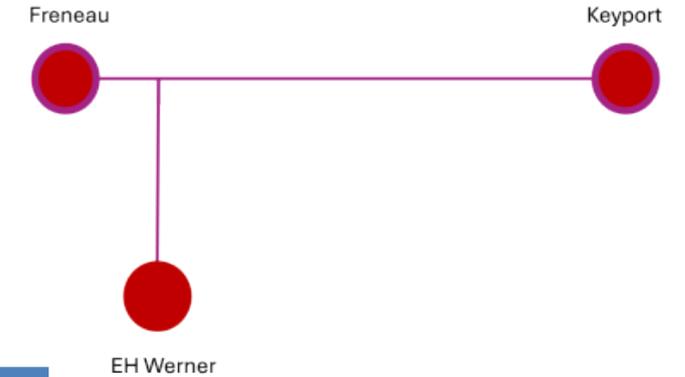
Process Stage: Solution Meeting –SRRTEP-MA – 03/18/2026

Proposed Solution:

- Rebuild the EH Werner- Freneau- Keyport 34.5 kV E31 Line (6.9 miles total) with new conductor.
- Replace limiting sub conductor at Freneau and Keyport substations.

Ratings:

Transmission Line	Before Proposed Solution MVA (SN / SE / WN / WE)	After Proposed Solution MVA (SN / SE / WN / WE)
Clark Street – Keyport 34.5 kV E31 Line	44 / 53 / 50 / 63	55 / 67 / 63 / 79
Clark St - Clark St Tap E31 34.5 kV Line	55 / 67 / 63 / 79	55 / 67 / 63 / 79
Clark St Tap - Freneau E31 34.5 kV Line	53 / 62 / 63 / 71	55 / 67 / 63 / 79
Clark St Tap - Laurence E31 34.5 kV Line	35 / 44 / 35 / 44	55 / 67 / 63 / 79
Feltus St - Laurence E31 34.5 kV Line	35 / 44 / 35 / 44	55 / 67 / 63 / 79
Feltus St - Werner E31 34.5 kV Line	44 / 53 / 50 / 62	55 / 67 / 63 / 79



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



JCPL Transmission Zone M-3 Process EH Werner- Freneau- Keyport 34.5 kV E31 Line, PA

Need number: JCPL-2024-012

Process Stage: Solution Meeting –SRRTEP-MA – 03/18/2026

Alternatives Considered:

Continue to operate the line as is with elevated risk of failure and customer outages.

Estimated Project Cost: \$22.50M

Projected In-Service: 05/11/2029

Project Status: Conceptual

Model: 2024 RTEP model for 2029 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

03/06/2026 – V1 – Original version posted to pjm.com