

Transmission Expansion Advisory Committee FirstEnergy Supplemental Projects

February 4th, 2025

Solution

Stakeholders must submit any comments within 10 days of this meeting in order to provide the time necessary to consider these comments prior to the next phase of the M-3 process.

Need Number: JCPL-2024-043

Process Stage: Solution Meeting TEAC - 02/04/2025

Previously Presented: Need Meeting 08/06/2024

Project Driver: Equipment Condition/Performance/Risk

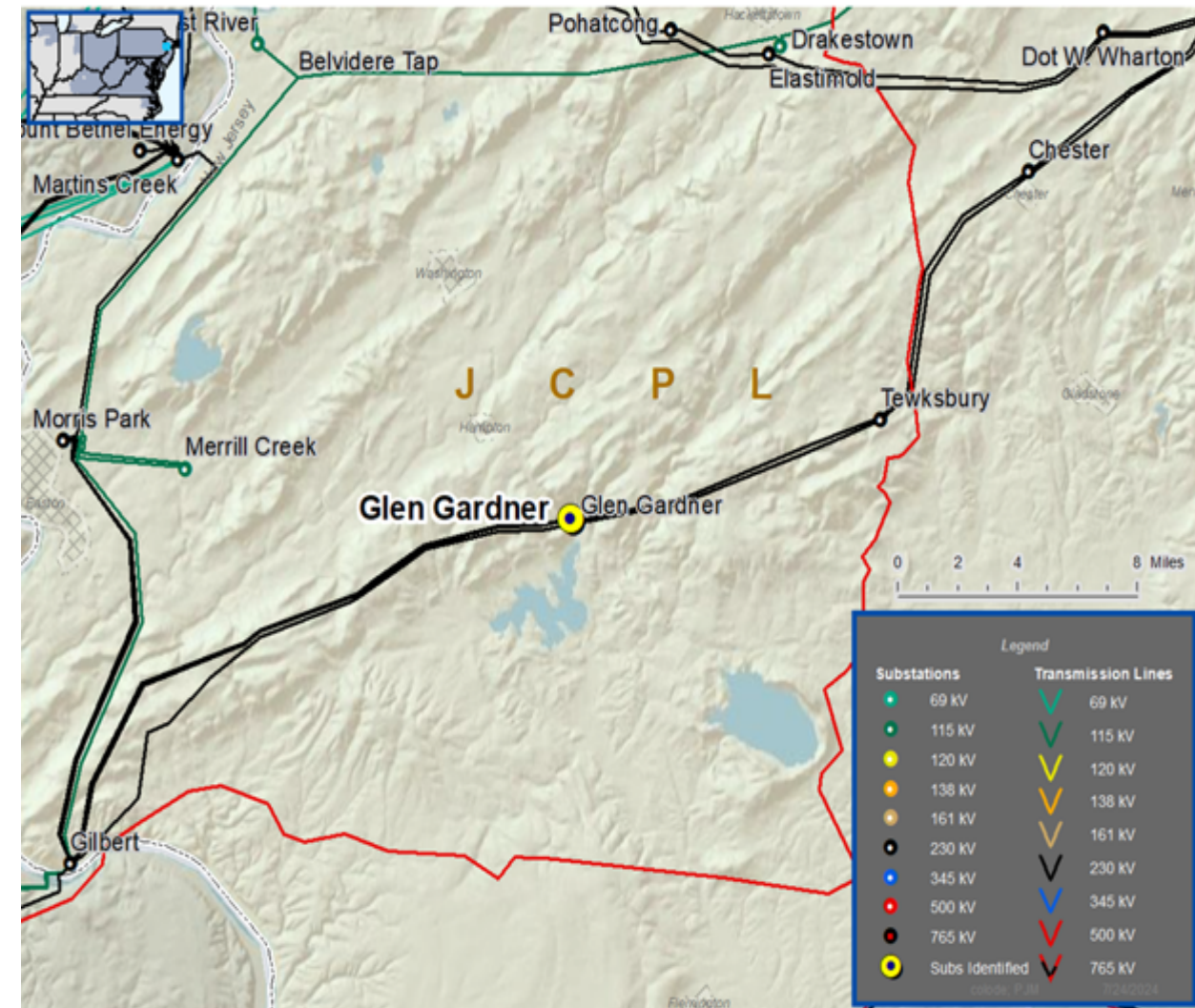
Specific Assumption References:

System Performance Projects Global Factors - System reliability and performance - Add/Replace Transformers - Past System Reliability/Performance

Problem Statement:

- The Glen Gardner No. 2 230-34.5 kV Transformer is approximately 57 years old and is approaching end of life.
- The transformer has increased levels of ethane, carbon monoxide and methane.
- The transformer has low dielectric strength.

Existing Transformer Ratings: 108 / 136 MVA SN/SSTE 137 / 151 MVA WN/WSTE



JCPL Transmission Zone M-3 Process Glen Gardner No. 2 230-34.5 kV Transformer

Need number(s): JCPL-2024-043

Process Stage: Solution Meeting TEAC - 02/04/2025

Proposed Solution:

Glen Gardner No. 2 230-34.5 kV Transformer: Replace the 230-34.5 kV No. 2 Transformer at Glen Gardner substation. Replace 230 kV circuit switcher with circuit breaker Replace 34.5 kV circuit breaker and disconnect switch Upgrade transformer relaying. Estimated Cost: \$7.5 M

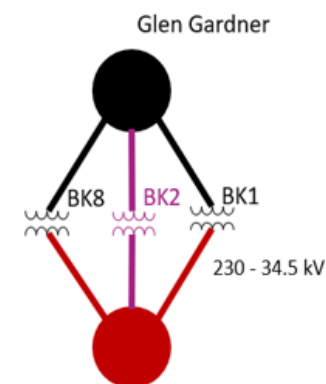
Transmission Cost Estimate: \$7.5 M

Alternatives Considered:

Maintain transformer in existing condition with elevated risk of failure.

Projected In-Service: 05/01/2025

Project Status: Conceptual



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

Need Number: JCPL-2024-023

Process Stage: Solution Meeting TEAC - 02/04/2025

Previously Presented: Need Meeting 04/30/2024

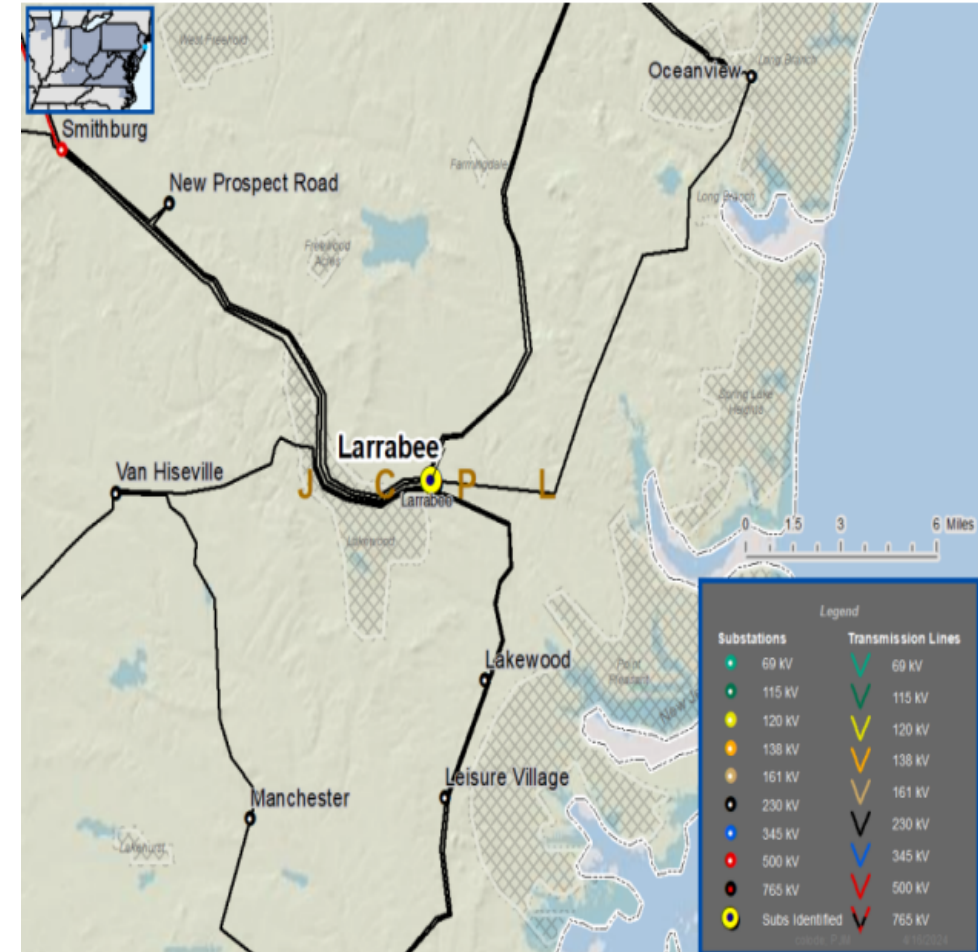
Project Driver: Equipment Condition/Performance/Risk

Specific Assumption References:

System Performance Projects Global Factors - System reliability and performance -
Substation/line equipment limits Add/Replace Transformers Past System
Reliability/Performance

Problem Statement:

- The Larrabee No. 3 230-34.5 kV Transformer is approximately 47 years old and is approaching end of life.
- The transformer is experiencing issues with the radiators leaking oil.
- The transformer has increased levels of water and carbon monoxide in the transformer oil.
- The transformer is limited by terminal equipment.
- Existing Transformer Ratings: -- 137 / 174 MVA (SN/SSTE) -- 171 / 201 MVA (WN/WSTE)



JCPL Transmission Zone M-3 Process Larrabee No. 3 230-34.5 kV Transformer

Need number(s): JCPL-2024-023

Process Stage: Solution Meeting TEAC - 02/04/2025

Proposed Solution:

Larrabee No. 3 230-34.5 kV Transformer: Replace the 230-34.5 kV No. 3 transformer at Larrabee Substation. Replace 230 kV MOAB Replace 34.5 kV circuit breaker and disconnect switches. Upgrade transformer relaying..

Estimated Cost: \$7.3 M

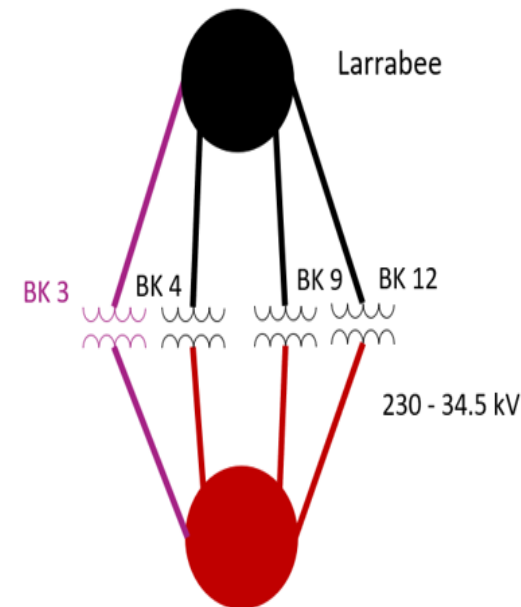
Transmission Cost Estimate: \$7.3 M

Alternatives Considered:

Maintain transformer in existing condition and replace upon failure

Projected In-Service: 04/12/2027

Project Status: Conceptual



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

1/24/2025 - V1 – Original version posted to pjm.com