Transmission Expansion Advisory Committee
PECO
Supplemental Projects

June 04, 2024

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: PE-2024-001

Process Stage: Solutions Meeting 6/4/24

Previously Presented: Needs Meeting 3/05/24

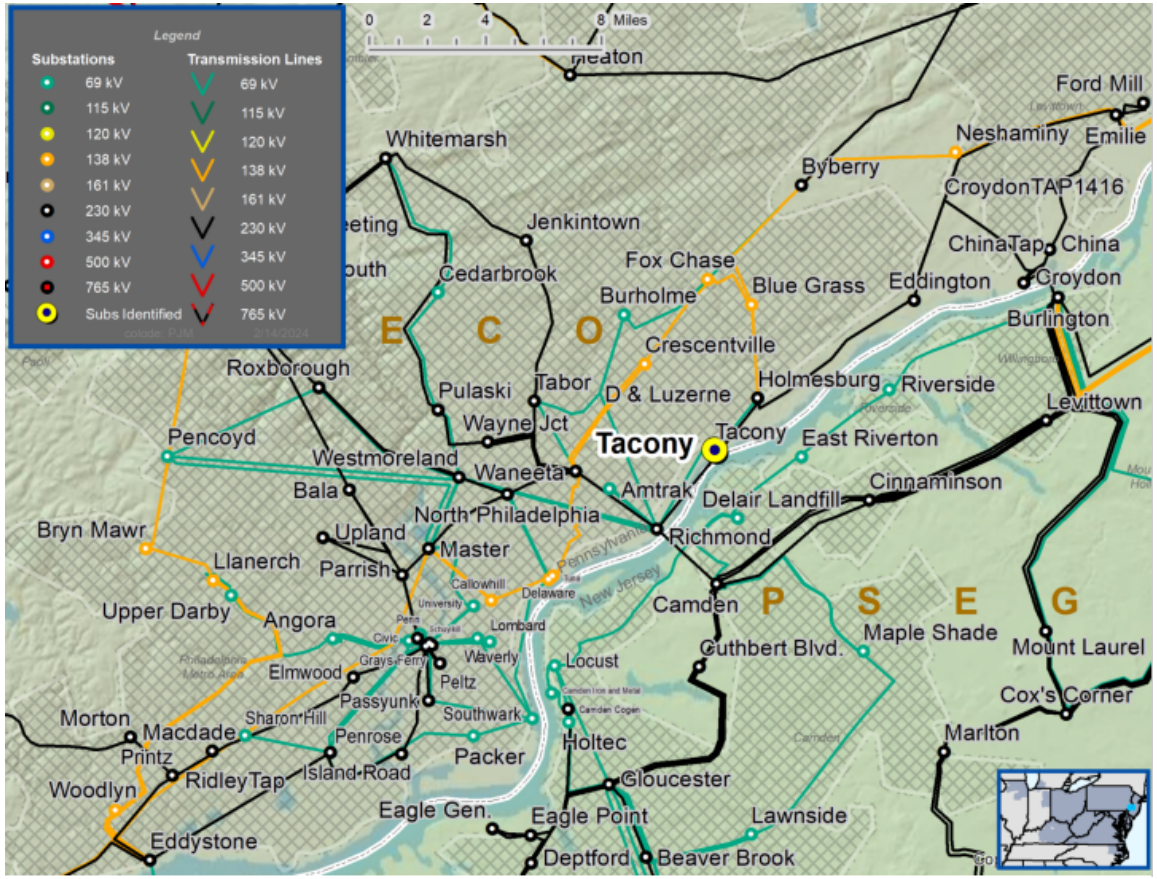
Project Driver: Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

- Programmatic review and/or replacement of breakers, relays, etc.
- Eliminating 69kV in areas with dense load pockets, stranded load, or where there have been capacity and reliability performance issues.

Problem Statement:

- The Tacony 69kV substation was originally constructed in 1928 and was built as a straight bus configuration fed from the 6605, Richmond to Tacony 69kV line and the 6606, Tacony to Holmesburg 69kV line
- Inspections of the transmission assets within the site show that they are in poor condition and no longer serviceable.
  - Oldest breakers at the station were manufactured in 1948 and use oil as the insulation medium.
  - Transmission bus structures show severe deterioration and don't meet current structural standards
- Remaining substation assets are no longer able to be repaired due to age and the overall structure being compromised
  - Switchgear house was manufactured in 1961 with all existing breakers from the mid 60's



M-3 Process
PECO Transmission Zone
Tacony Substation Rebuild

Need Number: PE-2024-001

Process Stage: Solutions Meeting 6/4/24

Proposed Solution:

- Rebuild Tacony 69kV substation to 230kV standards by cutting into the 220-56 Eddington/Holmesburg/Richmond 230kV line in and out of the substation
- Replace the existing 69-13kV 40MVA transformers with two new 230-13kV 62MVA units

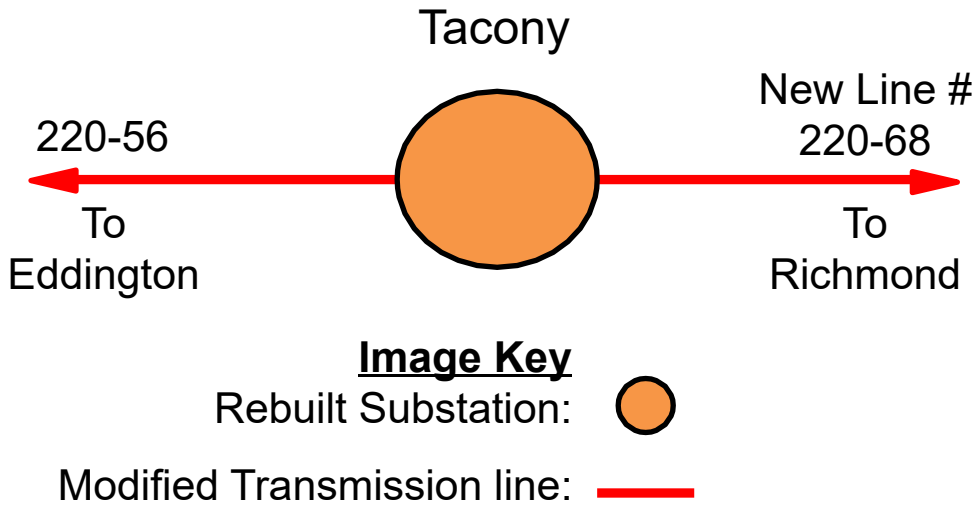
Estimated cost: $17M

Alternatives Considered: Replacing 69kV equipment and switchgear in kind

Projected In-Service: 12/31/27

Project Status: Engineering

Model: 2028 RTEP



Need Number: PE-2024-002

Process Stage: Solutions Meeting 6/4/24

Previously Presented: Need Meeting 3/5/2024

Project Driver:

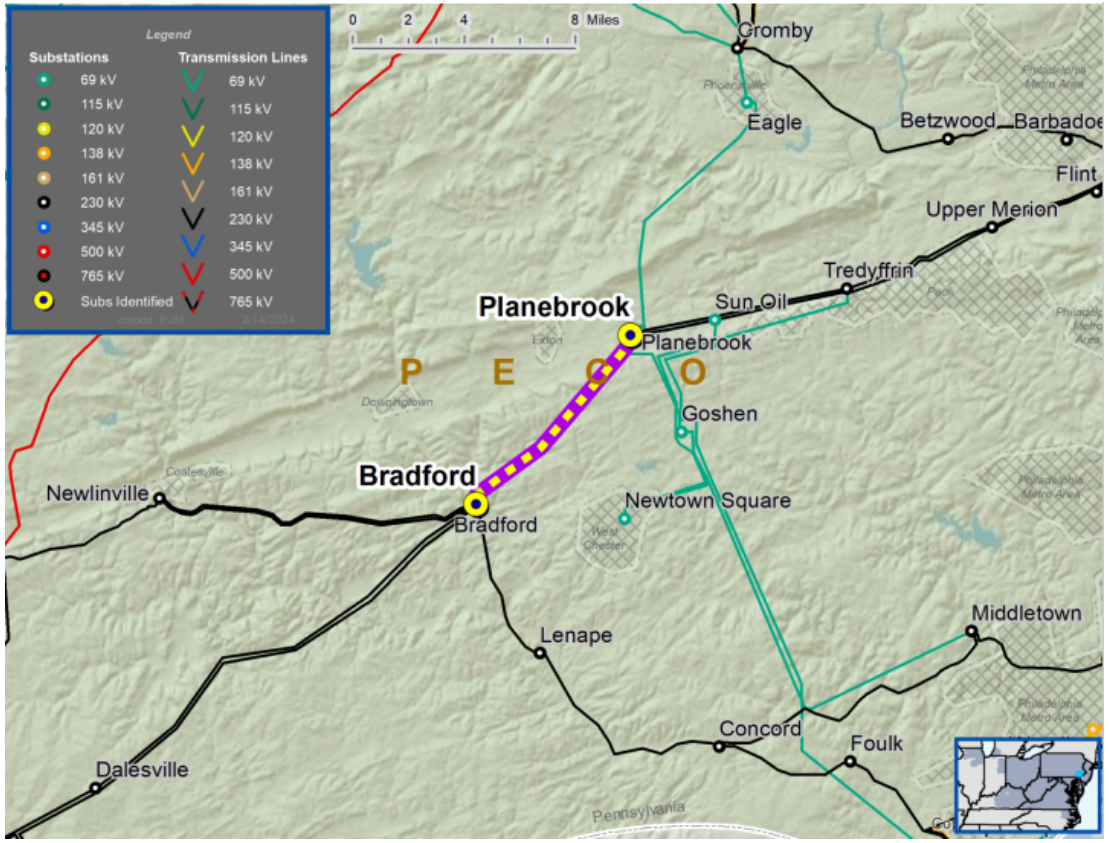
- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

Problem Statement:

- The 230 kV line 220-31 Bradford – Planebrook is a 6.24 mile line with 795 kcmil 30/19 ACSR conductor and 184 kcmil ACSR static wire that was constructed in 1927. This line is 96 years old and nearing end of useful life.
- There are 33 structures along this ROW, 29 of which that are the original steel lattice towers erected in 1927 and are showing signs of corrosion on the tower members, wear to vang plates, insulators, and insulator hardware.
- Inspections of the static and phase conductors identified that they were in poor condition and need to be replaced.



220-31 Planebrook – Bradford 230 kV Line Rebuild

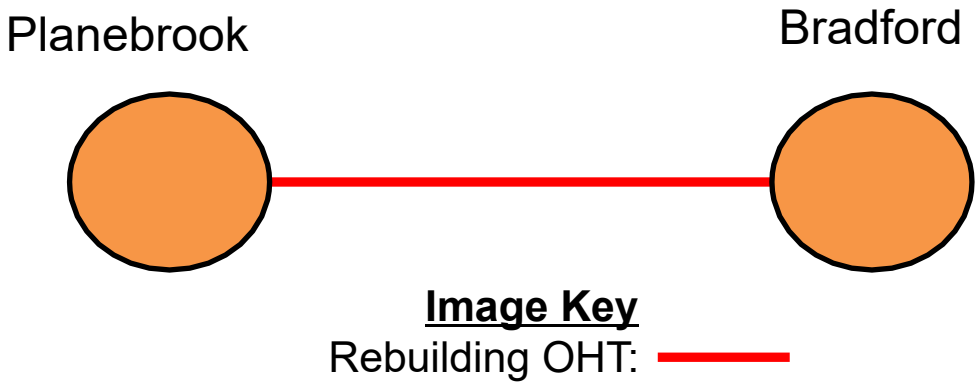
Need Number: PE-2024-002

Process Stage: Solution Meeting 6/4/2024

Proposed Solution:

- Rebuild approx. 6.24 miles of the 220-31 Planebrook – Bradford 230kV line with new dual circuit, weathering steel monopole structures and 959.6 kcmil ACSS/TW conductor
- Replace various substation equipment at Planebrook and Bradford substations

Existing ratings (MVA):	SN/SE	WN/WE
220-31 Planebrook – Bradford	525/640	575/692
New ratings (MVA):	SN/SE	WN/WE
220-31 Planebrook – Bradford	762/884	799/922



Estimated cost: $36M

Alternatives Considered: Replace only the static wire. Replace all the conductors, insulators, and hardware. Alternative not pursued due to the age of the structures that are at end of useful life

Projected In-Service: 12/31/27

Project Status: Conceptual

Model: 2028 RTEP

220-02 Planebrook – Bradford 230 kV Line Rebuild

Need Number: PE-2024-003

Process Stage: Solutions Meeting 6/4/2024

Previously Presented: Need Meeting 3/5/2024

Project Driver:

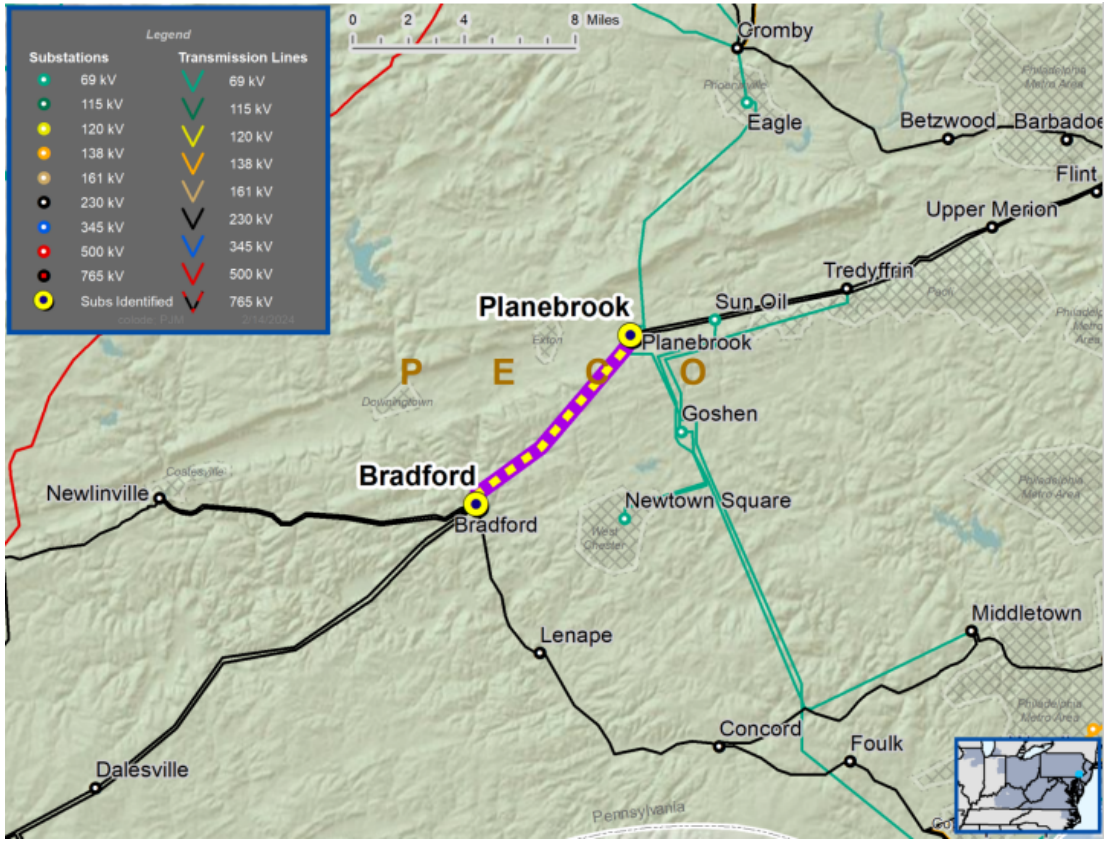
- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

- Transmission infrastructure replacements (EOL/condition/obsolescence) that are consistent with efficient asset management decisions

Problem Statement:

- The 230 kV line 220-02 Bradford – Planebrook is a 6.43 mile line with 795 kcmil 30/19 ACSR conductor and 184 kcmil ACSR static wire that was constructed in 1927. This line is 96 years old and nearing end of useful life.
- There are 33 structures along this ROW, 30 of which that are the original steel lattice towers erected in 1927 and are showing signs of corrosion on the tower members, wear to vang plates, insulators, and insulator hardware.
- Inspections of the static and phase conductors identified that they were in poor condition and need to be replaced.



220-02 Planebrook – Bradford 230 kV Line Rebuild

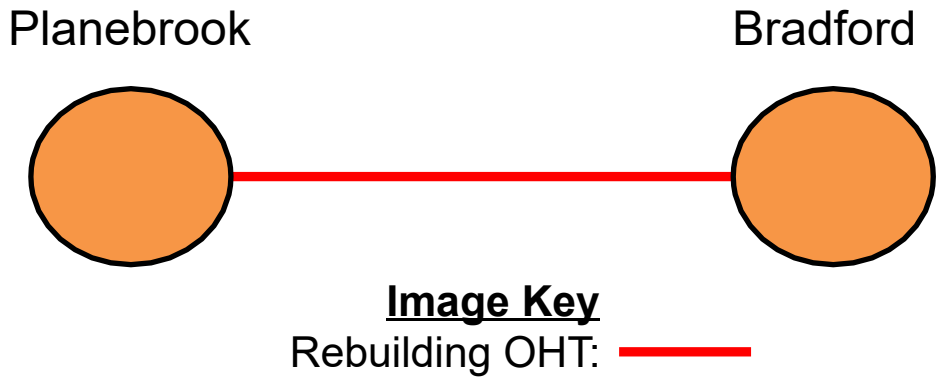
Need Number: PE-2024-003

Process Stage: Solution Meeting 6/4/2024

Proposed Solution:

- Rebuild approx. 4.5 miles of the 220-02 Planebrook – Bradford 230kV line with new dual circuit, weathering steel monopole structures and 959.6 kcmil ACSS/TW conductor
- Replace various substation equipment at Planebrook and Bradford substations

Existing ratings (MVA):	SN/SE	WN/WE
220-02 Planebrook – Bradford	525/640	575/692
New ratings (MVA):	SN/SE	WN/WE
220-02 Planebrook – Bradford	762/884	799/922



Estimated cost: $36M

Alternatives Considered: Replace only the static wire. Replace all the conductors, insulators, and hardware. Alternative not pursued due to the age of the structures that are at end of useful life

Projected In-Service: 12/31/28

Project Status: Conceptual

Model: 2028 RTEP

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

5/23/2023– V1 – Original version posted to pjm.com