Transmission Expansion Advisory Committee – PSE&G Supplemental Projects

September 1, 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: PSEG-2020-0006

Process Stage: Need Meeting 09/01/2020

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

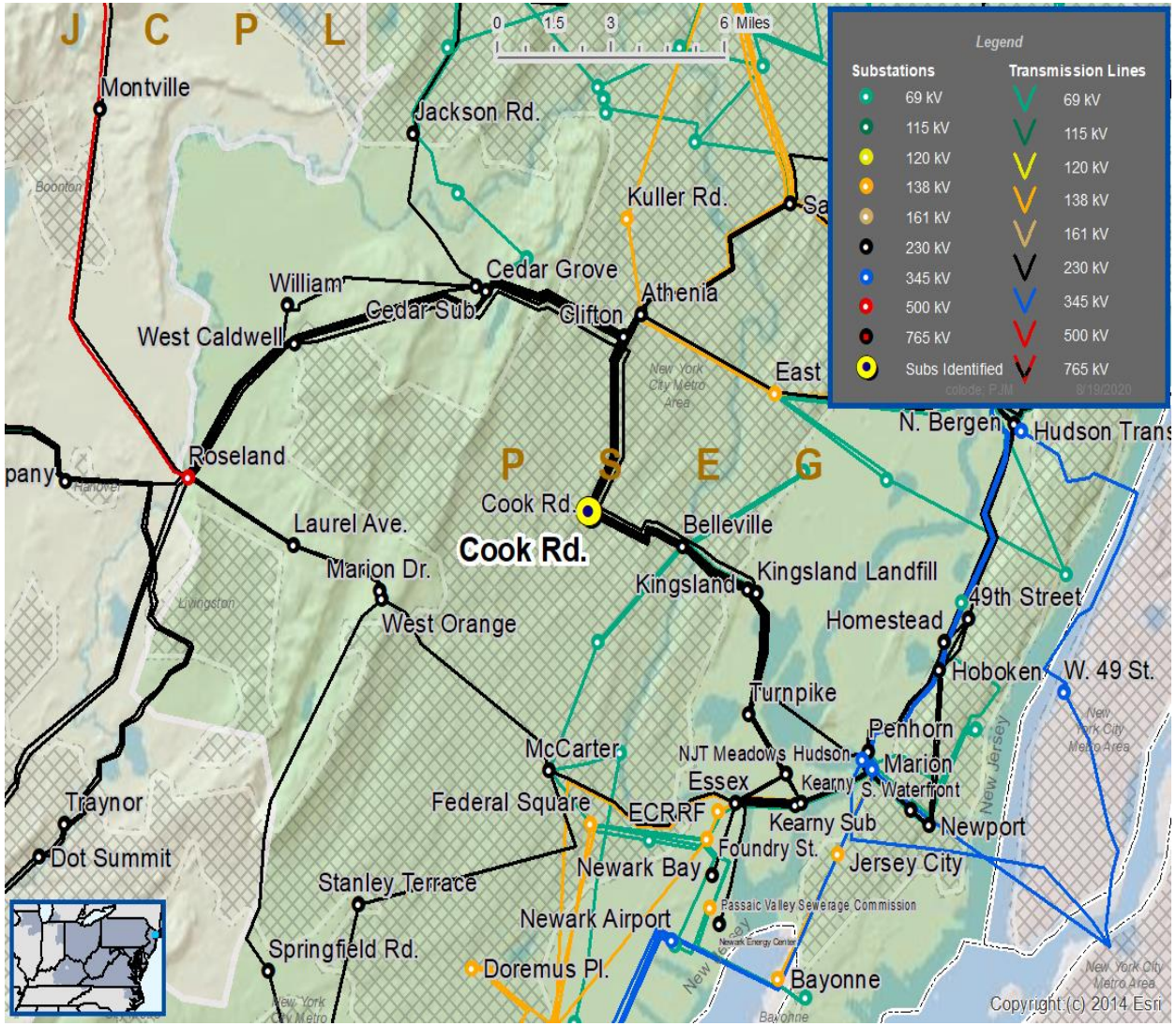
- PSE&G 2019 Annual Assumptions
- Localized Load Growth & Contingency Overloads

Problem Statement:

- Cook Rd is a station in the Belleville area at capacity of 120 MVA.

- Cook Rd serves roughly 49,000 customers with a peak load of 145 MVA in 2019.

Model: 2020 Series 2025 Summer RTEP 50/50



Need Number: PSEG-2020-0007

Process Stage: Need Meeting 9/01/2020

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

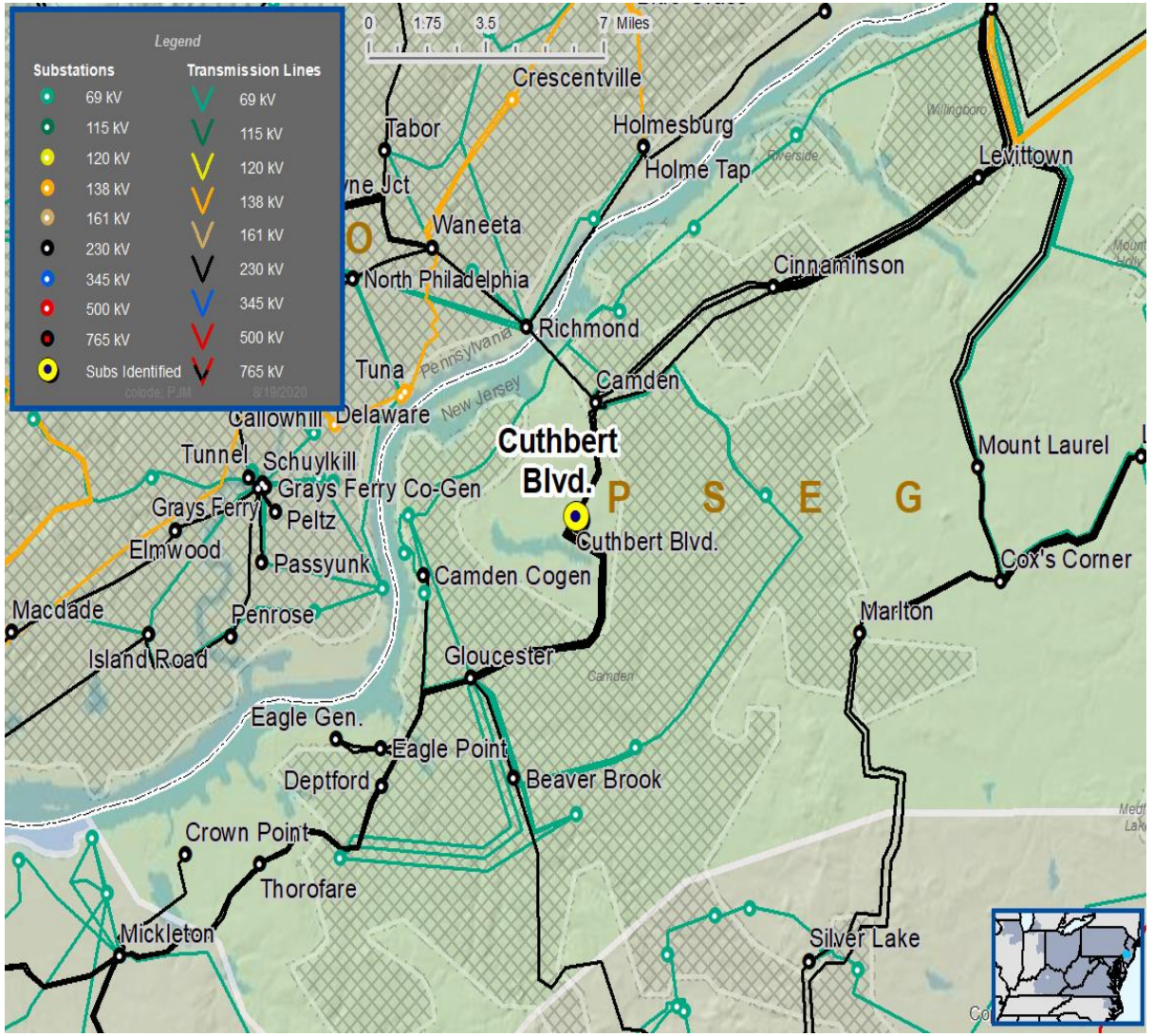
- PSE&G 2019 Annual Assumptions
- Localized Load Growth & Contingency Overloads

Problem Statement:

- Cuthbert Blvd is a station in the Northern Camden area at capacity of 120MVA.

- Cuthbert Blvd serves roughly 33,000 customers with a peak load of 143MVA in 2019.

Model: 2020 Series 2025 Summer RTEP 50/50



Solution

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

PSE&G Transmission Zone M-3 Process

Need Number: PSEG-2020-0005

Process Stage: Solutions Meeting 09/01/2020

Previously Presented: Need Meeting 08/04/2020

Supplemental Project Driver:

- Operational Flexibility and Efficiency

Specific Assumption Reference:

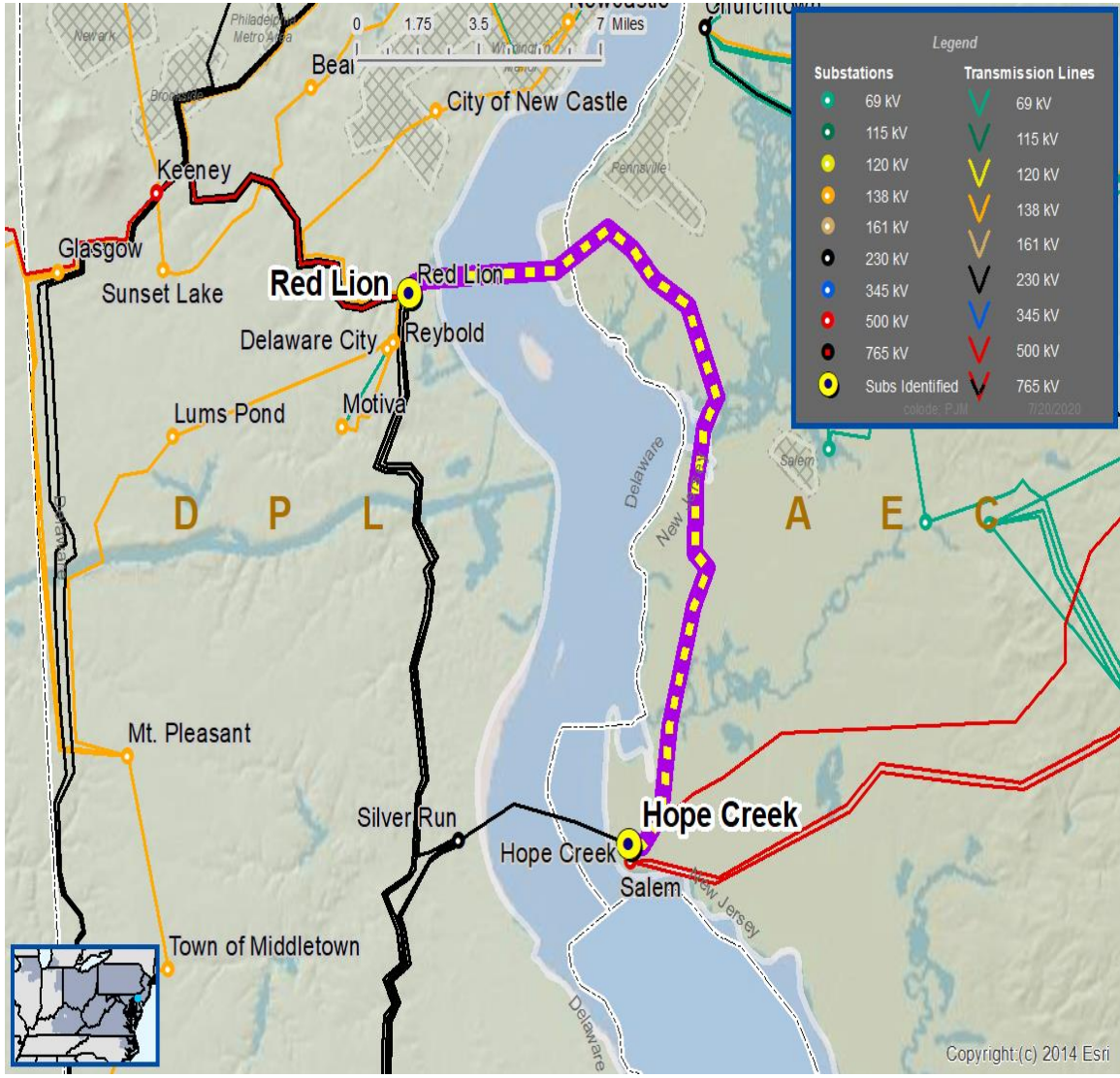
- Modernize legacy system to meet current standards
- Engineering directives & guidelines (both internal and external)
    - PJM Relay Subcommittee Directional Comparison Blocking (DCB) recommendations effective 4/17/2014
        - Recommendations recognize DCB is widely used and dependable line protection scheme, but when certain elements of DCB schemes fail to operate, they often trip more equipment than is necessary.
        - The tolerance for overtrips may be unacceptable when the stability of large generating units is adversely affected.
        - A protection scheme more secure than DCB is recommended in cases where additional analysis reveals stability concerns.

Problem Statement:

- The 5015 line in southern New Jersey runs from Red Lion (DPL) to Hope Creek Nuclear Station (PSE&G) and has experienced 9 faults in the past 10 years due to avian activity and lightning strikes, with the two most recent faults occurring in April 2020. The line is currently protected using power line carrier relaying. Additional simulation testing has revealed a more secure and reliable method for fault detection and isolation is required to avoid potential overtrips.

- Multiple towers on this line are only accessible by boat, so more accurate fault location methods are required.
- Faults on this line are very difficult to locate and detect.
- 5015 line is critical to the operation of Hope Creek and Salem Nuclear Power plants.

Model: 2019 Series 2024 Summer RTEP 50/50



Need Number: PSEG-2020-0005

Process Stage: Solutions Meeting 09/01/2020

Proposed Solution:

Upgrade 5015 Relaying at Hope Creek and utilize existing fiber paths for primary and backup line protection.

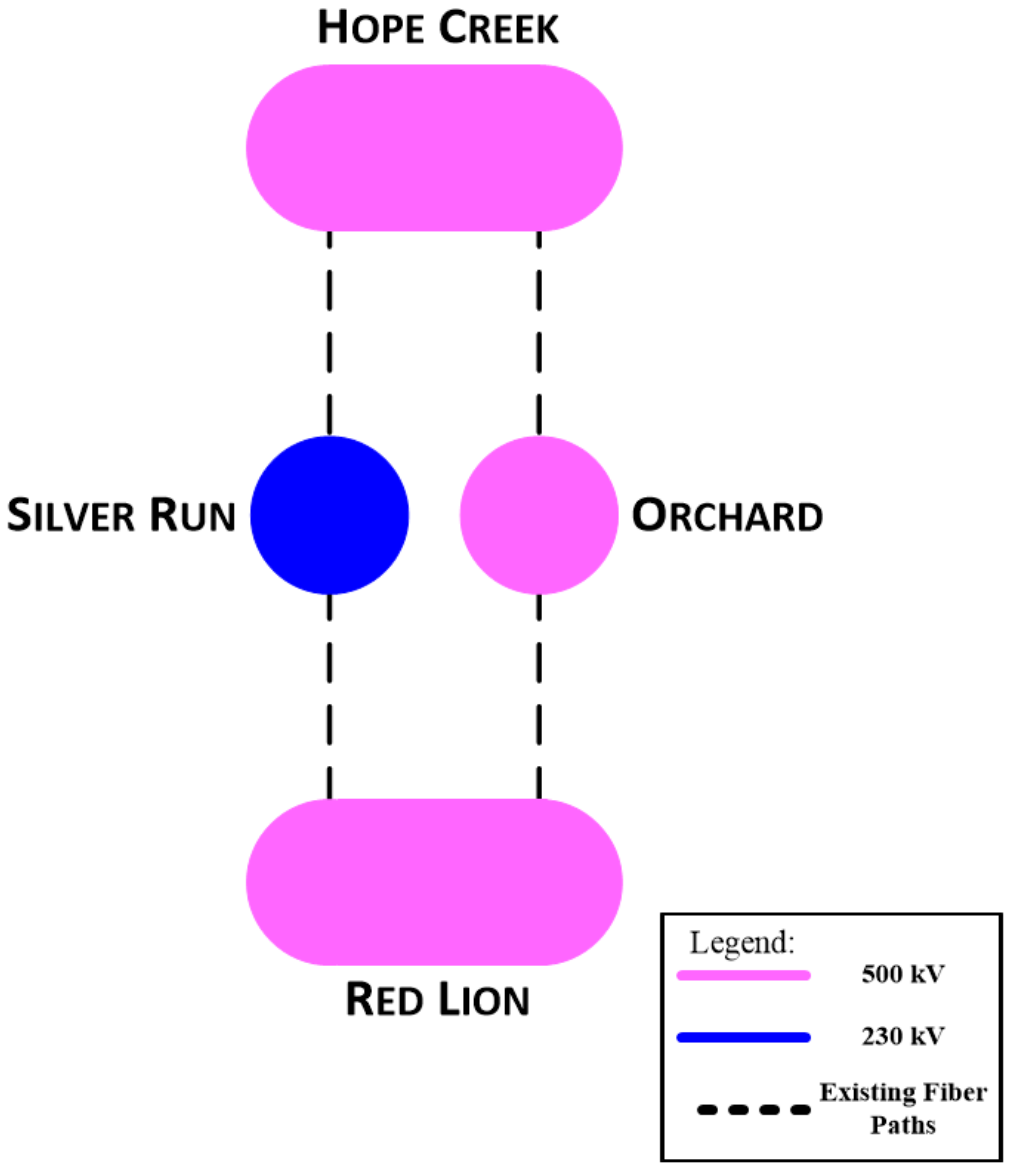
- For primary line protection, utilize the existing fiber paths from Hope Creek to Orchard via 5023 OPGW and from Orchard to Red Lion via the Delmarva SONET Fiber Network.
- For backup line protection, utilize the existing fiber path constructed by the Artificial Island High Voltage Solution Project from Hope Creek to Silver Run to Red Lion. Silver Run has incorporated the necessary facilities as part of the Voltage Solution Project.
- Modify the primary and upgrade the backup relay protection package at the Hope Creek 5015 line terminal.
- Delmarva Power to modify relay protection at their facilities.
- **Estimated Cost:** $1.2M

Alternatives Considered:

- Upgrade 5015 Relaying at Hope Creek construct new fiber path for primary line protection
  - Construct new OPGW on 5015 for primary line protection.
  - For Backup line protection, utilize the existing fiber constructed by the Artificial Island High Voltage Solution Project from Hope Creek to Silver Run to Red Lion. Silver Run has incorporated the necessary facilities as part of the Voltage Solution Project.
  - Modify the primary and upgrade the backup relay protection package at the Hope Creek 5015 line terminal.
  - Delmarva Power to modify relay protection at their facilities.
  - **Estimated Cost:** $7.0M

Projected In-Service: 3/2021

Project Status: Conceptual



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

8/21/2020 – V1 – Original version posted to pjm.com