PSEG 2024
Submission of Supplemental Projects for Inclusion in the Local Plan

PSE&G Transmission Zone M-3 Process
East Rutherford Area

Need Number: PSEG-2023-0008

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Previously Presented:

- Need Meeting 07/20/2023
- Solutions Meeting 08/17/2023

Supplemental Project Driver:

- Customer Service
- Equipment Material Condition, Performance and Risk

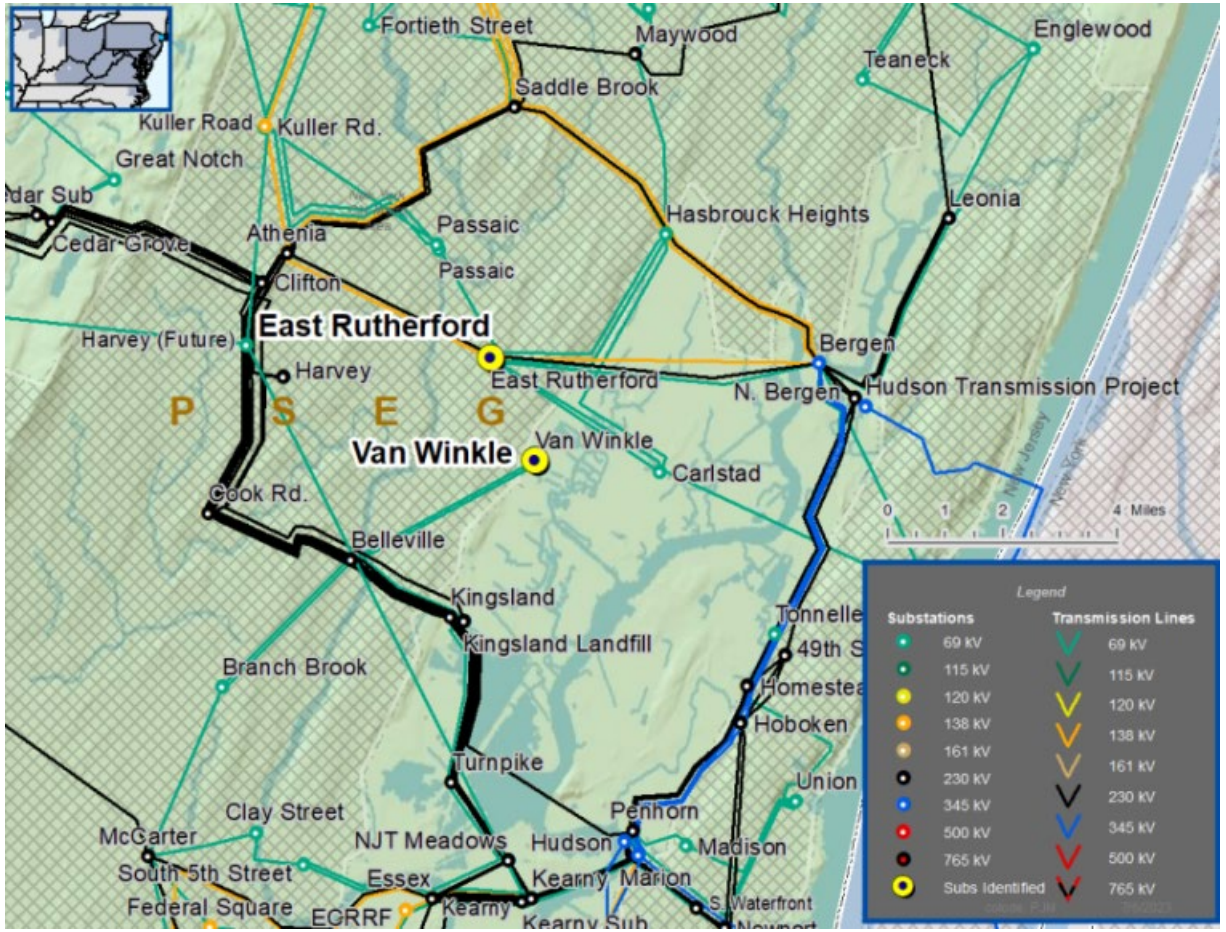
Specific Assumption Reference:

PSE&G 2023 Annual Assumptions

- Localized Load Growth & Contingency Overloads
- Equipment Reliability and Condition Assessment

Problem Statement:

- East Rutherford is a station in the Bergen county area with no additional station capacity.
  - East Rutherford serves over 17,600 customers with a peak load of over 70.9MVA in 2021.
  - The actual station capacity is 62.5MVA. Contingency overload is 113%.
- The Van Winkle Substation building is over 80 years old, is in poor condition, and is not in compliance with today's NJ UCC requirements.
  - Van Winkle serves over 5,400 customers.



Model: 2021 Series 2026 Summer RTEP 50/50

PSE&G Transmission Zone M-3 Process
East Rutherford Area

Need Number: PSEG-2023-0008

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Selected Solution:

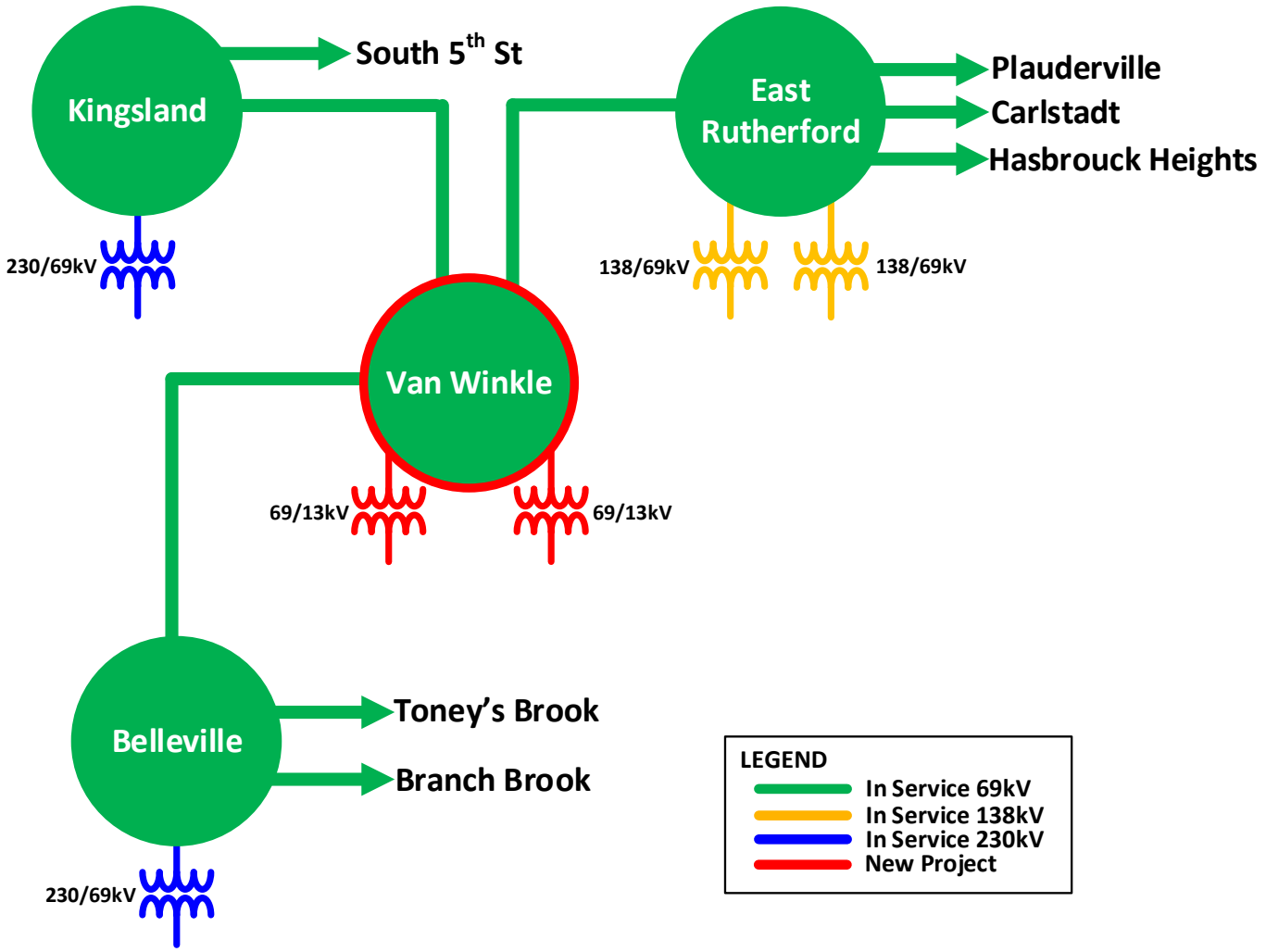
- Upgrade Van Winkle to a 69-13kV substation.
  - To ensure continuity of service, the project requires a temporary 69kV contingency during the construction sequence.
  - Remove existing transformers and associated equipment at Van Winkle.
  - Install two (2) 69-13kV transformers and associated equipment.

Estimated Cost: $32.5M

Projected In-Service: 06/2027

Supplemental Project ID: s3010

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Newark Bay Area

Need Number: PSEG-2023-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Previously Presented:

- Need Meeting 05/18/2023
- Solutions Meeting 07/20/2023

Supplemental Project Driver:

- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

PSE&G 2023 Annual Assumptions

- Equipment Criticality, Consequence of Failure

Problem Statement:

- The cable connecting Newark and Bayonne 69kV networks is a high pressure fluid-filled circuit and is an environmental risk. The high pressure fluid-filled line was constructed in 1963. The line length totals to 2.3 miles with approximately 4800 feet underwater in the Newark Bay.

- The circuit contains over 23,000 gallons of dielectric fluid. There is a potential risk of an un-controlled leak of up to 56% of that fluid into Newark Bay.

Model: 2022 Series 2027 Summer RTEP 50/50

PSE&G Transmission Zone M-3 Process
Newark Bay Area

Need Number: PSEG-2023-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Selected Solution:

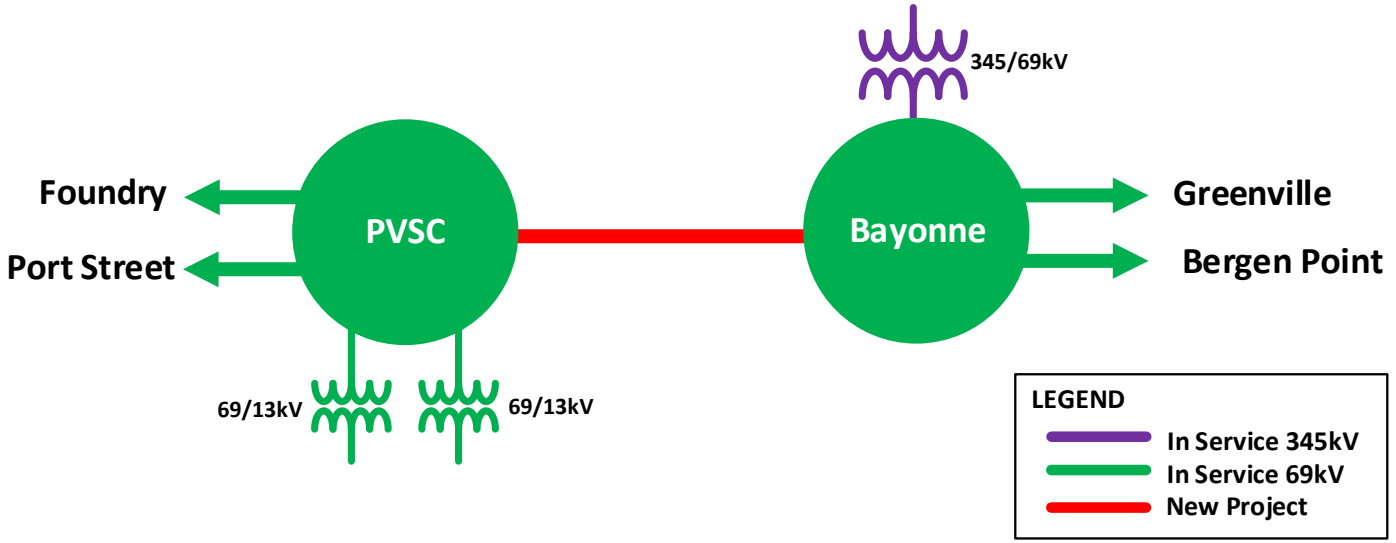
- Replace the G-709 High Pressure Fluid Filled (HPFF) cable with Extruded Pipe (EP) cable.
  - Replace 2.3 miles of HPFF cable with EP cable.
  - Re-use the existing G-709 pipe and route for the cable replacement.
  - Modify terminal equipment at PVSC and Bayonne stations to accommodate the EP cables
  - At Bayonne station, de-commission and remove the oil pumping equipment including pumping plant, tank, controls, and piping associated with the cable.

Estimated Cost: $25.6M

Projected In-Service: 12/2025

Supplemental Project ID: s3007

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
South Edison Area

Need Number: PSEG-2023-0006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Previously Presented:

- Needs Meeting 7/11/2023
- Solutions Meeting 9/05/2029

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

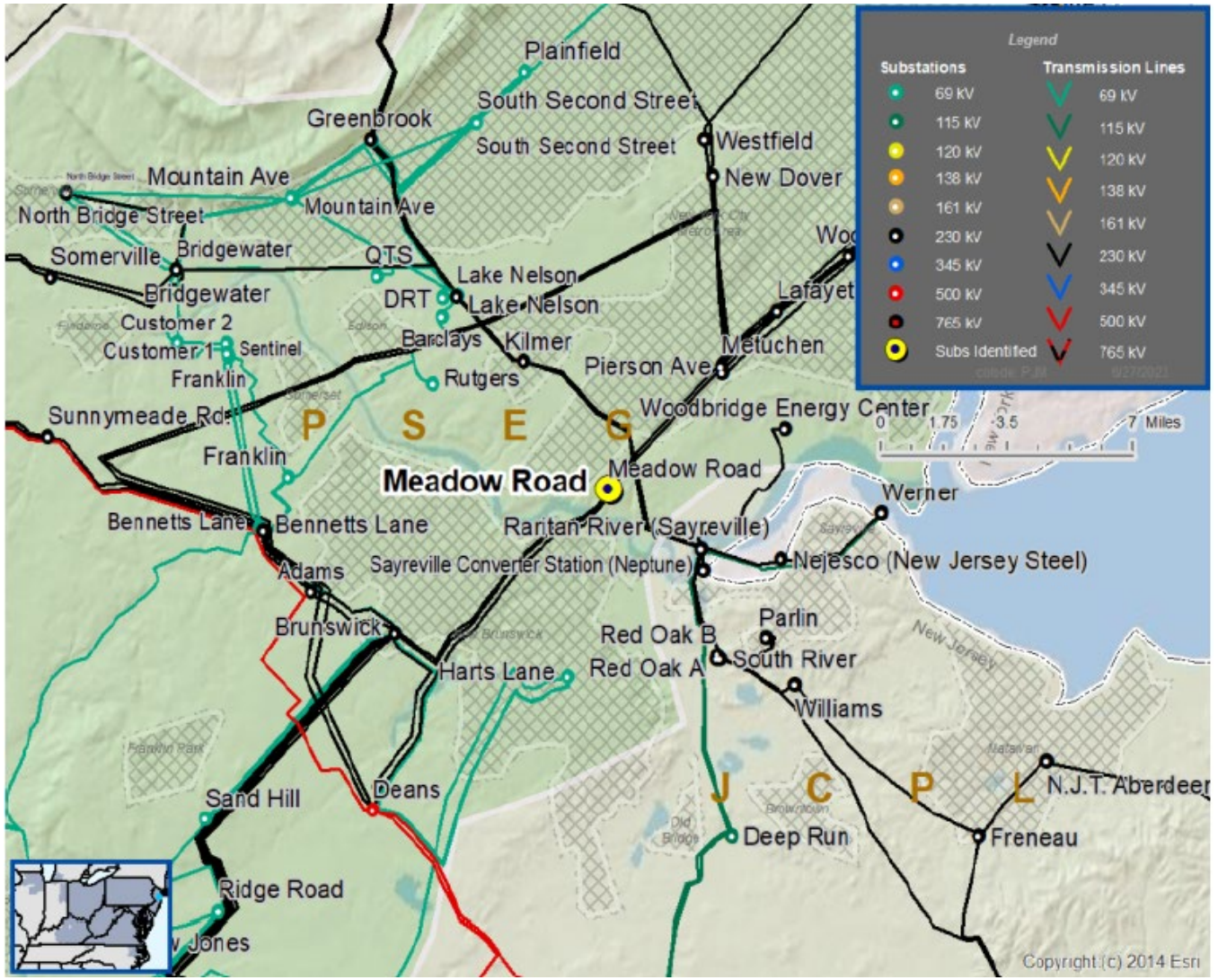
PSE&G 2023 Annual Assumptions

- Localized Load Growth & Contingency Overloads

Problem Statement:

- Meadow Road Substation is a station in the Edison area with no additional station capacity.
  - Meadow Road serves over 14,000 customers with a peak load of over 73.9 MVA in 2022.
  - The actual station capacity is 59.4 MVA. Contingency overload is 124%.

- **Model:** 2022 Series 2027 Summer RTEP 50/50



PSE&G Transmission Zone M-3 Process
South Edison Area

Need Number: PSEG-2023-0006

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Selected Solution:

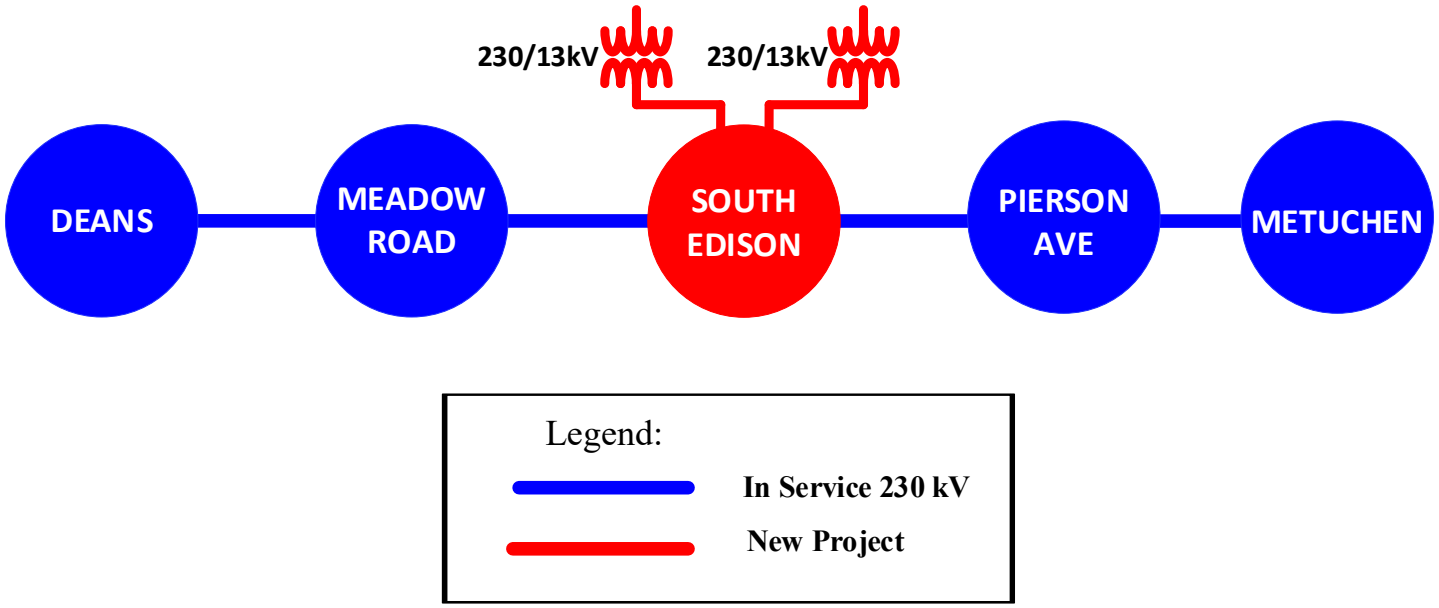
- Construct a 230-13kV Substation at PSEG property adjacent to Meadow Road substation.
  - Construct a 230kV substation.
  - Install two (2) 230-13kV transformers.
  - Resolves contingency overload at Meadow Road substation.

Estimated Cost: $56.1M

Projected In-Service: 05/2028

Supplemental Project ID: s3008

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Perth Amboy Area

Need Number: PSEG-2023-0007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Previously Presented:

- Needs Meeting 7/11/2023
- Solutions Meeting 9/05/2029

Supplemental Project Driver:

- Customer Service
- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

PSE&G 2023 Annual Assumptions

- Localized Load Growth & Contingency Overloads
- Equipment Reliability and Condition Assessment
- Asset Risk Model

Problem Statement:

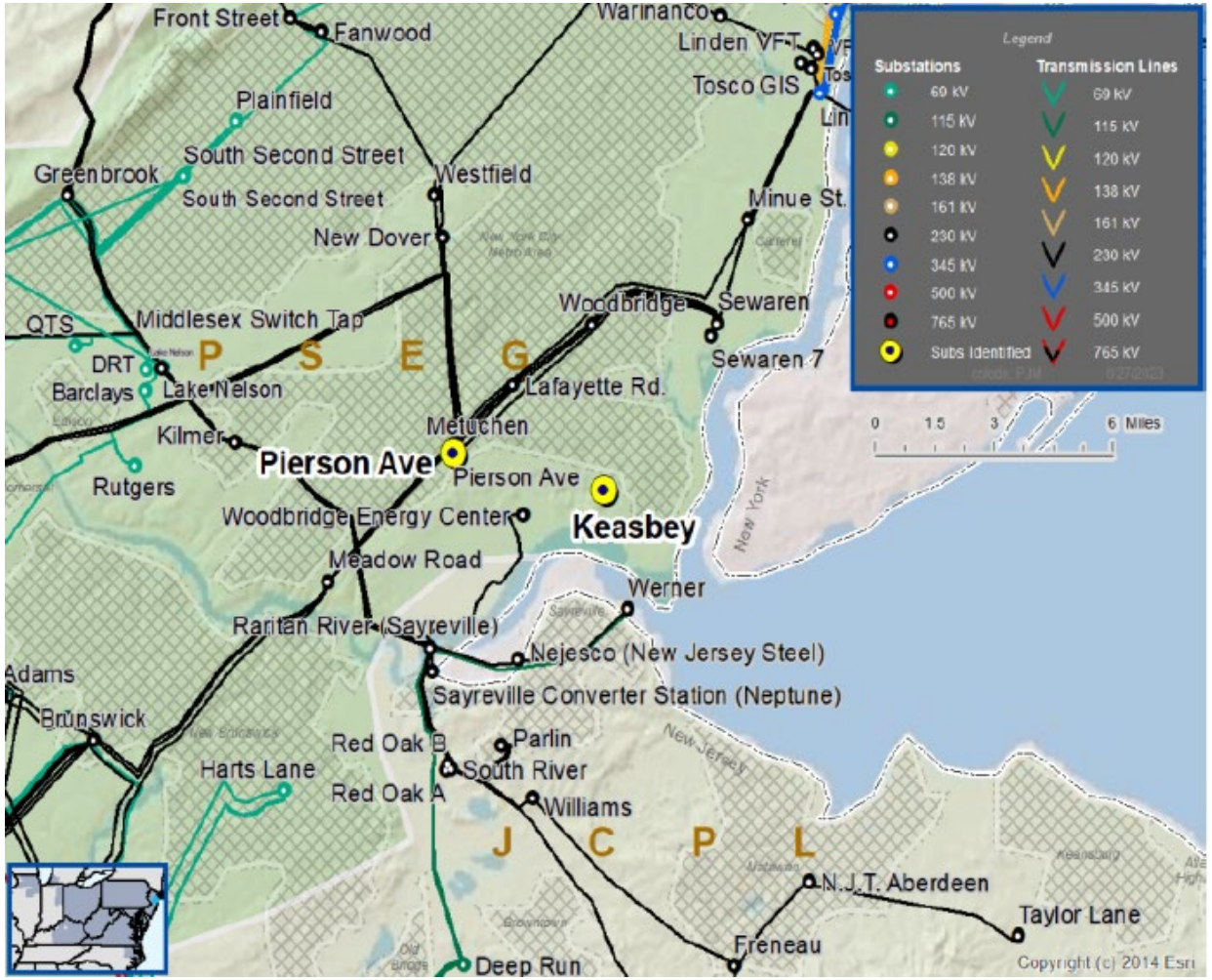
• Pierson Ave. Substation is a station in the Perth Amboy area with no additional station capacity.

  - Pierson Ave. serves over 14,600 customers with a peak load of over 75.42 MVA in 2021.
  - The actual station capacity is 61.17MVA. Contingency overload is 123.3%.

• Keasbey substation is a station in the Perth Amboy Area with equipment and building condition issues.

  - Station equipment at Keasbey is in poor condition and will need to be addressed.
  - Keasbey Substation building is nearly 100 years old, is in poor condition, and is not in compliance with today's NJ UCC requirements.

Model: 2022 Series 2027 Summer RTEP 50/50



PSE&G Transmission Zone M-3 Process
Perth Amboy Area

Need Number: PSEG-2023-0007

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/07/2024

Selected Solution:

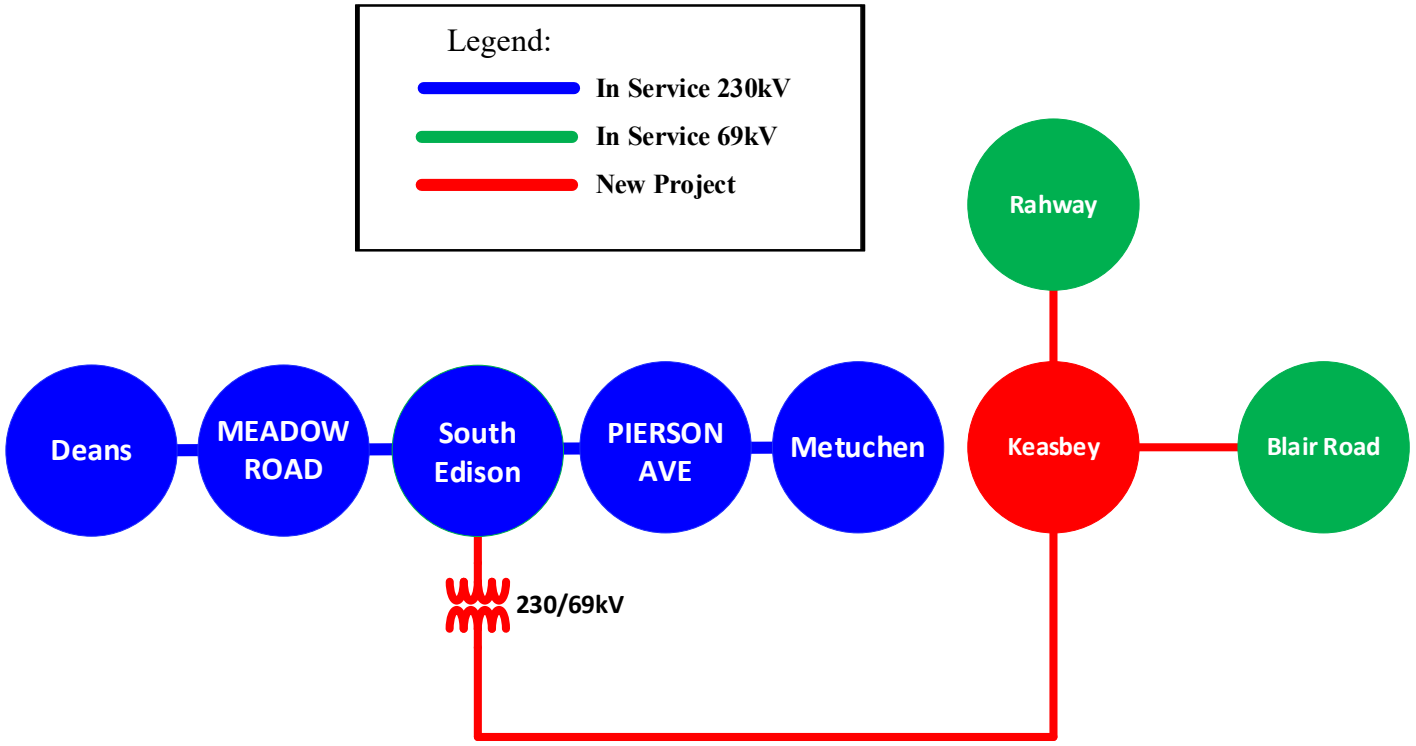
- Construct a new 69/13kV station on PSE&G owned adjacent property to Keasbey station.
  - Build a new 69kV line to Rahway station.
  - Build a new 69kV line to Blair Rd.
  - Install one (1) 230/69kV transformer at South Edison.
  - Build a new 69kV line to South Edison.

Estimated Cost: $220.68M

Projected In-Service: 12/2028

Supplemental Project ID: s3009

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Harlingen Area

Need Number: PSEG-2023-0009

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/26/2024

Previously Presented:

- Need Meeting 09/05/2023
- Solutions Meeting 10/31/2023

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

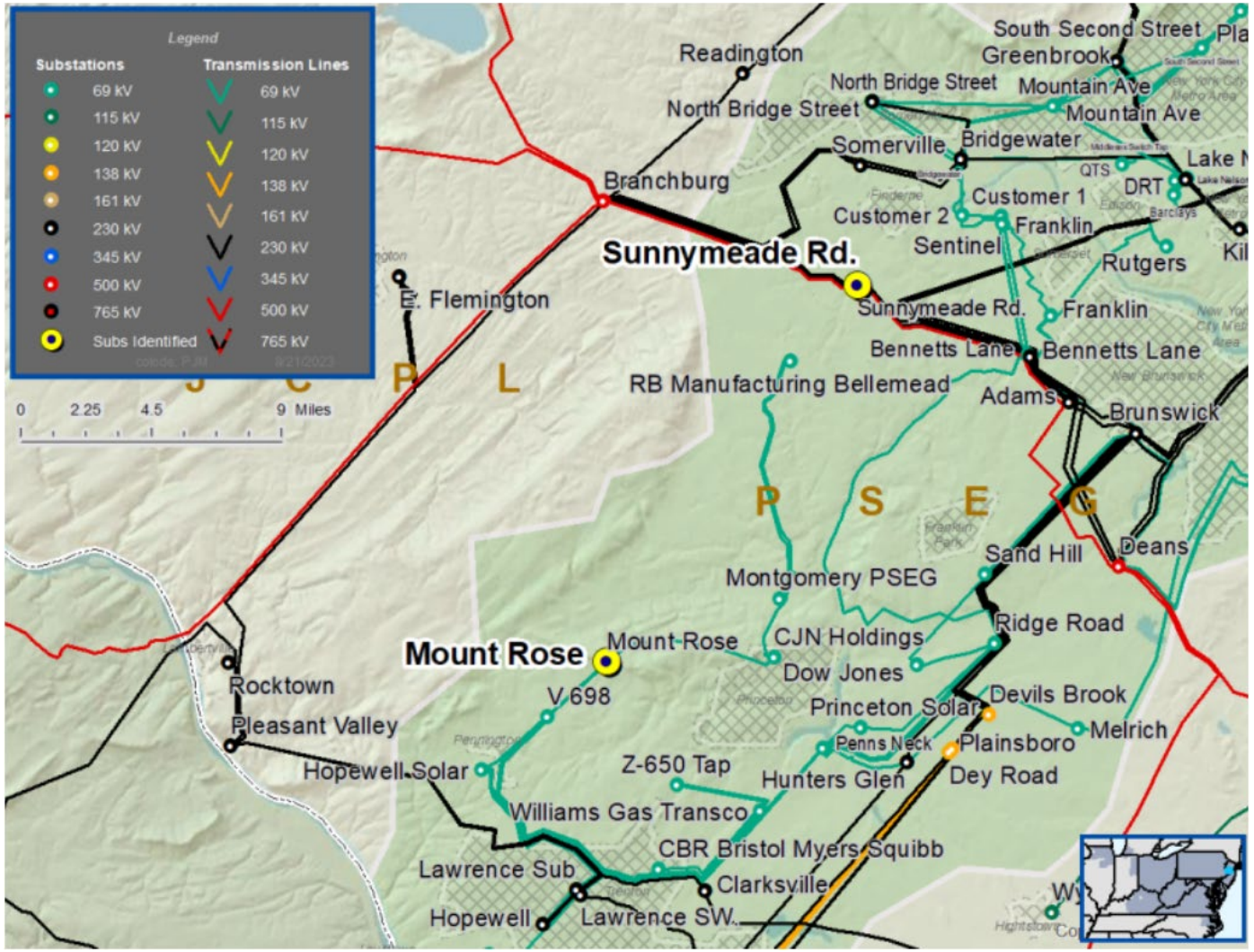
PSE&G 2023 Annual Assumptions

- Localized Load Growth & Contingency Overloads

Problem Statement:

- Sunnymeade Substation is a station in the Hillsborough area with no additional station capacity.
  - Sunnymeade serves over 21,400 customers with a peak load of over 63.4 MVA in 2021.
  - The actual station capacity is 61.43MVA. Contingency overload is 103.2%.
- Mount Rose Substation is a station in the Mount Rose area with no additional station capacity.
  - Mount Rose serves over 11,800 customers with a peak load of over 65.0 MVA in 2021.
  - The actual station capacity is 61.47MVA. Contingency overload is 105.7%.

Model: 2022 Series 2027 Summer RTEP 50/50



PSE&G Transmission Zone M-3 Process
Harlingen Area

Need Number: PSEG-2023-0009

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 02/26/2024

Selected Solution:

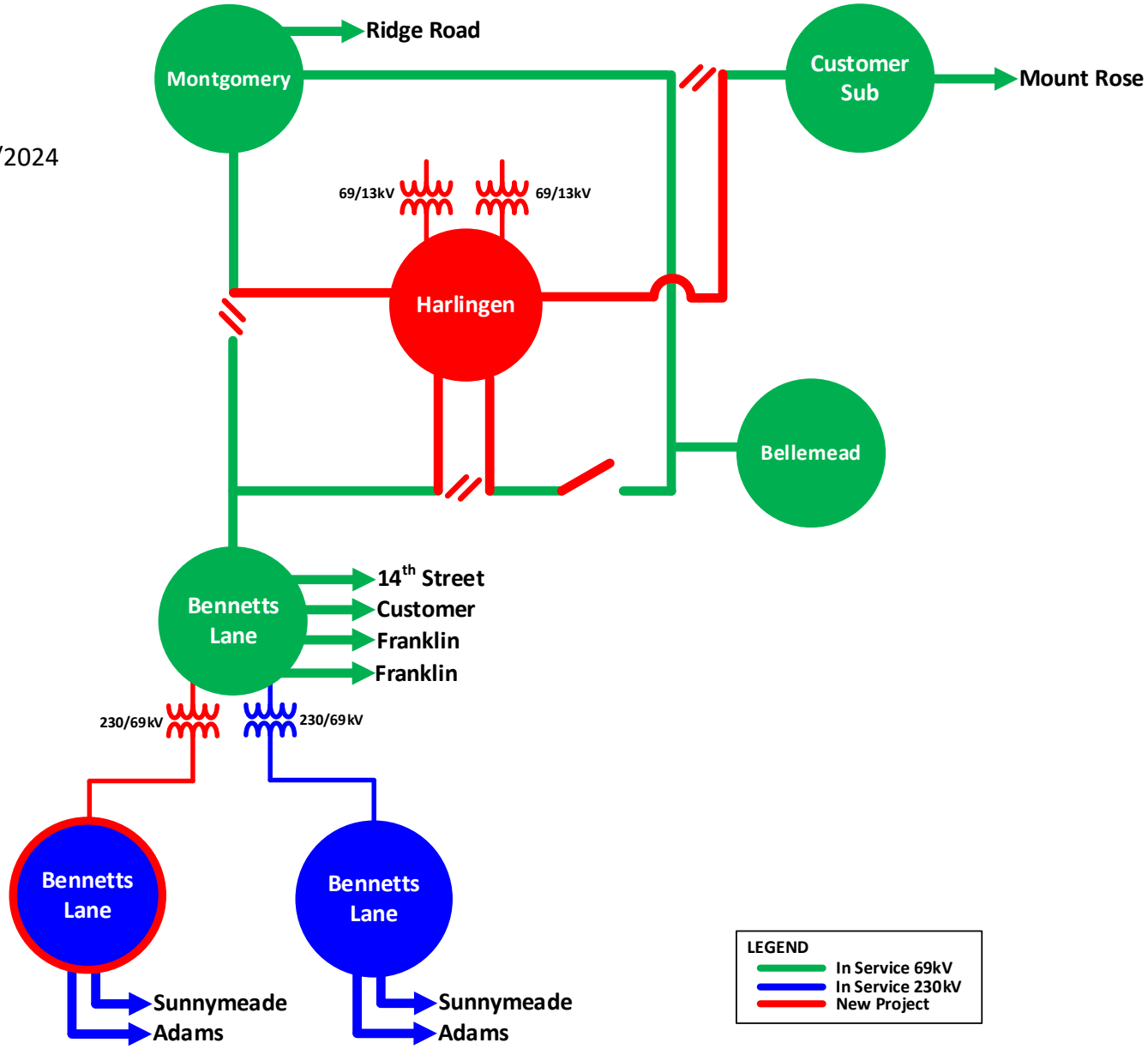
- Construct a new 69-13kV substation in the Harlingen area
  - Construct new 69-13kV station on new property
  - Install two (2) 69-13kV transformers
  - Cut and loop the Bennetts Lane-Montgomery 69kV line into the new substation
  - Cut and loop the Montgomery-Customer Sub 69kV line into the new substation
  - Resolves contingency overload at Sunnymeade and Mount Rose substation
- Construct a second 230-69kV transformer at the Bennetts Lane substation
  - Install one (1) 230-69kV transformer
  - Modify 230kV bus at Bennetts Lane
  - Modify 69kV bus at Bennetts Lane

Estimated Cost: $105.1M

Projected In-Service: 12/2029

Supplemental Project ID: s3090

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Plainfield Area

Need Number: PSEG-2023-0012

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 03/15/2024

Previously Presented:

- Need Meeting 11/16/2023
- Solutions Meeting 01/18/2024

Supplemental Project Driver:

- Customer Service

Specific Assumption Reference:

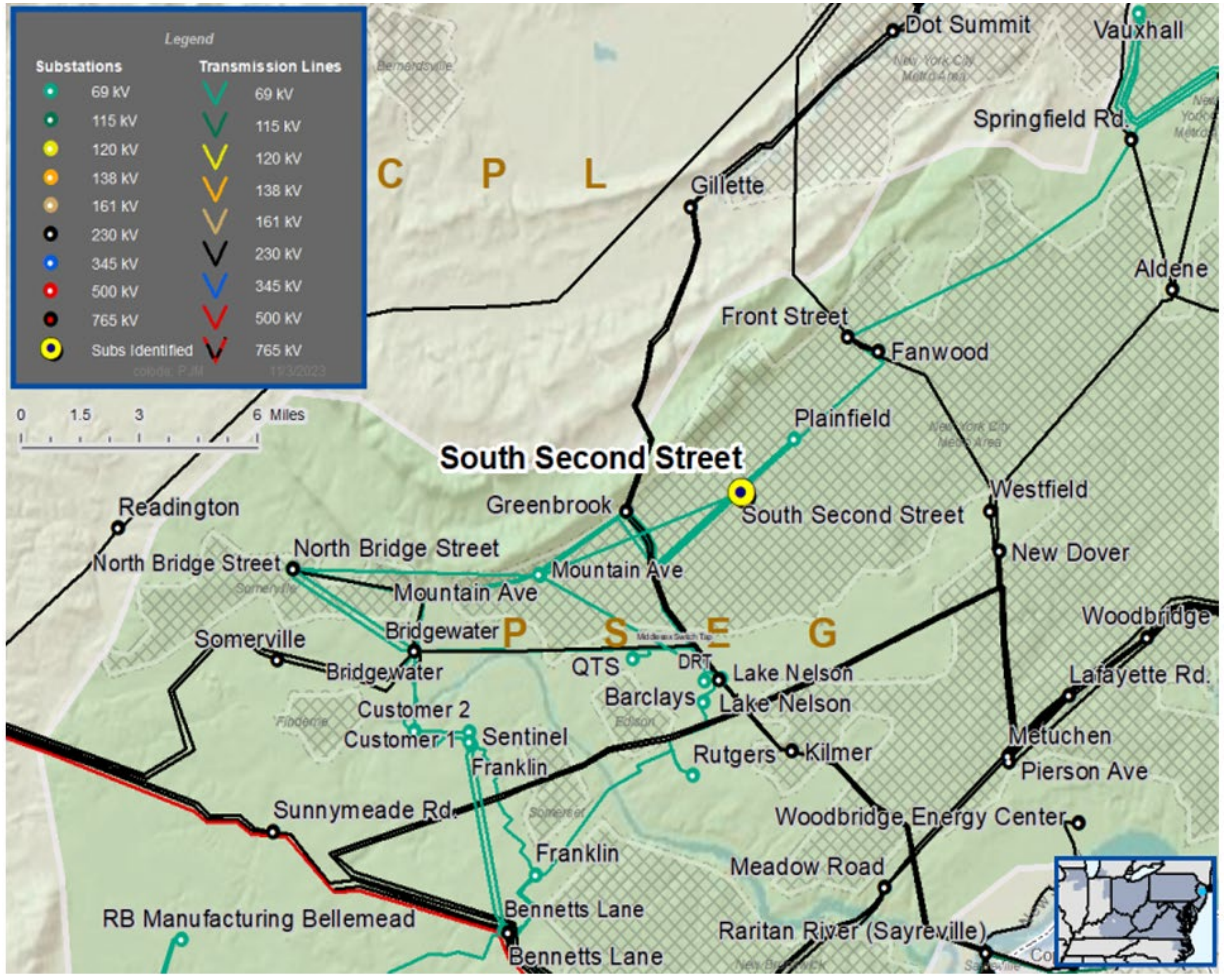
[PSE&G 2023 Annual Assumptions]

- Localized Load Growth & Contingency Overloads

Problem Statement:

- South Second Street Substation is a station in the Plainfield area with no additional station capacity.
  - South Second Street serves about 12,000 customers with a projected load of 66MVA in 2024.
  - The actual station capacity is 60.3MVA. Projected contingency overload is 109.5%.

Model: 2022 Series 2027 Summer RTEP 50/50



PSE&G Transmission Zone M-3 Process
Plainfield Area

Need Number: PSEG-2023-0012

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 03/15/2024

Selected Solution:

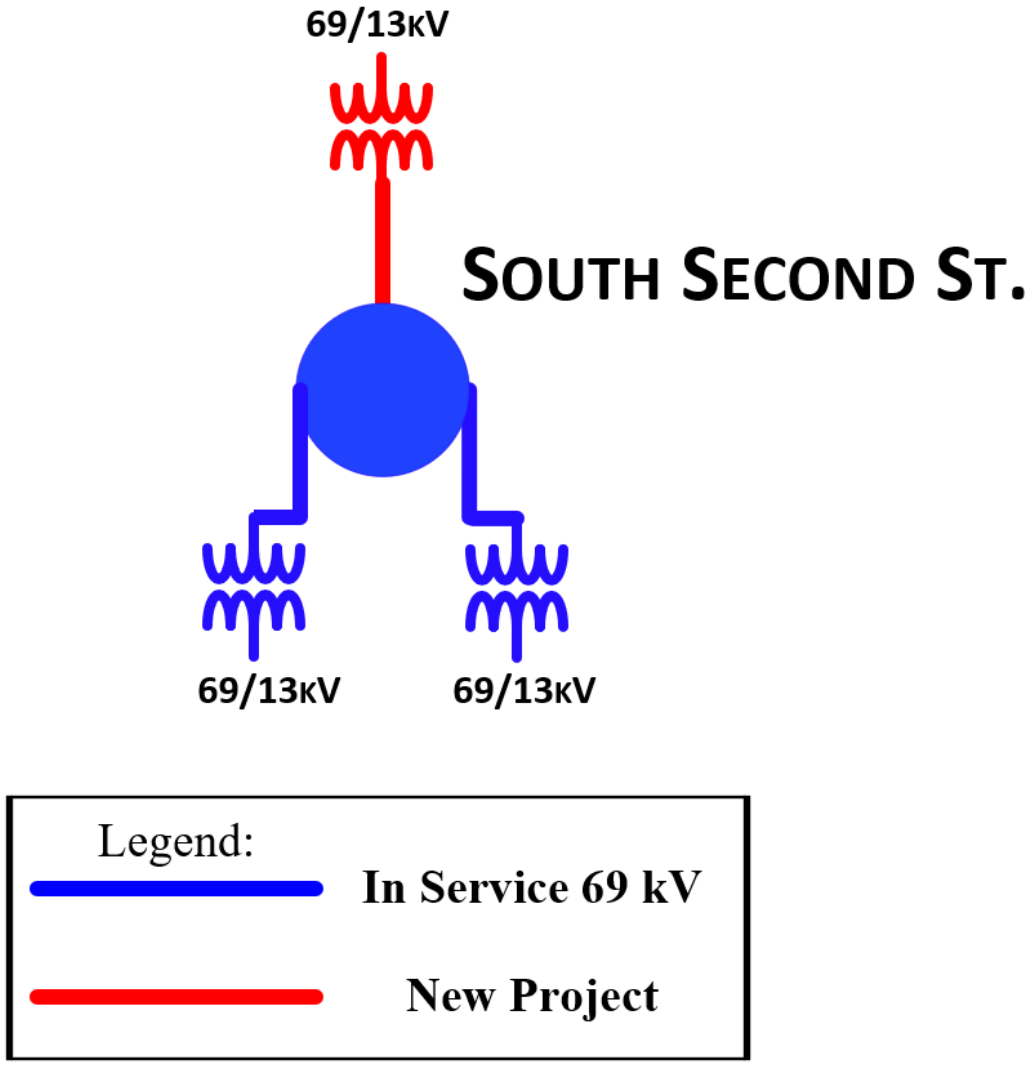
- Construct a third transformer at existing South Second St. Station
    - Install one (1) 69/13kV transformer.

Estimated Cost: $6.5M

Projected In-Service: 12/2029

Supplemental Project ID: s3184.1

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Deans – E Windsor – New Freedom 500kV Communications

Need Number: PSEG-2023-0013

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/13/2024

Previously Presented:

- Need Meeting 12/5/2023
- Solutions Meeting 2/6/2024

Supplemental Project Driver:

- Equipment Material Condition, Performance and Risk
- Operational Flexibility and Efficiency

Specific Assumption Reference:
PSE&G 2023 Annual Assumptions

- Equipment Criticality, Consequence of Failure

Problem Statement:

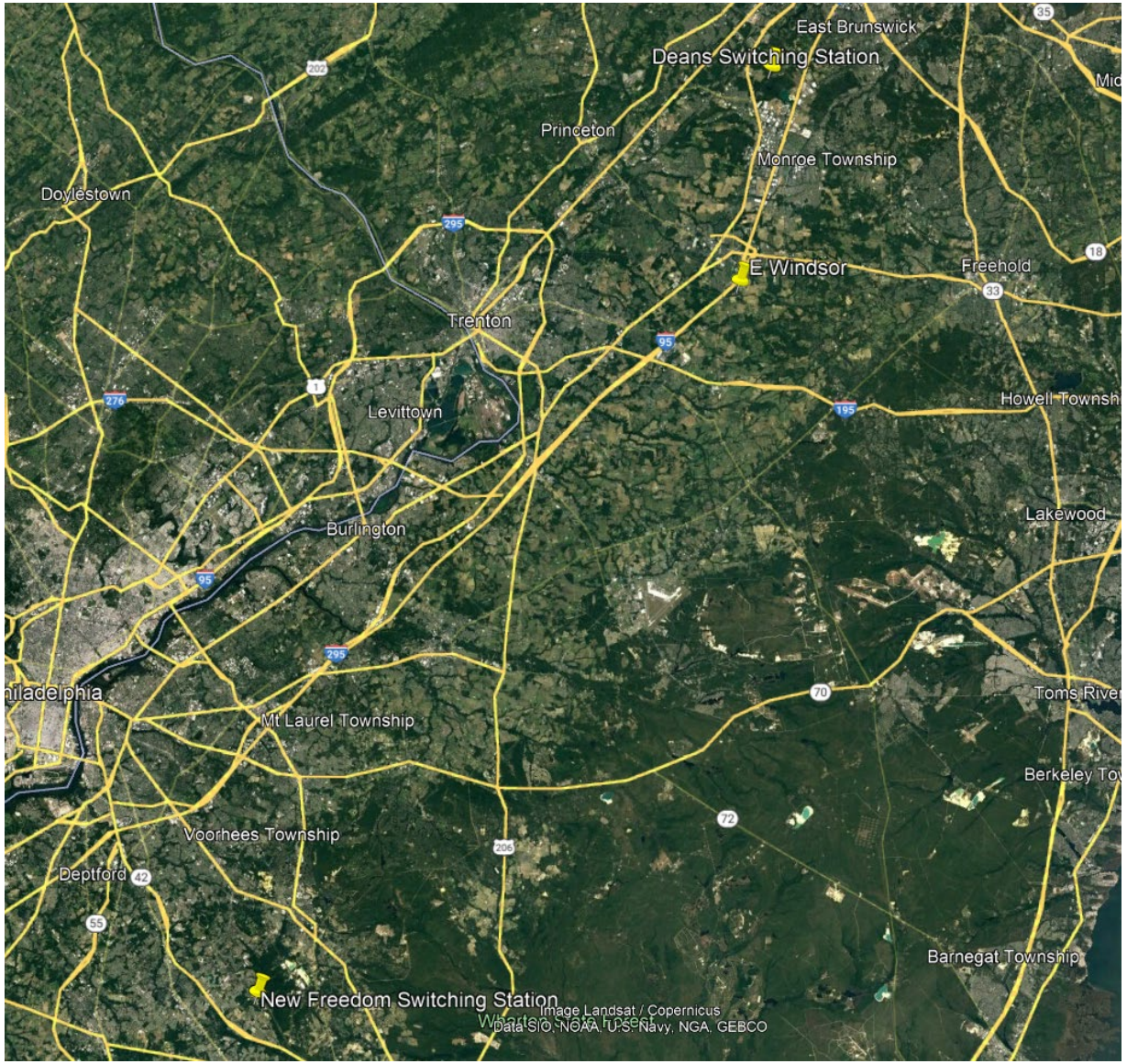
Existing communications equipment is currently power line carrier (PLC) on Deans – E Windsor and E Windsor – New Freedom 500kV. PLC equipment is affected during severe weather.

PJM Relay Subcommittee issued recommendations effective 4/17/2014 concerning Directional Comparison Blocking (DCB).

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 stability concerns are present.

Model: 2023 Series 2028 Summer RTEP 50/50



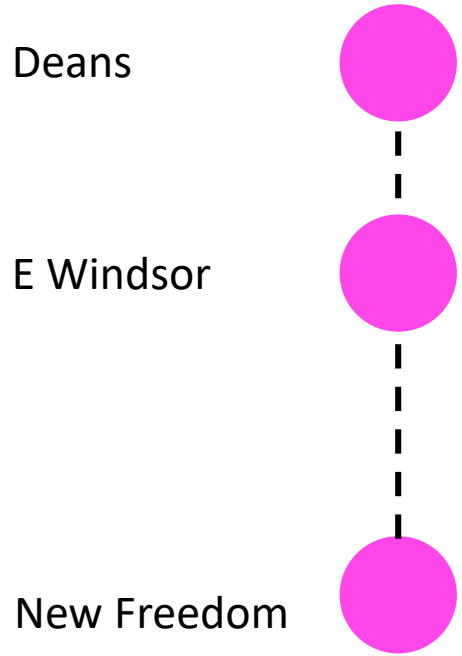
PSE&G Transmission Zone M-3 Process
Deans – E Windsor – New Freedom 500kV Communications

Need Number: PSEG-2023-0013

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/13/2024

Selected Solution:

- Construct new fiber path between New Freedom – E Windsor - Deans
  - Replace 53 miles of static wire on 5038 (New Freedom – E Windsor) and 5022 (E Windsor - Deans)
  - Upgrade line relay equipment and remove Power Line Carrier (PLC) equipment



Estimated Cost: $39.2M

Projected In-Service: 12/2025 (5022/Deans) & 12/2026 (5038/N Freedom)

Supplemental Project ID: s3276.1

Project Status: Engineering and Planning

(This project will replace Project s0473)

PSE&G Transmission Zone M-3 Process
Newark Bay Cogen

Need Number: PSEG-2023-0010

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/13/2024

Previously Presented:

- Need Meeting 10/31/2023
- Solutions Meeting 3/5/2024

Supplemental Project Driver:

- Equipment Material Condition, Performance and Risk

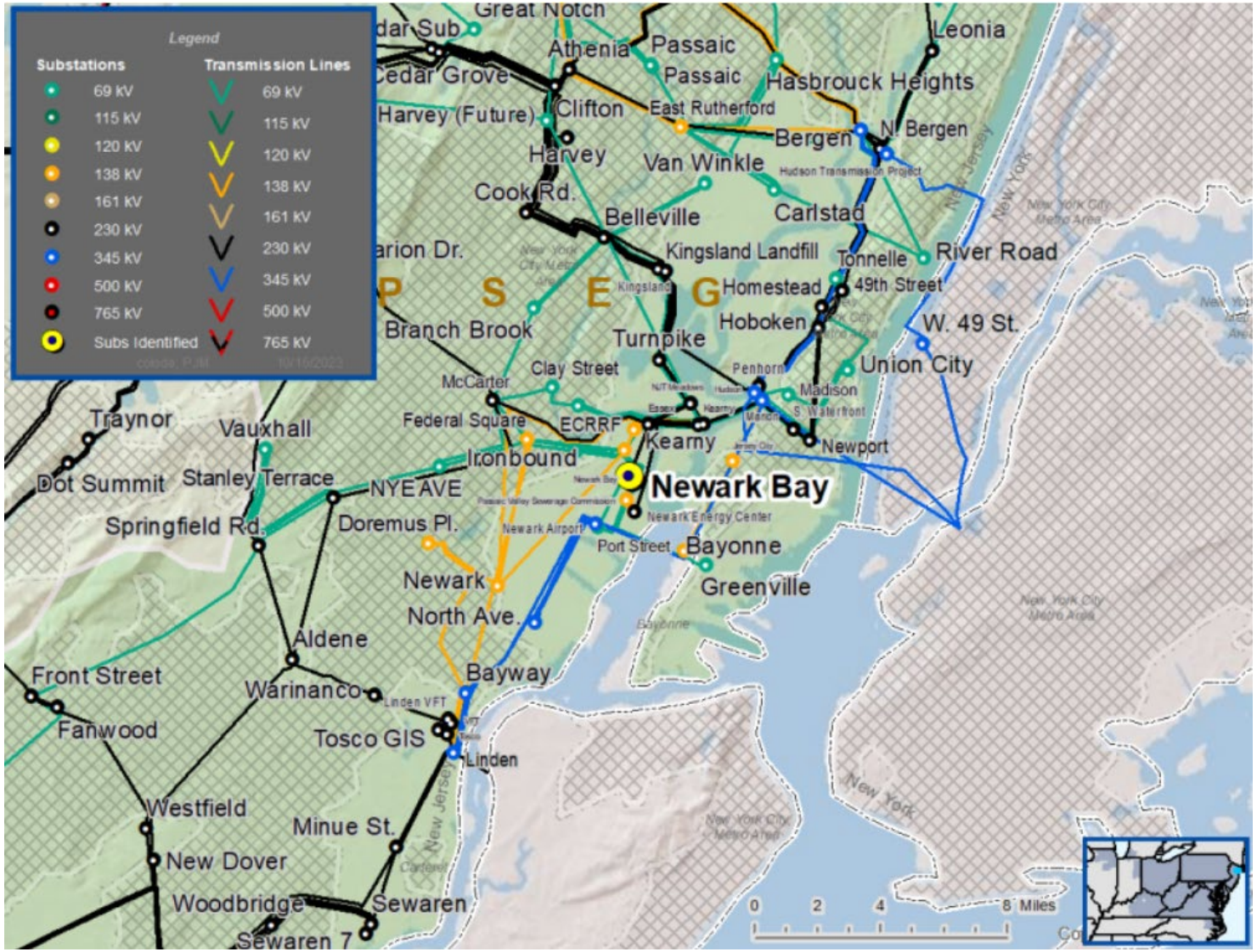
Specific Assumption Reference:
PSE&G 2023 Annual Assumptions

- Equipment Criticality, Consequence of Failure

Problem Statement:

A high pressure fluid-filled transmission circuit constructed as a dedicated feed to a cogeneration facility to allow for generation export is now subject to obsolescence due to the retirement of the cogeneration facility. The high pressure fluid-filled transmission circuit currently provides no transmission system benefit and presents potential environmental impact risks.

Model: 2023 Series 2028 Summer RTEP 50/50



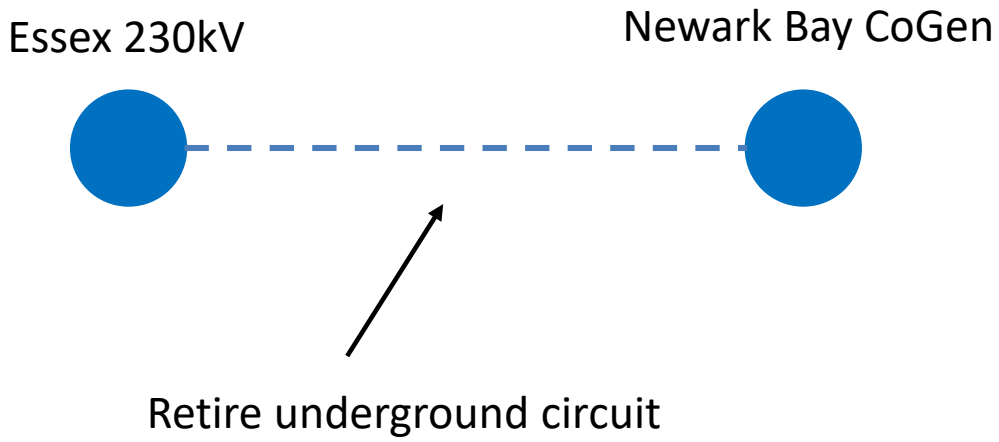
PSE&G Transmission Zone M-3 Process
Newark Bay Cogen

Need Number: PSEG-2023-0010

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 05/13/2024

Selected Solution:

- Retire the Essex Switch to Newark Bay Cogen circuit (J-2210) assets
  - Remove circuit assets (i.e., cable, fluid, and station equipment)
  - Abandon pipe/conduit and manhole system



Estimated Cost: $2M

Projected In-Service: October 2024

Supplemental Project ID: s3277.1

Project Status: Engineering and Planning

PSE&G Transmission Zone M-3 Process
Port Elizabeth Area

Need Number: PSEG-2024-0001

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 6/21/2024

Previously Presented:
- Needs Meeting: 2/15/2024
- Solutions Meeting: 4/18/2024

Supplemental Project Driver:
- Station Condition/Likelihood of Failure
- Equipment Material Condition, Performance and Risk
- Customer Service

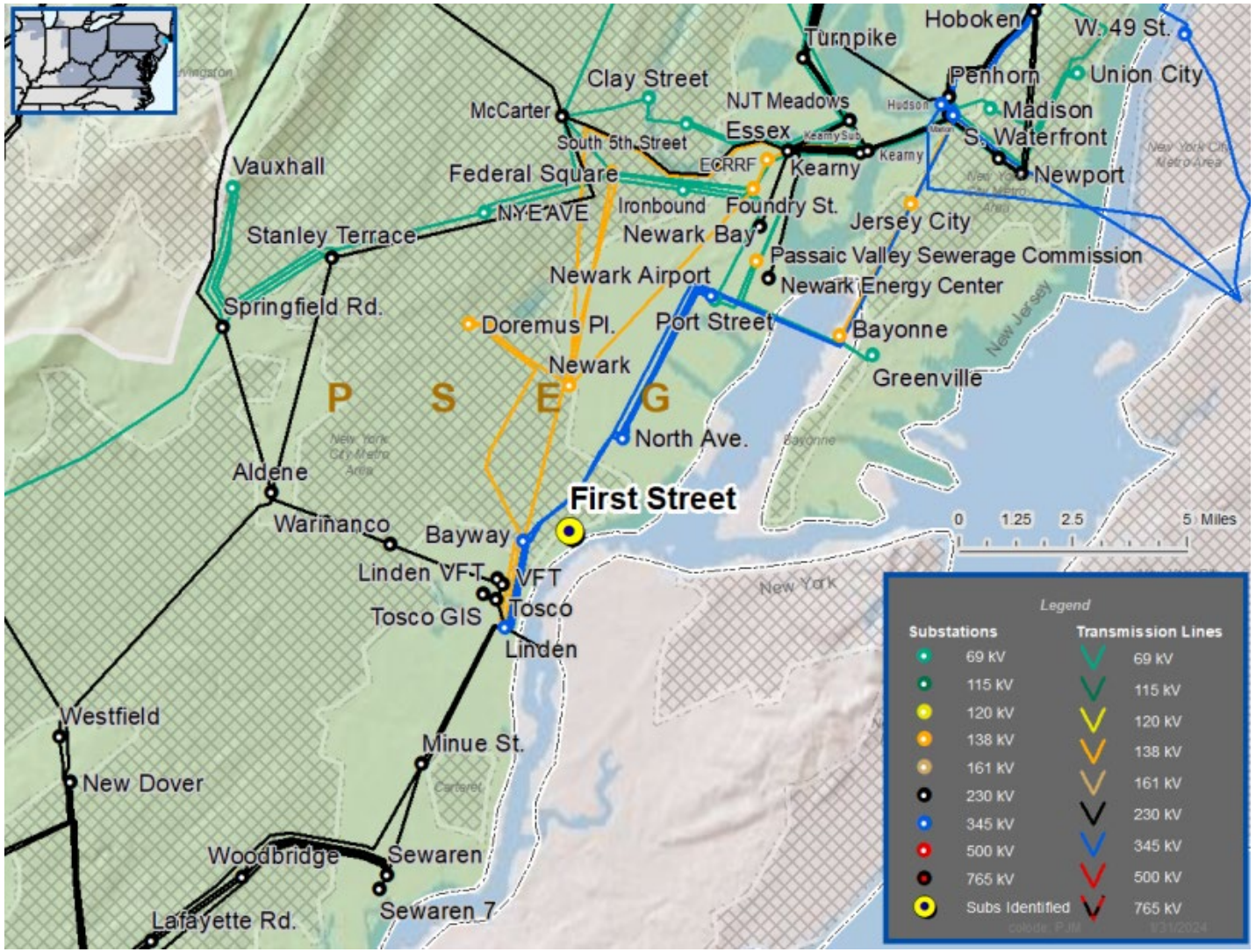
Specific Assumption Reference:

PSE&G 2024 Annual Assumptions

August 2017 26kV to 69kV PSE&G Presentation

- Equipment Reliability and Condition Assessment
- Asset Risk Model
- Localized Load Growth & Contingency Overloads

Problem Statement:
- First Street substation is a station in the Port Elizabeth Area with equipment and building condition issues.
  - Station equipment at First Street is in poor condition and needs to be addressed.
  - The First Street Substation building is over 90 years old, is in poor condition, and is not in compliance with today's NJ UCC requirements.
  - First Street serves roughly 6,600 customers and 18.5 MVA of load.
- PSE&G has received 9 service requests with a projected load of 8.0MW for the Port of Newark/Elizabeth area. Additional capacity is needed. Existing substations in the area cannot meet current and anticipated demand.



Model: 2022 Series 2027 Summer RTEP 50/50

PSE&G Transmission Zone M-3 Process
Port Elizabeth Area

Need Number: PSEG-2024-0001

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 6/21/2024

Proposed Solution:

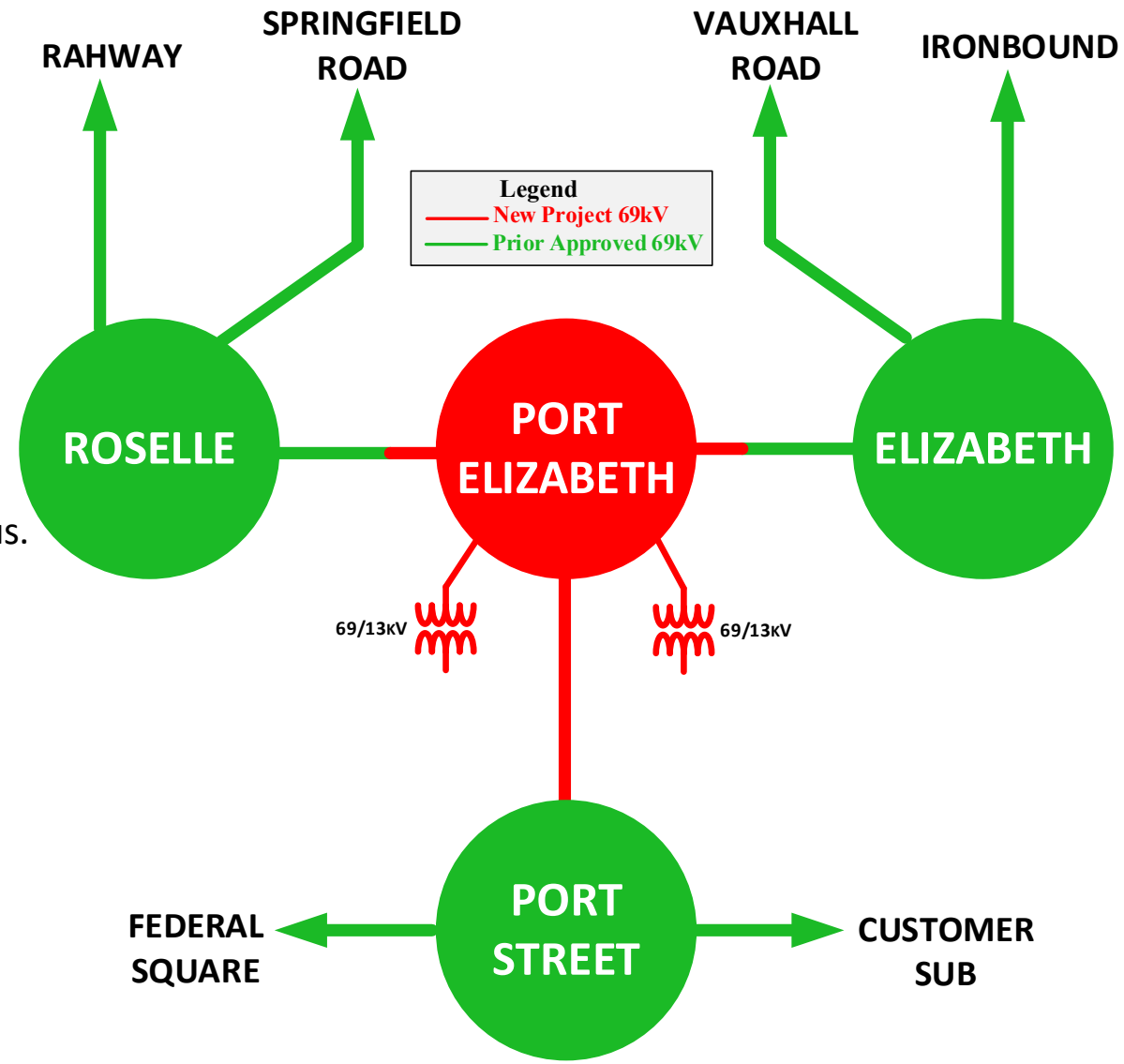
- Construct new 69-13kV substation at PSEG owned property in Elizabeth NJ.
  - Install two (2) 69/13kV transformers.
  - Cut and loop Roselle – Elizabeth 69kV line into the new 69kV bus.
  - Build new 69kV circuit to Port Street.

Estimated Cost: $222.7M

Projected In-Service: 06/2029

Supplemental Project ID: s3310

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Kenilworth Area

Need Number: PSEG-2024-0003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 09/27/2024

Previously Presented:

- Need Meeting 04/02/2024
- Solution Meeting 07/09/2024

Supplemental Project Driver:

- Customer Service

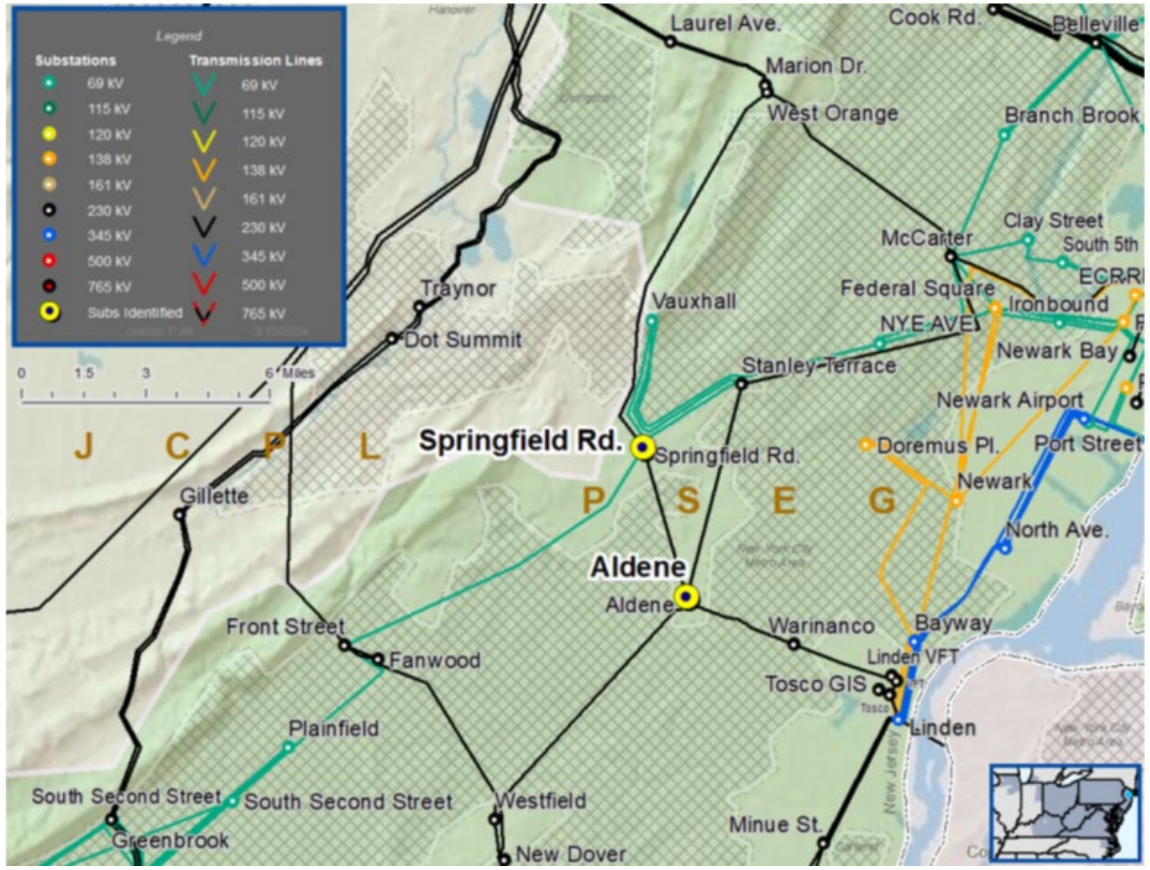
Specific Assumption Reference:

PSE&G 2024 Annual Assumptions

- Localized Load Growth & Contingency Overloads

Problem Statement:

- Springfield Road and Aldene Substations are stations in the Union Township and Cranford Township area with no additional station capacity.
  - Springfield Rd serves about 15,500 customers with a station load of 75.8MVA in 2022. The actual station capacity is 59.4MVA. Projected contingency overload is 127.5%.
  - Aldene serves about 22,700 customers with a station load of 81.3MVA in 2022. The actual station capacity is 59.6MVA. Projected contingency overload is 136.4%.



Model: 2022 Series 2027 Summer RTEP 50/50

PSE&G Transmission Zone M-3 Process
Kenilworth Area

Need Number: PSEG-2024-0003

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 09/27/2024

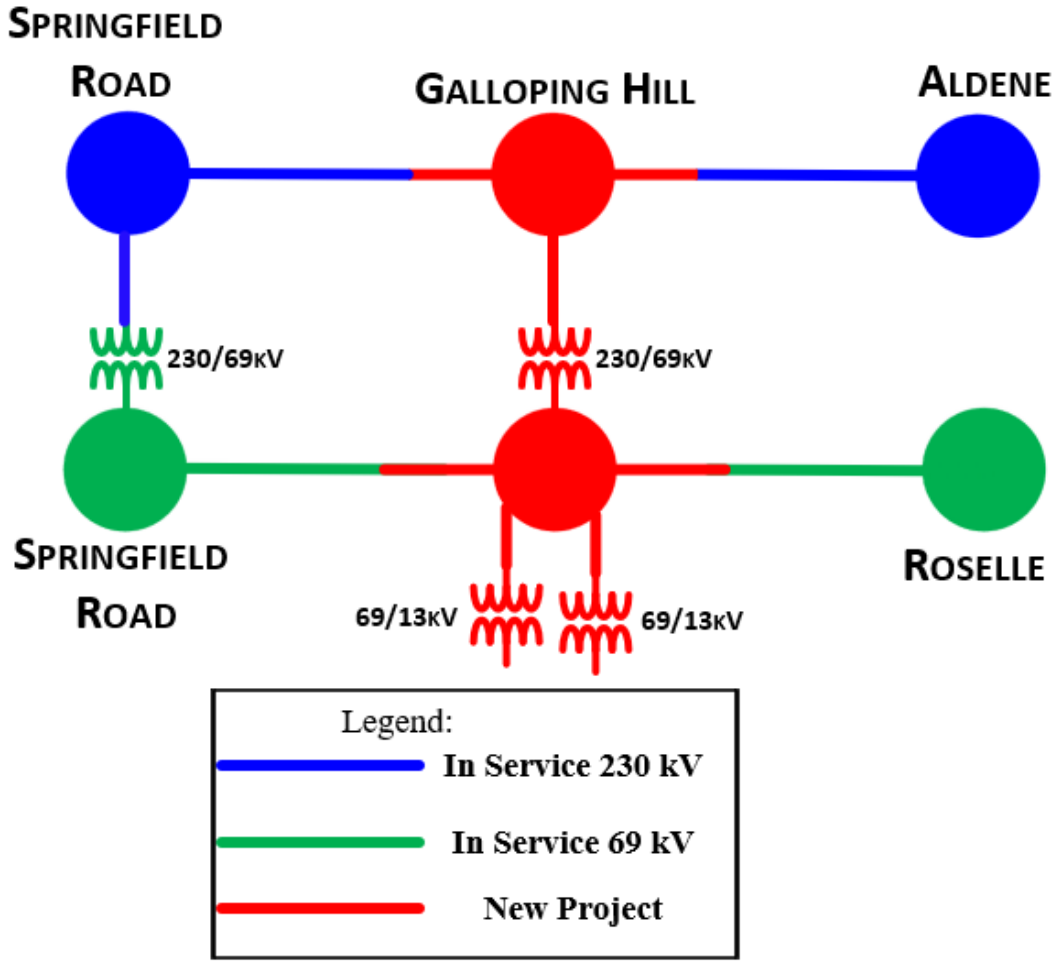
Proposed Solution:

- Construct a 230-69-13kV Substation at PSEG owned property in the Kenilworth area.
  - Meets project drivers for present needs and provides sufficient capacity to meet future system needs.
  - Property is located near a 230kV line that will serve as third source for the new 69/13kV station and provides margin for the anticipated load growth.
  - Cut and loop Springfield Rd. – Aldene 230kV circuit into new 230/69kV station.
  - Install one (1) 230/69kV transformer.
  - Construct a 69/13kV substation. Cut and loop Springfield Rd. – Roselle 69kV circuit into the new substation.
  - Install two (2) 69/13kV transformers.
  - **Estimated Total Cost: $169.0M**

Projected In-Service: 12/2029

Supplemental Project ID: s3439

Project Status: Engineering and Planning



PSE&G Transmission Zone M-3 Process
Newark Bay Area

Need Number: PSEG-2023-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 11/08/2024

Previously Presented:

- Need Meeting 05/18/2023
- Solutions Meeting 07/20/2023

Supplemental Project Driver:

- Equipment Material Condition, Performance and Risk

Specific Assumption Reference:

PSE&G 2023 Annual Assumptions

- Equipment Criticality, Consequence of Failure

Problem Statement:

- The cable connecting Newark and Bayonne 69kV networks is a high pressure fluid-filled circuit and is an environmental risk. The high pressure fluid-filled line was constructed in 1963. The line length totals to 2.3 miles with approximately 4800 feet underwater in the Newark Bay.

- The circuit contains over 23,000 gallons of dielectric fluid. There is a potential risk of an un-controlled leak of up to 56% of that fluid into Newark Bay.

Model: 2022 Series 2027 Summer RTEP 50/50

PSE&G Transmission Zone M-3 Process
Newark Bay Area

Need Number: PSEG-2023-0005

Process Stage: Submission of Supplemental Project for inclusion in the Local Plan 11/08/2024

Selected Solution:

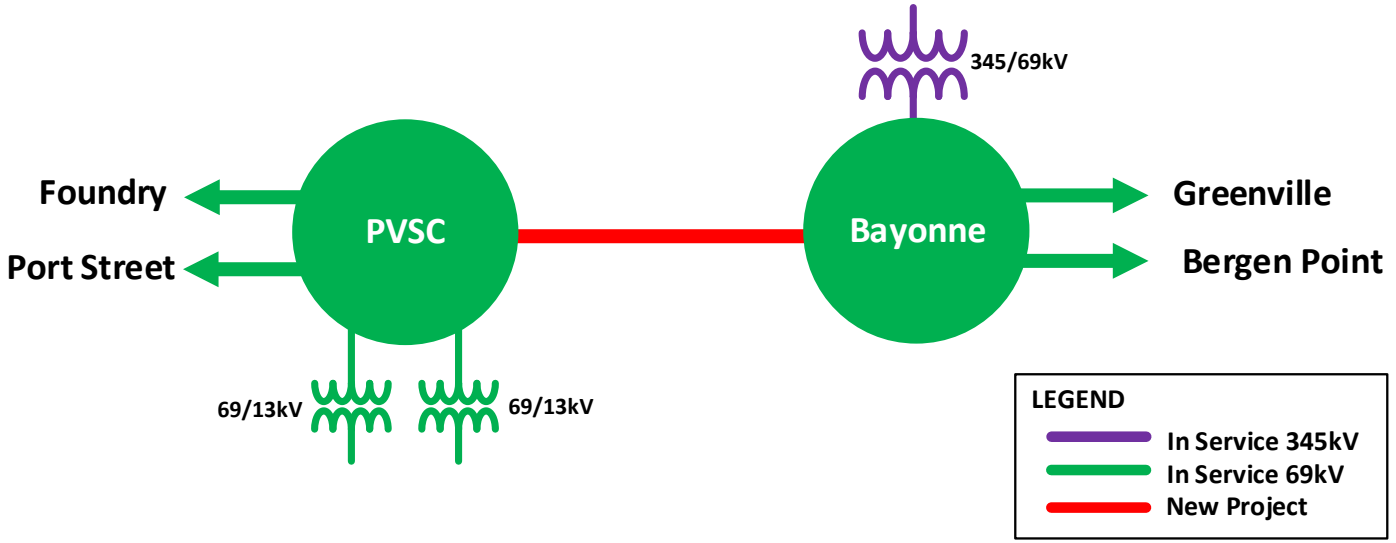
- Replace the High Pressure Fluid Filled (HPFF) cable with Extruded Pipe (EP) cable.
  - Replace 2.3 miles of HPFF cable with EP cable.
  - Re-use the existing pipe and route for the cable replacement.
  - Modify terminal equipment at PVSC and Bayonne stations to accommodate the EP cables
  - At Bayonne station, de-commission and remove the oil pumping equipment including pumping plant, tank, controls, and piping associated with the cable.

Estimated Cost: $25.6M

Projected In-Service: 12/2025

Supplemental Project ID: s3002

Project Status: Engineering and Planning



Revision History

2/7/2024 – V1 – s3007, s3008, s3009, s3010

2/26/2024 – V2 – s3090

3/15/2024 – V3 – s3184.1

5/13/2024 – V4 –s3276.1, s3277.1

6/24/2024 – V5 – s3310

9/27/2024 – V6 – s3439.1