Rogers Road to Clubhouse 230kV

New Transmission Line

April 1, 2016

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Note: Supporting files (PSS/E idev, Case, and Contingency Files) were submitted electronically on March 17, 2016.

1. Executive Summary

- The proposing entity is Public Service Electric & Gas (PSE&G).
- This proposal is submitted in response to PJM's 2016 Window 1.
- The violation was identified in the generation deliverability analysis.
- No additional violations are caused by the solution presented in this proposal. There are no nearby violations not addressed by this proposal.
- The proposed project is located within the Dominion zone.
- PSE&G is seeking Designated Entity Status to construct, own, operate, and maintain the proposed project.
- The following proposes a solution to the thermal overload violation including Flowgate 102.
- This project should be considered only as a whole.
- The proposed project cost is approximately base (without Risk & Contingency).
- The project duration is approximately 4.5 years.
- In addition to direct benefits above, the Rogers Road to Clubhouse 230kV new transmission line provides an additional outlet for area generation.

2. Company Evaluation

2.1. Contact Information

2.1.2. Secondary Contact

2.1.3. Headquarters

80 Park Plaza
Newark, New Jersey 07102
(973) 430-7000

2.2. Pre-Qualification

2.3. Company Information

Mickleton-Gloucester-Camden Project

Susquehanna Roseland Project

Burlington-Camden Project

North Central Reliability Project

3. Constructability Information

3.1. Scope of Project

Build a new 230kV line from the planned 500kV Rogers Road station to the existing 230kV Clubhouse station.

3.2. Cross-Border Issues

The following proposal is not a solution to Cross-Border issues.

3.3. Proposal Elements

3.3.1. General Description

Build a new 230kV line from the planned 500kV Rogers Road station to the existing 230kV Clubhouse station.

3.3.2. Geographic Description

3.3.3. Route Description

3.3.3.1. Environmental Impacts

All applicable environmental studies and permits will be filed and procured as part of this project.

3.3.3.2. Right-of-way and Land Acquisition Plan and Approach

Land acquisition is anticipated for this project.

3.3.3.3. Permitting Plan and Approach

3.3.3.4. Potential Public Opposition

3.3.4. Physical Characteristics

- Line and shield conductor type and size:
- Overhead or underground/submarine: Overhead
- Single or double circuit towers: Single Circuit

3.3.5. Map and Supporting Diagram

3.3.6. Interconnection Location

3.3.7. Outage Requirements

Outages will be required at the existing Rogers Road and Clubhouse stations. PSE&G will coordinate with the incumbent Transmission Owner to determine the length and timing of the outages.

3.3.8. Cost

3.3.9. Construction Responsibility

The new 230kV transmission line from the existing Rogers Road station to the existing Clubhouse station will be constructed by PSE&G. Modifications to the existing Rogers Road station and the existing Clubhouse station are assumed to be constructed by the incumbent Transmission Owner.
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4. Analytical Assessment

4.1. Analysis

The output of the analysis showing the solution to identified issue was submitted on March 17, 2016 and is provided below in Table 4: Rogers Road to Clubhouse 230kV Transmission Line Results.

FG #	Fr Bus	Name	To Bus	Name	CKT	kVs	FN AC %	Cont Label	Cont Type	FN AC|DC	Conductor Rating (MVA)
102	314940	8ROGERS RD	314902	8CARSON	1	500/500	102.91	'LN 511'	single	AC	Same as Case Rating

4.2. Equipment Parameters and Assumptions

- Nominal voltage rating: 500/230kV
- Line MVA normal and emergency rating: 550 MVA/550 MVA
- Grounding design for underground or submarine circuits: Not applicable

- Equipment ratings: 3000A
- Transformer MVA normal and emergency rating: 330/440/550 MVA
- Total mileage:
- Reactive Devices: Not applicable
- Synchronous Machines: Not applicable
- Line Impedances:

Rogers Road to Clubhouse 230kV Line			
Type	R_1 (pu)	X_1 (pu)	B_1 (pu)
Brunswick-Wake to Clubhouse 230kV line	0.000	0.006	0.010
500/230kV transformer	0.00022	0.01462	

Table 5: Rogers Road to Clubhouse Impedances

4.3. PSS/E idev Files
PSS/E idev files were submitted electronically on March 17, 2016.

4.4. Supporting Information
A thermal overload in Dominion's territory was identified in the 2016 RTEP's Generation Deliverability study. The thermal overload on the Rogers Road to Carson 500kV line occurs with an outage of the nearby Rawlings to Carson 500kV line. To alleviate the overload and improve system reliability, a new 230kV line is proposed.

The project will use the Rogers Road 500kV station to interconnect 500-230kV transformer. From the 230kV side of the transformer, there will be a new 230kV circuit to Clubhouse 230kV station. A new circuit breaker will be added to Clubhouse 230kV.

PJM identified a thermal overload of 105% from a single contingency in the generation deliverability analysis.

4.5. Proposal Template Spreadsheet
The final RTEP Proposal Template spreadsheet (in Excel format) is provided electronically as a separate file.

4.6. Market Efficiency
Section is not applicable to this proposal.

5. Cost

5.1. Cost Estimate

5.1.1. Total Cost

5.1.2. Yearly Cash Flow

5.1.3. Escalation Rates

5.2. Detailed Breakdown of Cost

5.2.1. Planned Return on Equity

5.2.2. Estimated Monthly AFUDC

5.2.3. Annual O&M Cost

5.3. Cost Commitment

PSE&G is providing a good faith, educated cost estimate for this project. Based on PSE&G's current assessment of the risks associated with constructing this project, PSE&G will not be submitting an accompanying cost containment mechanism.

6. Schedule

7. Operations/Maintenance

7.1.2. Intentions for Control Center

PSE&G may negotiate agreements to support Control Center operations.

7.1.3. Maintenance Contracts

PSE&G may negotiate agreements to support maintenance.

8. Assumptions