



Green Acres to Jasper 230kV  
New Transmission Line and New Stations  
April 1, 2016

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

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### 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            million base (without Risk & Contingency).
- The project duration is approximately 4.5 years.

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## 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

Public Service Electric & Gas (PSE&G) is pleased to provide this proposal to PJM in response to the 2016 RTEP Proposal Window 1. PSE&G is seeking Designated Entity Status to construct, own, operate, and maintain the proposed project and is committed to executing the Consolidated Transmission Owners Agreement.

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# New Transmission Line and New Stations

Green Acres to Jasper 230kV



Mickleton-Gloucester-Camden Project



Susquehanna Roseland Project



Burlington-Camden Project



North Central Reliability Project

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### 3. Constructability Information

#### 3.1. Scope of Project

Build a new 230kV line from the new 500/230kV Green Acres station to the new 230kV Jasper 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 new 500/230kV Green Acres station to the new 230kV Jasper station.

##### 3.3.2. Geographic Description

##### 3.3.3. Route Description

PSE&G strives to plan our transmission right-of-way while being aware of environmental

##### 3.3.3.1. Environmental Impacts

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

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

Land acquisition is anticipated for this project.

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### **3.3.3.3. Permitting Plan and Approach**

### **3.3.3.4. Potential Public Opposition**

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### 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



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### 3.3.6. Interconnection Location

### 3.3.7. Outage Requirements

Outages will be required on the planned Rogers Road to Wake 500kV circuit (currently the Brunswick to Wake 500kV) and the existing Clubhouse to Lakeview 230kV circuit. PSE&G will coordinate with the incumbent Transmission Owner to determine the length and timing of the outages.

### 3.3.8. Cost

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#### 3.3.9. Construction Responsibility

The new 500/230kV Green Acres station, the new 230kV Jasper station, and the new 230kV transmission line from the new Green Acres 500/230kV station to new 230kV Jasper station will be constructed by PSE&G. The interception of the planned Rogers Road to Wake 500kV (currently the Brunswick to Wake 500kV) and Clubhouse to Lakeview 230kV circuits will be constructed by the incumbent Transmission Owner.

## 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: Green Acres to Jasper 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: 883 MVA/911 MVA
- Total mileage:
- Reactive Devices: Not applicable

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- Synchronous Machines: Not applicable
- Line Impedances:

Green Acres to Jasper 230kV Line			
Type	R <sub>1</sub> (pu)	X <sub>1</sub> (pu)	B <sub>1</sub> (pu)
Green Acres to Jasper 230kV line	0.00047	0.00644	0.01071
500/230kV transformer	0.00022	0.01462	

Table 5: Green Acres to Jasper 230kV Impedances

### 4.3. PSS/E iddev Files

PSS/E iddev files were submitted electronically on March 17, 2016.

### 4.4. Supporting Information

A thermal overload in Dominion's territory was identified in the 2015 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, two new stations and a 230kV line are being proposed.

The project will place a 500kV ring bus, called Green Acres, and split the Rogers Road to Wake 500kV circuit into two (2) circuits. In addition, a 500-230kV transformer will be installed at the ring bus. From there will be a new 230kV circuit to a 230kV ring bus on the Clubhouse to Lakeview 230kV line, called Jasper.

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.

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### 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

The detailed breakdown of cost is presented in Table 7: PSE&G's Detailed Breakdown of Cost.

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### 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**

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### 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.

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