



Clifty Creek to East Bend 345kV
New Transmission Line
August 15, 2016

The enclosed information is proprietary to PSE&G-Vectren and is provided solely for your use.
It should not be copied, reproduced, or shared with others without PSE&G-Vectren's prior written consent.

Table of Contents

- 1. *Executive Summary*..... **4**
- 2. *Company Evaluation*..... **5**
 - 2.1. Contact Information 5
 - 2.1.1. Primary Contact 5
 - 2.1.2. Secondary Contact 5
 - 2.1.3. Headquarters 5
 - 2.2. Pre-Qualification 5
 - 2.3. Company Information 5
- 3. *Constructability Information*..... **14**
 - 3.1. Scope of Project 14
 - 3.2. Cross-Border Issues..... 14
 - 3.3. Proposal Elements 14
 - 3.3.1. General Description 14
 - 3.3.2. Geographic Description..... 14
 - 3.3.3. Route Description..... 14
 - 3.3.4. Physical Characteristics 19
 - 3.3.5. Map and Supporting Diagram 20
 - 3.3.6. Interconnection Location 22
 - 3.3.7. Outage Requirements..... 22
 - 3.3.8. Cost..... 22
 - 3.3.9. Construction Responsibility 23
- 4. *Analytical Assessment*..... **24**
 - 4.1. Analysis 24
 - 4.2. Equipment Parameters and Assumptions 25
 - 4.3. PSS/E IDEV Files 25
 - 4.4. Supporting Information 25
 - 4.5. Proposal Template Spreadsheet..... 25
 - 4.6. Market Efficiency..... 25
- 5. *Cost*..... **26**
 - 5.1. Cost Estimate 26
 - 5.1.1. Total Cost..... 26
 - 5.1.2. Yearly Cash Flow 26
 - 5.1.3. Escalation Rates 26
 - 5.2. Detailed Breakdown of Cost..... 26

New Transmission Line

Clifty Creek to East Bend 345kV

5.2.1. Planned Return on Equity.....	27
5.2.2. Estimated Monthly AFUDC.....	27
5.2.3. Annual O&M Cost.....	27
5.3. Cost Commitment	28
6. Schedule.....	29
7. Operations/Maintenance.....	31
7.1.1. Previous Experience.....	31
7.1.2. Intentions for Control Center.....	31
7.1.3. Maintenance Contracts	31
8. Assumptions.....	33
8.1. General.....	33
8.2. Permitting.....	33
8.3. Project Duration	33
8.4. Cost.....	33

Note: Supporting files (PSS/E IDEV, Case, and Contingency Files) were submitted electronically on July 29, 2016.

New Transmission Line

Clifty Creek to East Bend 345kV

1. Executive Summary

- The proposing entities are Public Service Electric and Gas Company (PSE&G) and Vectren Utility Holdings, Inc. (Vectren).
- This proposal is submitted in response to PJM's 2016 RTEP Proposal Window 2.
- 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 Duke Energy and Ohio Valley Electric Corporation (OVEC) zones.
- PSE&G-Vectren seeks Designated Entity Status to construct, own, operate, and maintain the proposed project.
- The proposed project solves the generator deliverability analysis violation for Flowgates 897 and 1137.
- This project should be considered only as a whole.
- The proposed project cost is approximately _____ (without Risk & Contingency).
- The project duration is approximately 4 years.
- In addition to providing a solution, the Clifty Creek to East Bend 345kV transmission line proposal will provide additional system capacity and also eliminates the loss of East Bend Generation for N-1-1 events.

New Transmission Line

Clifty Creek to East Bend 345kV

2. Company Evaluation

2.1. Contact Information

2.1.1. Primary Contact

2.1.2. Secondary Contact

2.1.3. Headquarters

PSE&G

80 Park Plaza

Newark, New Jersey 07102

(973) 430-7000

2.2. Pre-Qualification

2.3. Company Information

New Transmission Line

Clifty Creek to East Bend 345kV

New Transmission Line

Clifty Creek to East Bend 345kV

3. Constructability Information

3.1. Scope of Project

The proposal includes the installation of an approximately 34-mile 345kV overhead transmission line from the existing Clifty Creek station to the existing East Bend 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

The proposal includes the installation of an approximately 34-mile 345kV overhead transmission line from the existing Clifty Creek station to the existing East Bend station.

3.3.2. Geographic Description

3.3.3. Route Description

3.3.3.1. Environmental Impacts

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

New Transmission Line

Clifty Creek to East Bend 345kV

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

New Transmission Line

Clifty Creek to East Bend 345kV

3.3.6. Interconnection Location

3.3.7. Outage Requirements

Outages will be required for construction at the existing Clifty Creek and East Bend stations. PSE&G-Vectren will coordinate with the incumbent transmission owners to determine the length and timing of the outages.

3.3.8. Cost

New Transmission Line

Clifty Creek to East Bend 345kV

3.3.9. Construction Responsibility

PSE&G-Vectren will construct the Clifty Creek to East Bend 345kV transmission line. Modifications to the existing Clifty Creek and East Bend stations are assumed to be constructed by the incumbent transmission owners. PSE&G-Vectren seeks Designated Entity Status to construct, own, operate, and maintain the proposed project.

New Transmission Line

Clifty Creek to East Bend 345kV

4. Analytical Assessment

4.1. Analysis

4.2. Equipment Parameters and Assumptions

4.3. PSS/E IDEV Files

PSS/E IDEV files were submitted electronically on July 29, 2016.

4.4. Supporting Information

The Clifty Creek to Miami Fort 138kV circuit was overloaded in the Generator Deliverability tests. The Clifty Creek to Miami Fort 138kV was overloaded for both a stuck breaker at Jefferson 765kV and a double circuit tower outage of the two Clifty Creek to Dearborn 345kV circuits.

The proposed solution for these thermal overloads consists of building a 345kV circuit from Clifty Creek to East Bend. This project will alleviate the thermal overload associated with the contingencies 'AEP_P7-1_#632' and 'AEP_P4_#1760_05JEFRSO 765'.

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

This 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

5.2.3. Annual O&M Cost

5.3. Cost Commitment

6. Schedule

7. Operations/Maintenance

7.1.1. Previous Experience

7.1.2. Intentions for Control Center

7.1.3. Maintenance Contracts

8. Assumptions

