

**TALLMANSVILLE PROJECT (QUEUE #65)**  
**INCREMENTAL INCREASE**  
**FEASIBILITY STUDY ANALYSIS**

**DESCRIPTION OF PROJECT**

The developer wishes to increase the output of one steam turbine generator 100 MW for a maximum total generating capability of 550 MW at their Tallmansville site in Upshur County, West Virginia near the village of Sand Run. The project will require a 138 kV interconnection at Tallmansville Substation. The unit will generate at 18 kV using coal for fuel. The customer wishes to interconnect into the 138 kV and plans to have the generator in service and producing power by July 1, 2005.

**ANALYSIS RESULTS**

**Normal (Base) System Conditions**

With the reinforcements in place from the Queue #43 study, there are no base case overloads.

**Single Contingency Conditions**

With the reinforcements in place from the Queue #43 study, there are no single contingency overloads.

**Multiple Contingency Conditions**

Overload on the Tallmansville-Buckhannon 138 kV line.

Overload on the Loughs Lane-William 138 kV line.

Overload on the Loughs Lane-Pickens 138 kV line.

**Short Circuit Conditions**

Three 138 kV breakers at Glen Falls Substation and six 138 kV breakers at Pruntytown Substation were identified as being over their maximum interrupting rating.

## **SYSTEM REINFORCEMENTS**

### **Required Direct Interconnection Facilities**

Interconnect at Tallmansville Substation:

- ◆ Construct a five breaker, 138 kV ring-bus (future breaker-and-a-half) switching station
- ◆ Install 138 kV metering equipment and associated facilities

Estimated cost to install facilities at Tallmansville Substation = \$3,300,000

### **Required System Reinforcements**

Rebuild the Buckhannon-Tallmansville 138 kV line:

- ◆ Construct a double circuit steel pole 138 kV line from Buckhannon to Tallmansville with 1272 ACSR.
- ◆ Install a 138 kV breaker at Buckhannon Substation.

Estimated cost to rebuild 7.59 miles of 138 kV line = \$4,940,000

Rebuild the Loughs Lane-Tallmansville 138 kV line:

- ◆ Construct a double circuit steel pole 138 kV line from Loughs Lane to Tallmansville with 954 ACSR.
- ◆ Install a 138 kV breaker at Loughs Lane Substation.

Estimated cost to rebuild 13.79 miles of 138 kV line = \$7,380,000

Reconductor the Glen Falls-Buckhannon 138 kV line:

- ◆ Reconductor from National Carbon Tap to Buckhannon Substation with 954 ACSR.

Estimated cost to reconductor 18.81 miles of 138 kV line = \$3,000,000

Reconductor the Loughs Lane-William 138 kV line:

- ◆ Reconductor from Loughs Lane to William Substation with 954 ACSR.

Estimated cost to reconductor 33.33 miles of 138 kV line = \$5,450,000

Rebuild the Loughs Lane-Pickens 138 kV line:

- ◆ Replace 3-138 kV structures to reduce the sag constraint on this line

Estimated cost to replace 3-multiple wood pole structures = \$100,000

Review/change relaying schemes:

- ◆ Review and change relaying schemes on lines affected by the proposed reinforcements.
- ◆ Specify, design, and test relaying for NUG connection.

Estimated cost to review/change relaying schemes = \$80,000

Cost of removal

- ◆ Cost of removal for the various parts of the project

Estimated cost of removal = \$585,000

### **Required Short Circuit Reinforcements**

Replace 3-138 kV breakers at Glen Falls Substation:

- ◆ Replace the Trissler and McAlpin 138 kV line breakers and the No. 4 Transformer 138 kV bank breaker at Glen Falls Substation

Estimated cost to replace 3-138 kV breakers = \$300,000

Replace 6-138 kV breakers at Pruntytown Substation:

- ◆ Replace the P1, P2, P3, P4, P5, and P6 138 kV line breakers

Estimated cost to replace 6-138 kV breakers = \$600,000

### **Summary**

Total estimated cost to interconnect the proposed generation facilities = \$25,735,000.