WHITE OAK PROJECT (QUEUE #38)
FEASIBILITY STUDY ANALYSIS

DESCRIPTION OF PROJECT

The developer wishes to interconnect four 170 MW combustion turbine generators (CT) and four 130 MW steam turbine generators (ST) for a maximum total generating capability of 1200 MW (summer) at their site in Greene County, Pennsylvania near the town of Waynesburg. The project will require a new 500 kV interconnection station (White Oak), which will be located about 51 miles from Harrison Substation and about 27 miles from Wylie Ridge Substation on the Harrison – Wylie Ridge 500 kV line, at the point where this line crosses the Kammer – Mt. Morris Jct. 502 500 kV line. The units are assumed to generate at 18 kV, using natural gas for fuel. The customer wishes to interconnect into the 500 kV by looping both 500 kV lines into the station, and plans to have the generators in service and producing power by the second quarter of 2004.

ANALYSIS RESULTS

Normal (Base) System Conditions

No overloads or other system deficiencies were identified as being caused by this facility under normal system conditions.

Single Contingency Conditions

No overloads or other system deficiencies were identified as being caused by single contingencies.

Multiple Contingency Conditions

No overloads or other system deficiencies were identified as being caused by credible multiple contingencies.

Short Circuit Conditions

No breakers were identified as exceeding their maximum interrupting capacity. The through-fault current on the Kammer 765-500 kV transformer exceeded the bank's rating. The through-fault current on the Wylie Ridge #3 345-138 kV transformer exceeded the bank's rating.

SYSTEM REINFORCEMENTS

Required Direct Interconnection Facilities

Construct substation facilities for White Oak Substation:

- Install nine 500 kV breakers and associated facilities.
- Install 500 kV metering equipment and associated facilities.

Estimated cost to construct substation = $15,300,000

Loop Harrison – Wylie Ridge 500 kV line and the Kammer – Mt. Morris Jct. 502 500 kV line into substation

- Construct two (2) 100 foot spans of double circuit 500 kV line.

Estimated cost to construct two 500 kV double circuit lines = $2,191,100

Protective relaying at customer site and other AP stations

- Protective relaying at customer site = $60,000.
- Protective relaying at other AP stations = $5,000.

Estimated cost for protective relaying = $65,000

Required System Reinforcements

None identified.

Required Short Circuit Reinforcements

Replace Kammer 765-500 kV and Wylie Ridge #3 345-138 kV transformers.

- Install 1500 MVA, 765-500 kV and 336 MVA, 345-138 kV transformers.

Estimated cost to replace the transformers = $18,500,000.

Summary

Total estimated interconnection costs = $17,556,100

Total estimated upgrade costs = $18,500,000

Total estimated cost to interconnect the proposed generation facilities = $36,056,100