EASTALCO PROJECT (QUEUE #62)
FEASIBILITY STUDY ANALYSIS

DESCRIPTION OF PROJECT

The developer wishes to interconnect a generating plant in southern Frederick County, Maryland, adjacent to the Eastalco Substation at the Eastalco aluminum refining facility near the town of Buckeystown. The generating plant will consist of three 170 MW combustion turbine (CT) generators, and one 400 MW steam turbine (ST), for a maximum total generating capability of 910 MW. The units will generate at 18.0 kV using natural gas for fuel. The developer plans to have the generators in service and producing power by June 30, 2004.

Two other developers holding the higher positions of #25 and #39 in the AP Generation Interconnection Queue have made requests for interconnections at Doubs Substation. The determination of the required facilities and reinforcements in this analysis was performed assuming that these projects and respective reinforcements were also present.

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

- Overloads on the Doubs-Aqueduct and the Aqueduct-Station H 230 kV lines.

- Overloads on the Doubs-Station H 230 kV lines.

Multiple Contingency Conditions

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

Short Circuit Conditions

Three AP owned 230 kV circuit breakers at Eastalco Substation were identified as exceeding their maximum interrupting capacity. In addition to the AP breaker replacements, it is suspected that additional replacements might be necessary for units owned by Eastalco. Allegheny Power breakers that were assumed to be replaced because of being overstressed in association with the interconnection of AP Generation Interconnection Projects #25 and #39 are not included here.

Note: A third 230 kV line from Doubs Substation to PEPCO's Station H Substation was assumed in service for this analysis as part of the reinforcements required for projects #25 and #39 in the AP Generation Interconnection Queue.

SYSTEM REINFORCEMENTS

Required Direct Interconnection Facilities

Interconnect at Eastalco Substation:

- Install terminal facilities for two new 230 kV lines, including two 230 kV circuit breakers.

- Install 230 kV metering equipment and associated facilities.

Estimated cost to install facilities at Eastalco Substation = $1,150,000.

Relay protection scheme at NUG substation:

- Design, test and calibrate relaying at NUG substation.

Estimated cost for relay protection at NUG substation = $80,000.

Required System Reinforcements

Construct new 230 kV line from Doubs Substation to Eastalco Substation:

- Construct new 3.2 mile, 230 kV line from Doubs Substation to Eastalco Substation, and relocate existing Doubs – Eastalco line section 206 as necessary.

Estimated cost to construct new 230 kV line = $2,800,000

Construct facilities at Doubs Substation:

- Extend 230 kV bus and install new cross bus section with two 230 kV circuit breakers.

- Install new metering on all three 230 kV lines to Eastalco Substation.

Estimated cost for facilities at Doubs Substation = $2,405,000.

Install 230 kV breaker terminal at Doubs Switching Station:

- Install a 230 kV circuit breaker terminal for the fourth line to PEPCO's Station H Substation.

Estimated cost to install 230 kV breaker terminal = $310,000.

Construct fourth Doubs – Station H 230 kV line:

- Construct new 8.0 mile, 230 kV line from Doubs Substation to PEPCO's Station H Substation using 1272 ACSR.

Estimated cost to construct 230 kV line = $13,005,000.

Add terminal at Station H Substation for fourth line to Doubs Substation:

- Add additional breaker terminal at PEPCO's Station H Substation for the new 230 kV line to Doubs Substation.

- Install inter-company metering for new line.

Estimated cost to install breaker terminal = $465,000.

Additional protective relaying changes at other AP Substations:

- Make protective relaying changes at other AP Substations due to new NUG generating facilities.

Estimated cost for additional protective relaying changes = $25,000.

Required Short Circuit Reinforcements

- Replace three-overstressed AP owned 230 kV breakers at Eastalco Substation.

Estimated cost to replace overstressed breakers = $630,000.

Summary

Total estimated cost to interconnect the proposed generation facilities = $20,870,000.