



NON-CONFIDENTIAL VERSION

**Independent Analysis of Generation Technologies
for a 600 MW Coal-Fired Power Plant in Minnesota**

Addendum – Economic Analysis of SCPC Plant

Prepared for Excelsior Energy

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Revision 0

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A1. Introduction to Addendum

Fluor has prepared an independent report on coal power generation technologies (the Report) that compares the plant cost and performance of the 600 MW Mesaba Energy Project Unit I with a hypothetical 600 MW grassroots Supercritical Pulverized Coal (SCPC) plant located near Monticello, Minnesota. The report provides an overview of plant cost and performance data for the two technologies.

This addendum presents the results of an economic analysis of the SCPC plant based on investor-owned utility (IOU) ownership.

A2. Economic Analysis Assumptions

The following estimates and allowances were used as a basis for the economic analysis.

Table A1: Economic Analysis Assumptions

EPC Duration	4 years
First Year of Commercial Operation	2011
Plant Operating Life	25 years
Escalation from Q3 2005	2.5%
Average Annual Availability	88%
Delivered Fuel Cost (as received basis)*	[TRADE SECRET DATA BEGINS
Raw Water Cost*	
Carbon Dioxide Credit*	
Infrastructure and Facilities Costs	
Owner's Construction Costs	
Owner's Contingency	TRADE SECRET DATA ENDS]
Financing	
Debt to Total Capital	43%
Preferred Equity to Total Capital	8%

Interest Rate	7.625%
Debt Term	25 years
Debt Placement Fees	1%
Cost of Preferred Equity	5.5%
Cost of Common Equity	11.5%
Income Tax Rate	41.5%
Tax Depreciation	
Plant Costs	20-year MACRS
Financing Costs	SL for Term
Emission Allowance Costs	
SO ₂	[TRADE SECRET DATA BEGINS
NO _x **	
Mercury**	
Property Tax Rate	
Annual Insurance Cost (millions)*	
Working Capital	TRADE SECRET DATA ENDS]

* 3rd quarter 2005 basis (escalated forward in model)

** first 5 years of operation only

A3. Economic Analysis Methodology

The total capital investment is built-up from the EPC cost estimate presented in the Report by adding allowances for event-driven cost contingency and contractor's risk fee, infrastructure and offsites costs, and owner's costs and contingencies. A typical construction drawdown schedule is used to compute escalation (from 3rd quarter 2005), interest during construction, and allowances for equity funds during construction.

Average annual fuel costs are calculated based on the heat rate presented in the Report and the availabilities and fuel cost given in Table A1. No credit is applied for fly ash and gypsum as it assumed that these byproducts will be landfilled. An allowance for the cost of emission credits is also added to the fuel cost.

Allowances for property tax and insurance are added to the estimated direct O&M costs summarized in the Report.

Capital charges are computed for each year of operation so as to generate the required yields on debt, preferred equity, and common equity on an after tax basis.

The total annual revenue requirements for each year are computed as the sum of average annual fuel cost, plus total O&M cost, plus capital charges.

PVRR is calculated by discounting the total revenue required for each year back to January 1, 2005 using the utility's after-tax weighted cost of capital. The PVRR is the sum of the discounted revenues for the 25-year operating life. The reference date for the PVRR calculation was selected by Excelsior.

The COE for each year is the ratio of revenue required to average annual net power output. The individual COE computed for each year of operation can be compounded into a single representative value by levelizing over the operating life of the project, which yields a levelized cost in nominal dollars. A nominal levelized cost of electricity includes the effects of future inflation assumptions input to the model. An alternative approach is to compute the COE on a constant or real dollar basis. The "real COE" is computed by de-escalating each value to current dollars (3rd quarter 2005 in this study) and then taking a weighted average. The results presented in this report are based on the current or real dollar approach. This method is an indication of the COE at today's cost of doing business.

A4. Economic Analysis Results

The following figures present the results of the analysis. Modeling for the IGCC case is outside of the scope of this report.

Figure A1: Estimated Capital Cost for 600 MW SCPC Plant

[TRADE SECRET DATA BEGINS

TRADE SECRET DATA ENDS]

- * "Other Construction Costs" include event-driven cost contingency and contractor's risk fee, infrastructure and offsites costs, and owner's costs and contingencies

Figure A2: Estimated Annual Average COE for 600 MW SCPC Plant

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Figure A3: Estimated PVRR for 600 MW SCPC Plant

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TRADE SECRET DATA ENDS]

Figure A4: Estimated COE for 600 MW SCPC Plant

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