
September 21, 2006
Update of Key Input Assumptions

Traditional Generation Results

List of Scenario/Sensitivities
Demand forecast is 6,300 MW, or 18%, lower than 2005 CNF Forecast by 2025.
Annual energy requirement is 20,300 GWh, or 12%, lower than 2005 CNF Forecast by 2025.
Supply and Demand Forecast

- 300 MW of Firm Summer Capacity needed in MECS by 2008
- 9,700 MW of Firm Summer Capacity need in MECS by 2025

**MECS Resource Gap Analysis**

**Summer Peak Load and Resource Balance of Existing System**

- **Total MW**
  - Existing Summer Capacity
  - Capacity Shortage
  - 15% Reserve Requirement
  - Coincident Peak

* Excludes Upper Peninsula
Gas Forecast

Gas Price Forecast
Monthly Michigan Delivered Price

$/MBTU

- 2006 Forecast
- 2005 CNF Forecast
Coal Forecast: PRB

Prototype Coal Forecast
Michigan Delivered PRB Forecast

- 2006 Forecast
- 2005 CNF Forecast
Prototype Assumptions

A transmission interconnection fee of $77.56/kW, calculated based on 5% of the average coal construction cost, is added to all technologies.

A firm gas reservation charge of $20.18/kW and $5.12/kW is added to the fixed cost of the Combined Cycle and Combustion Turbine, respectively.

All other operational parameters remained the same, including unit capacity, heat rates, and emission rates.
Technology Screening Curves

Emissions Case 2006

Levelized $/kW - Year

Capacity Factor

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Traditional Generation Resources Scenario

Overview

- Traditional Generation Resources Expansion Plan
- Plan Specifics
  - No Specialties in Traditional Generation Resources Expansion Plan
- Alternatives Considered
  - 160 MW CT – all regions
  - 500 MW CC – all regions
  - 500 MW PC – all regions
  - 150 MW CFB – UP only
- Alternatives Screened Out
  - IGCC
  - IGCC – PRB coal
  - Nuclear
  - CFB – except UP
Traditional Generation Resources Scenario Expansion Plan Results

2006 to 2015
- Capacity Additions
  - CT: 1,440 MW
  - CC: 0 MW
  - PC: 2,000 MW
  - Nuclear: 0 MW
  - IGCC: 0 MW
  - Other: 0 MW
- Total: 3,440 MW
- Demand Growth: 1.17%
- Reserve Margin: 15.26%
- Plan Costs
  - NPV Utility Cost: $32,073.0 M
  - NPV Emissions: $3,385.6 M
  - NPV CO2: $0.00 M

2006 to 2025
- Capacity Additions
  - CT: 1,760 MW
  - CC: 500 MW
  - PC: 9,000 MW
  - Nuclear: 0 MW
  - IGCC: 0 MW
  - Other: 0 MW
- Total: 11,260 MW
- Demand Growth: 1.21%
- Reserve Margin: 15.52%
- Plan Costs
  - NPV Utility Cost: $56,716.9 M
  - NPV Emissions: $5,602.8 M
  - NPV CO2: $0.00 M
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Scenarios and Sensitivities

- Traditional Generation
  - Base Conditions
  - High Load
  - Low Load
  - Reduced Import
  - Expanded Transmission

- Emissions (Carbon)
  - Base Conditions
  - High Load
  - Low Load
  - Renewable w/ Conservation

- Full Renewable Generation
  - Base Conditions
  - High Load
  - Low Load
  - Reduced Import

- Energy and Demand Conservation
  - Base Conditions
  - High Load
  - Low Load
  - Reduced Import

- Conservation and Renewables
  - Base Conditions
  - High Load
  - Low Load
  - Reduced Import

- Combustion Turbines Only
  - Base Conditions
  - High Load
  - Low Load
  - Reduced Import