Document No. 15

Integrated Resource Plan

Generation Technology Reports

Generation Technology Assessment

Burns & Mc-Donnell, November 2004

PUBLIC VERSION

Corporate Planning Department

December 2005

NP

Generation Technology Reports
for
AmerenUE Integrated Resource Planning

Summary:

These reports summarize the various analyses and studies that were completed to provide generation technology inputs for the AmerenUE integrated resource planning process. The studies included assessments of various potential generation technologies to supply capacity for AmerenUE. The assessments consisted of both "screening level" and, in some cases, detailed evaluations of different generation technologies. Several of the evaluations included a comparison of technical features, as well as a comparison of costs, performance and emissions.

The eight reports, in chronological order, are:

1. **Venice Combined Cycle Study** – Black & Veatch, December 2002
2. **Strategic Siting Study** – Burns & McDonnell, September 2004
3. **Missouri Pumped Storage Project Concept Study** – Montgomery Watson Harza, September 2004
4. **Rush Island Unit 3 Feasibility Study** – Black & Veatch, October 2004
5. **Rush Island Unit 3 Conceptual Cost & Performance Study** – Sargent & Lundy, October 2004
6. **Generation Technology Assessment** – Burns & McDonnell, November 2004
7. **Nuclear Industry Overview & IRP Analysis Parameters** – Navigant Consulting, June 2005
8. **IGCC Technology Assessment Report** – Sargent & Lundy, September 2005

Report Number: 6
Deliverable: Generation Technology Assessment
Date Completed: November 2004
Author: Burns & McDonnell

Burns & McDonnell was engaged to perform an assessment of various potential generation technologies to supply capacity for AmerenUE. The assessment consisted of a "screening level" evaluation, which included a comparison of technical features, as well as a comparison of costs, performance and emissions of the following technologies:

COAL

- 500 and 750 MW Subcritical Pulverized Coal
- 500 and 750 MW Supercritical Pulverized Coal
- 500 and 750 MW Subcritical Atmospheric Fluidized Bed
- 275 and 550 MW Integrated Gasification Combined Cycle (IGCC)

NATURAL GAS

- GE 7EA, 7FA, and LM6000 Simple Cycle Gas Turbine
- GE 7FA 1x1 and 2x1 Combined Cycle Gas Turbine
- Reciprocating Engine
- Compressed Air Energy Storage

RENEWABLE

- 50 MW Biomass Stoker
- Municipal Landfill Gas
- Agricultural Methane Gas
- Wind
- Solar

NUCLEAR

- 500 MW Advanced Boiling Water Reactor
- 500 MW Advanced Pressurized Water Reactor

AmerenUE

Technology Assessment

November 2004

Project 37160

Burns & McDonnell
SINCE 1898

November 5, 2004

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Project 37160
AmerenUE Tech Assessment Report

Mr. Smith and Mr. Plocher:

Burns & McDonnell (B&McD) was retained by AmerenUE to provide a generation technology assessment that evaluates several alternatives available for base and peak load generation. Enclosed are four bound copies and one unbound copy of the final AmerenUE Technology Assessment Report that present this information. All of the comments received during the meeting in St. Louis on October 21 have been incorporated.

This concludes our scope of work for this portion of the project. If you have any questions regarding the report please call me at 816-822-4249. It is a pleasure to be of service to AmerenUE in this matter.

Sincerely,

Jeff Schwarz, P.E.
Development Engineering

cc: Project File
Jeff Greig
Rick Halil
Bryan Hawthorne

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