

Integrated Resource Plan

Generation Technology Reports

IGCC Technology Assessment Report

Sargent & Lundy, September 2005

PUBLIC VERSION

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: 8

Deliverable: IGCC Technology Assessment Report

Date Completed: September 2005

Author: Sargent & Lundy

This report provides an engineering assessment of the application of Integrated Gasification Combined Cycle (IGCC) power plant technology at AmerenUE's Rush Island Plant. A 750MW (net) output IGCC unit designed for Powder River Basin (PRB) coal and for Illinois coal were compared to a 750MW net output Supercritical Pulverized Coal (SCPC) unit designed for PRB coal considering the following:

- Gross generating capability
- Net send out
- Average and full load net unit heat rates
- Emissions
- Capital cost
- O&M costs
- Availability and capacity factor data
- Project schedule

This report also provides descriptions of the various IGCC technologies available and assesses the current state of the IGCC market. Cost and performance estimates for IGCC are compared to the cost and performance estimates previously developed for a new SCPC unit at Rush Island. A conceptual general arrangement drawing was prepared to show the site layout for an IGCC facility at Rush Island.

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> September 29, 2004 Project No. 11656-004 Letter No. 11656-001-010

AmerenUE Rush Island Station

New Coal Plant Report

Mr. Scott Plocher Ameren Services One Ameren Plaza 1901 Chouteau St. Louis, MO 63166-6149

Dear Mr. Plocher:

Enclosed are five (5) copies of the Rush Island IGCC Technology Assessment Study.

Yours very truly,

Thomas R. White Project Director

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Enclosures

Copies:

W. DePriest

M. Leutloff

J. Mallory

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File: \\snl1b\data2\ameren\rushisland\\11656-001\correspondence\\11656-010.doc

Rush Island IGCC Technology Assessment Study

Prepared for AmerenUE

September 2005 Project No. 11656-004



55 East Monroe Street Chicago, IL 60603-5780 USA 312-269-2000

Project No. 11656-004 Date: September 2005

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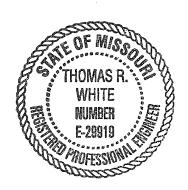
Project No. 11656-004 Date: September 2005

AmerenUE

CERTIFICATION OF RUSH ISLAND IGCC TECHNOLOGY ASSESSMENT STUDY

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Missouri.

Seal



Signature Date
Thomas R. White

My license renewal date is: 12/31/2006

Date license issued: 12/1 /1998

Date license issued:_