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Carl Bauer
Chairman, CCS Review Panel
c/o John Reed
California Energy Commission
Energy Research & Development Division
Public Interest Energy Research Program
1516 Ninth Street, MS 43
Sacramento, CA 95814-5512

Subject: EPRI Research Results on Advanced Fossil Power Generation Technology

Dear Carl,

The Electric Power Research Institute (EPRI) is an independent, non-profit institution performing RD&D in the electricity sector for the benefit of the public.

EPRI commends California for its foresight in working to simplify the use of CO2 capture and sequestration (CCS) in California to reduce greenhouse gas emissions from the use of fossil fuel for electricity generation. EPRI's analysis on reducing greenhouse gas emissions recommends a full portfolio of technologies, including CCS, to achieve substantial and affordable CO2 emissions reductions.

EPRI encourages the CCS Review Panel and technical team to take advantage of EPRI as a resource on advanced fossil energy technologies. We have conducted collaborative research projects to investigate technology challenges and economic feasibility of CO2 capture and sequestration and other advanced fossil generation technologies. Some of this work has been funded by the California Energy Commission, and is available for use by the Commission for analysis supporting the CCS Review Panel. EPRI also recommends resources funded by EPRI members that are available to the public. This document provides information about and access to suggested resources.

CoalFleet for Tomorrow

The California Energy Commission funded EPRI's CoalFleet for Tomorrow program in the past. Below are abstracts and links to a number of products that from this program that are available publicly and may be useful to the review panel.

Advanced Coal Power Systems with CO2 Capture: EPRI's CoalFleet for Tomorrow Vision

The Electric Power Research Institute has examined current and potential options for reducing greenhouse gas (GHG) emissions from the electric sector. EPRI's analysis shows a significant contribution from advanced coal power systems with CO2 capture and storage likely will be required to

achieve economical GHG reductions. This document provides a primer on the status of the portfolio of gasification- and combustion-based advanced coal power technologies, and opportunities for increased power generation efficiency, state-of-the-art emissions controls, and CO_2 capture and storage.

Report: Advanced Coal Power Systems with CO2 Capture: EPRI's CoalFleet for Tomorrow Vision

CoalFleet for Tomorrow Advanced Coal Generation Permits Database

CoalFleet for Tomorrow is an industry-led program formed to accelerate the deployment and commercialization of clean, efficient, advanced coal-based power generation technologies. During the planning and construction of Integrated Gasification Combined Cycle (IGCC) power plants, facility owners must obtain permits for many aspects of design and operation. To provide readily accessible information on past permits for use in system design and regulatory negotiations, EPRI has assembled permit applications, draft permits, and final permits from IGCC power plants into a Microsoft Access database. This report presents the contents of the database as of June 13, 2007.

Report: CoalFleet for Tomorrow Advanced Coal Generation Permits Database

CoalFleet IGCC Permitting Guidelines

This report provides guidance to owners of planned Integrated Gasification Combined Cycle (IGCC) power plants in order to assist them in permitting these advanced coal power generation facilities. The CoalFleet IGCC Permitting Guidelines summarize U.S. federal requirements for obtaining air, water, and solid waste permits for a generic IGCC facility, as described in EPRI report 1012227, the CoalFleet User Design Basis Specification (UDBS). The Guidelines present characteristics of IGCC emissions that must be considered in the plant design and permitting process.

Report: CoalFleet for Tomorrow IGCC Permitting Guidelines

Other results from EPRI that may be useful:

The Power to Reduce CO2 Emissions

EPRI recently released a 2009 update to its Prism and MERGE analyses, which provide a technically and economically feasible roadmap for the electricity sector as it seeks to reduce its greenhouse gas emissions. The update reflects economic and technological changes that have the potential to affect projected emissions and the technologies to address them. This analysis recommends a full portfolio of technologies, including CCS, to achieve substantial and affordable CO2 emissions reductions.

The 2009 Prism analysis estimates that the technical potential exists for the U.S. electricity sector to reduce 2030 annual CO2 emissions from the U.S. electric sector by:

- 41% relative to 2005 emissions, based on assumption of increased performance and deployment of eight different electric sector technologies;
- 58% relative to 2005 emissions, if reductions due to increased deployment of electrotechnologies and electric transportation are included.

Report: The Power to Reduce CO2 Emissions: The Full Portfolio – 2009 Technical Report

Pamphlet: Prism/MERGE Analyses: 2009 Update

Presentation: Creating Our Future: Meeting the Electricity Technology Challenges (PDF 226KB)

Comparative Cost Information on Generation Technology Options

EPRI's 2009 update on generation technology options provides a snapshot of current cost, performance, and trends for nine central station power generation technologies, including fossil, nuclear and renewable resource-based technologies. These are the technologies most widely under consideration for power generation capacity additions. This report offers users a public domain reference for generic cost estimates for these technologies. The technical basis of this report is ongoing research under the EPRI Technical Assessment Guide Program. Download the report: Generation Technology Options and the presentation Generation Options Under a Carbon Constrained Future (PDF 767KB)

Again, we applaud this effort and look forward to being involved. For further information, please do not hesitate to contact Jeff Crowe, Senior Account Executive at (650) 855-8907, jcrowe@epri.com, or Rich Menar, Account Executive, (650) 855-2898, rmenar@epri.com , both of EPRI's Technical Advisory Services, or me at (650) 855-8939, epetrill@epri.com .

Respectfully submitted by,

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