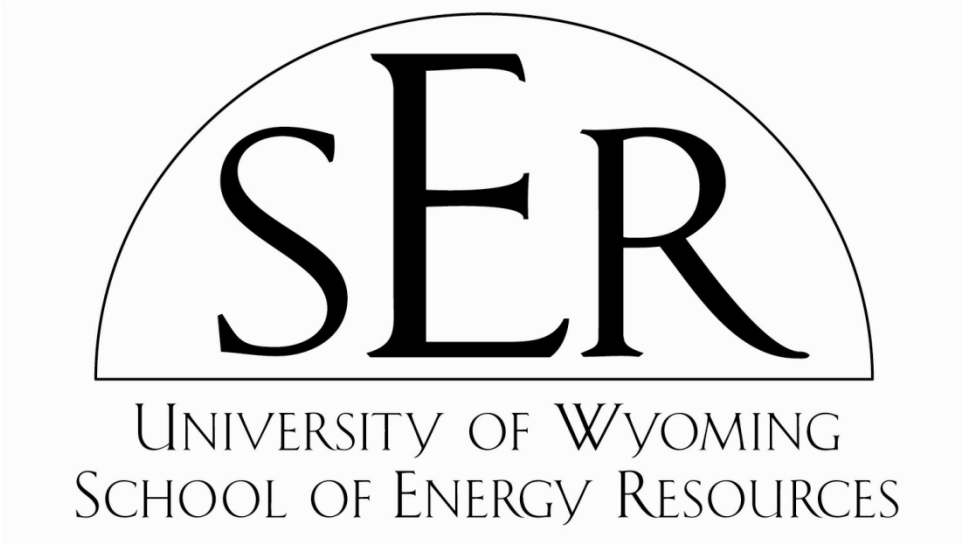


# 2009-2 SUPPLEMENTAL REPORT OF THE CLEAN COAL TASK FORCE

## 8 February 2010

**Presented to the Joint Minerals, Business and Economic Development Interim Committee**

# Supplemental Report of the Clean Coal Task Force
# To The
# Joint Minerals, Business, and Economic Development Interim Committee
# February 8, 2009

**Background**

This report of the Clean Coal Task Force (CCTF) supplements their report dated September 14th, 2009 (attached) submitted to the Joint Minerals, Business, and Economic Development Interim Committee in Jackson, WY. That report informed the committee (page 6) that the Clean Coal Research Account still contained nearly $6.5 million in unallocated funds that the CCTF believed should be offered through a supplemental Request for Proposals (RFP). The committee concurred that an immediate effort to distribute the remaining funds was in the best interest of the program and of the state.

The following table summarizes the three separate appropriations that have added to the Clean Coal Research Account, and the previous commitments that have been made prior to this recommendation:

| **Appropriation** | **Amount** |
|---|---|
| 2007 Appropriation | $2,500,000 |
| 2008 Appropriation | $3,800,000 |
| 2009 Appropriation | $10,613,047 |
| **Subtotal** | **$16,913,047** |
| 2007 Commitments | ($1,822,481) |
| 2008 Commitments | ($2,672,120) |
| 2009 Commitments | ($5,952,776) |
| **Remaining Balance** | **$ 6,465,670** |

The CCTF authorized the UW School of Energy Resources (SER) to issue an RFP on their behalf on October 12, 2009 requesting interested parties to submit additional proposals for consideration by December 4, 2009. This RFP covered fewer categories than previous RFP's in order to fill gaps in the developing slate of clean coal technologies supported by the fund. The categories covered were:

- **Pre-combustion/pre-gasification coal**
- **Combustion and gasification design**

- **Post-combustion/post-gasification gas clean-up technologies**
- **Advanced cycle**
- **Air separation technologies**
- ***In situ* gasification technologies**
- **Coal-to-liquids/coal-to-natural gas**
- **Economic analysis**

By December 4th, ten proposals were submitted requesting a total of $14,618,167 in funding to support total research valued at $53,740,555. The projects were sent for review by independent experts following established procedure. The CCTF met by conference call on January 22, 2010 to discuss the reviews, and recommended funding four additional projects that will utilize the total amount of remaining funds.

**Proposals for Research**

In accordance with the 2008 legislation referenced in the attached report, the CCTF submits the following recommendation to fund four proposals. Funding these projects will utilize the remaining $6,465,670 from the Clean Coal Research Account. It should be noted that some of these proposals contain proprietary information so that only summary information can be shared openly. CCTF members and reviewers executed non-disclosure agreements with each submitting organization to protect their confidentiality as a condition of their being made available for review.

Projects endorsed by the CCTF for funding are as follows, and information concerning project finance and matching funds for each project is contained in Table 1.

1. "WRI's Pre-Gasification Treatment of Low Rank Coals for Improved Advanced Clean Coal Gasifier Design – Phase II: Pilot-Scale Demonstrations", submitted by the Western Research Institute, Principal Investigator – Dr. Alan Bland. This project will demonstrate pre-gasification process improvements for western high-moisture coal, thereby putting Powder River Basin coals on par with eastern bituminous coal by improving efficiency, reducing fresh water consumption, reducing emissions and making IGCC designs fuel neutral. This project builds on and continues research conducted under WRI's 2007 Clean Coal Research Account award – Pre-Gasification Treatment of PRB Coals for Improved Advanced Clean Coal Gasifier Design.

2. "Innovative Catalytic Gasification Technology to Maximize the Value of Wyoming's Coal Resources", submitted by GreatPoint Energy, Inc., Principal Investigator – Dr. Pattahbi K. Raman. This project seeks to investigate and evaluate the viability of GreatPoint Energy's DO-IT technology in the process of hydromethanation of Wyoming sub-bituminous coal. Research will include evaluation of catalyst performance, application and recovery, pilot scale continuous fluidized bed tests, commercial performance modeling and economic assessment.

3. "Reactive Transport of Acidic Brine Resulting from $CO_2$ Sequestration in the Rock Springs Uplift (SW Wyoming): Variation of Porosity and Permeability", submitted by the University of Wyoming, Department of Chemical and Petroleum Engineering, Principal Investigator – Mohammad Piri. This project proposes to develop a three-dimensional direct pore-level model of reactive transport for rocks that are candidates for carbon storage in the Rock Springs Uplift area. The research will utilize laboratory investigation to guide development of computational models. The models are critical components for predicting the long-term behavior of $CO_2$ injected into the rock formations.

4. "Proposal for Clean Coal Technology Research", submitted by Ciris Energy, Inc., Principal Investigators – Robert A. Downey and Dr. Song Jin. This project proposes to design, construct, and operate a nominal 5 ton coal/day chemical conversion and anaerobic fermentation plant in Wyoming to demonstrate the commercial feasibility of this technology to convert PRB coal to methane. Ciris Energy intends to operate this facility at a coal-fired power plant in Wyoming. The CCTF approved this proposal contingent upon verification that a site has been secured.

The total research funding requested for these proposals is summarized as follows:

| **Project** | **Proposed Clean Coal Funds** | **Non-State Match** | **Total** |
|---|---|---|---|
| 1. Pre-Gasification Treatment | $ 977,617 | $ 979,405 | $ 1,957,022 |
| 2. Innovative Catalytic Gasification | $ 463,050 | $ 463,050 | $ 926,100 |
| 3. Reactive Transport Model | $ 188,500 | $ 270,000 | $ 458,500 |
| 4. Clean Coal Technology | $ 4,836.898 | $ 4,999,167 | $ 9,836,065 |
| **Totals** | **$ 6,466,065** | **$ 6,711,622** | **$13,177,687** |

When these four projects are funded, all funds appropriated for the Clean Coal Research Account to date will have been distributed to active projects.

**Table 1. 2009 Clean Coal Technology Fund – Second Round – Endorsed Projects.**

| Proposal Title | Submitted By | Funding Requested | Outside Match | Outside Match Organization | Total Funds | Technology Areas |
|---|---|---|---|---|---|---|
| (2009-25) WRI's Pre-Gasification Treatment of Low Rank Coals for Improved Advanced Clean Coal Gasifier Design: Phase I: Pilot-Scale Demonstrations | Western Research Institute | $ 977,617 | $ 979,405 | Industrial Commission of ND; Montana-Dakota Utilities; EERC; FuelCell Energy | $ 1,957,022 | Pre-combustion/pre-gasification coal technology |
| (2009-27) Innovative Catalytic Gasification Technology to Maximize the Value of Wyoming's Coal Resources | GreatPoint Energy, Inc. | $ 463,050 | $ 463,050 | GreatPoint Energy, Inc. | $ 926,100 | Combustion and gasification design |
| (2009-28) Reactive Transport of Acidic Brine Resulting from $CO_2$ Sequestration in the Rock Springs Uplift (SW Wyoming): Variation of Porosity and Permeability | University of Wyoming | $ 188,500 | $ 270,000 | University of Wyoming | $ 458,500 | Carbon Sequestration |
| (2009-31) Proposal for Clean Coal Technology Research | Ciris Energy, Inc. | $ 4,836,898 | $4,999,167 | Ciris Energy, Inc. | $ 9,836,065 | Combustion and gasification design |
| | Totals | $6,466,065 | $6,711,622 | | $13,177,687 | |