

The logo for the state of Ohio, featuring the word "Ohio" in a bold, red, sans-serif font. The letter "O" is stylized as a red circle.

Ohio Bipartisan  
Job Stimulus Plan



## The Ohio State University Department of Chemical and Biomolecular Engineering FACT SHEET



*Snapshot of the sub-pilot scale facility of the CCR process integrated with a coal fired combustor.*

### Advanced Energy Job Stimulus Program

A key component of Ohio's program to create new jobs and encourage economic development, the \$150 million Advanced Energy Job Stimulus Program is designed to support new technology projects on a fast track toward commercialization. As part of the \$1.57 billion job stimulus package signed into law by Governor Ted Strickland in June 2008, the goal of the program is to employ Ohio workers in the advanced energy jobs of the future.



### Project Name: **Commercialization of the CCR (Continuous Catalyst Regeneration) for Greenhouse Gas Control**

**Project Location:**  
Columbus, Ohio (Franklin County)

#### **Applicant Information:**

The Department of Chemical and Biomolecular Engineering at The Ohio State University is one of the nation's oldest and most respected programs in its field.

The principal investigator for this project will be the department's Dr. Liang-Shin Fan. Dr. Fan is a Distinguished University Professor and the C. John Easton Professor in Engineering. His groundbreaking work in clean coal technology research has received funding from the Ohio Coal Development Office (OCDO) since 1996. In 2008, the American Institute of Chemical Engineers named Dr. Fan as one of the "One Hundred Engineers of the Modern Era" for his professional achievements and contributions to his profession and society.

The university and OCDO are joined in this project by CONSOL, Shell, Carmeuse, Duke Energy, American Electric Power, First Energy, Littleford, Clearskies Consulting, Siemens, Praxair and F.L. Smith.

#### **Project Description:**

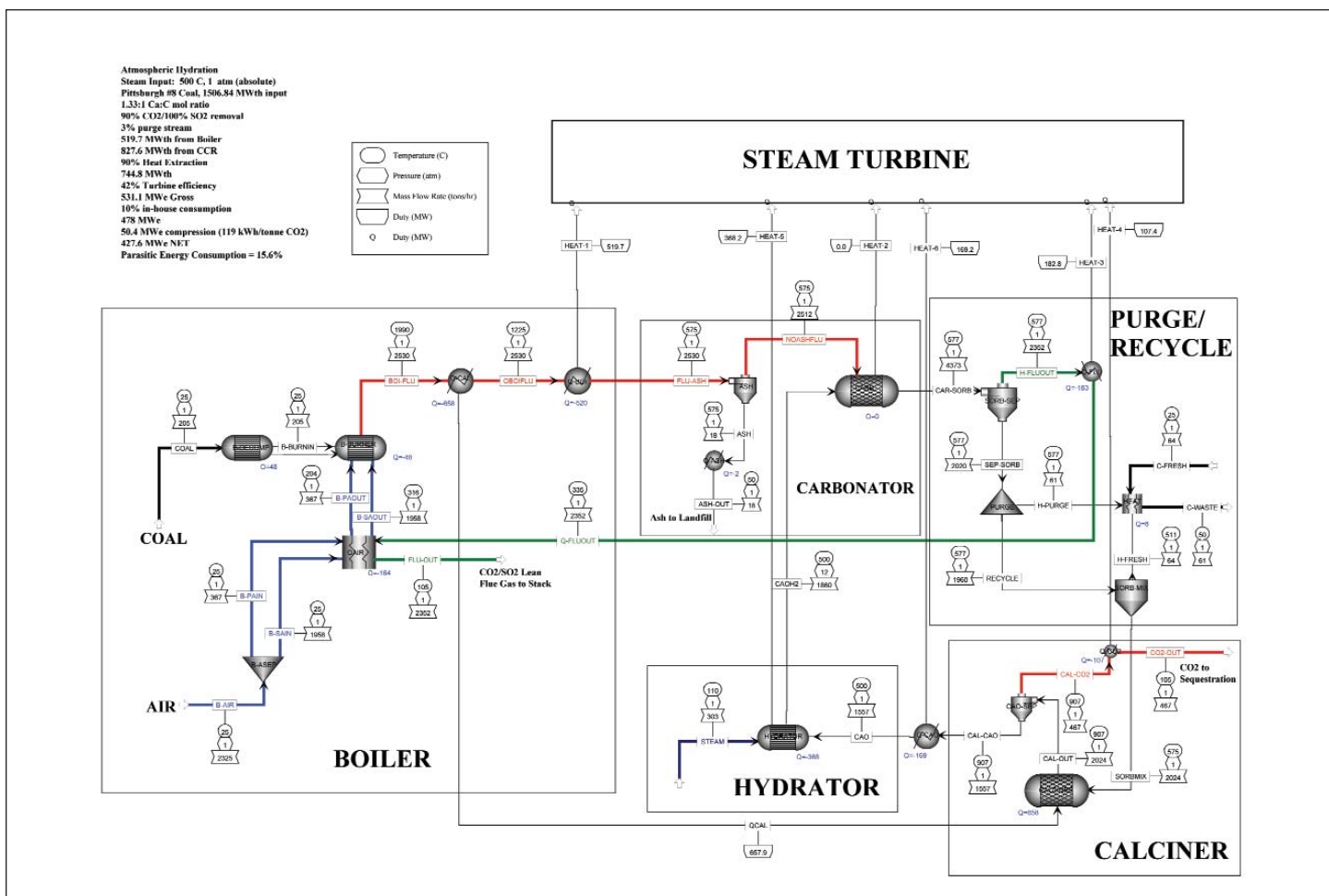
This project's goal is to demonstrate, at the pilot plant level, a method for capture of carbon dioxide (CO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>) using a calcium sorbent. In this process, large quantities of heat are released when CO<sub>2</sub> and SO<sub>2</sub> react with the sorbent. The heat is captured and used for production of electricity, while the calcium sorbent/catalyst is regenerated for continuous reuse. A prior, smaller-scale OCDO-funded project at Ohio State demonstrated CO<sub>2</sub> capture at 90 percent and SO<sub>2</sub> capture of near 100 percent. The current project is an intermediate undertaking intended to optimize the design of all system components in anticipation of a much larger project in the fall of 2010, which will receive co-funding by the U.S. Department of Energy National Energy Technology Laboratory (DOE-NETL).

The eleven-member industrial team supports this project because it believes the proposed technology is a strong contender for commercialization.

**Funding Request:** \$273,107  
**Approved Funding:** \$273,107  
**Total Project Investment:** \$546,586

**Jobs Created:** This intermediate phase, nine-month project and the second phase DOE-NETL project will create 10 to 15 jobs over three years.

**Primary Application of Technology:** Mitigation and capture of CO<sub>2</sub> and SO<sub>2</sub> during coal combustion.



ASPEN simulation for 500 MWe Net subcritical Pulverized Coal power plant with CCR integrated into existing plant



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