

MAJOR DEMONSTRATION PROJECTS MANAGED BY THE UNITED STATES
DEPARTMENT OF ENERGY'S OFFICE OF FOSSIL ENERGY

At the status conference on January 16, 2013, the Commission requested information about the major demonstration projects involving geologic sequestration of carbon dioxide from industrial sources that are receiving financial assistance from the United States Department of Energy (DOE). These projects are described below. Projects that are no longer being pursued by the recipients of DOE's financial assistance were omitted.

Clean Coal Power Initiative (CCPI) Projects

Requirements for CCPI Projects Selected in the Third Round of DOE Financial Assistance Awards

These projects must demonstrate coal-based technologies that produce electric power. In addition to electricity, the projects may also (but are not required to) produce process heat, fuels, chemicals, hydrogen and other products. The projects must integrate carbon capture technologies into existing or new power plants. They must use coal mined in the United States (or coal refuse derived from such coal) for at least 75% of the fuel input (based on the Btu content of the fuel) and electricity must account for at least 50% of the project's energy output.

Other requirements include:

- Project activities, including carbon dioxide capture, transport, sequestration (or beneficial reuse), and monitoring must be conducted in the United States.
- Projects must capture at least 300,000 tons of carbon dioxide annually and sequester it or put it to beneficial use.
- Projects' carbon capture technologies must operate at an efficiency of at least 90%.

Hydrogen Energy California Project – will sequester about 2.6 million tons of CO₂ annually via enhanced oil production in the Elk Hills

- New plant located in Kern County, California.
- Advanced integrated gasification combined cycle power plant will produce about 300 MW (net) of electricity and 1 million tons of nitrogenous fertilizers annually.
- During the DOE demonstration period (two years), the project will use a feedstock consisting of 75% sub-bituminous coal and 25% petroleum coke (petcoke).
- DOE financial assistance: \$408 million.
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/ccpi/bibliography/demonstration/ccpi_heca.html

NRG Energy Project – will sequester about 1.4 million ton of CO₂ annually via enhanced oil production in a Gulf Coast oil field

- Existing, conventional coal-fired power plant (W.A. Parish Station) near Houston, Texas.
- Advanced post-combustion capture of CO₂.
- Power plant will continue to use 100% sub-bituminous coal as fuel.

- DOE financial assistance: \$167million
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/ccpi/bibliography/demonstration/ccpi_nrg.html

Southern Company – will sequester about 3 million tons of CO₂ annually via enhanced oil production.

- New plant located in Kemper County, Mississippi; plant is under construction and will enter commercial operation in 2014.
- Advanced integrated gasification combined cycle power plant will produce about 582 MW (net) of electricity.
- Plant will use 100% lignite coal as fuel; this coal will come from an adjacent mine.
- DOE financial assistance: \$276 million
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/ccpi/bibliography/demonstration/adv-gen/ccpi_285-mw.html

Summit Texas Clean Energy – will sequester about 3 million tons of CO₂ via enhanced oil production

- New plant located in Penwell, Texas.
- Advanced integrated gasification combined cycle power plant will produce 200 MW (net) of electricity and 0.7 million tons of urea.
- Plant will use 100% sub-bituminous coal as fuel.
- DOE financial assistance: \$450 million
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/ccpi/bibliography/demonstration/ccpi_summit.html

Industrial Carbon Capture and Sequestration (ICCS) Projects

Requirements for ICCS Projects Selected for DOE Financial Assistance Awards in Area of Interest 1

Projects must be located in the United States and demonstrate advanced technologies that capture carbon dioxide from industrial sources and sequester it in geologic formations. The industrial sources may be chemical plants, cement kilns, refineries, manufacturing facilities, and power plants that use fuels such as petroleum coke or municipal wastes. Projects that met the eligibility requirements for the third round of DOE's CCPI program (see above) were not eligible for financial assistance awards under the ICCS program. The program had a second area of interest. To be eligible for financial assistance under ICCS's Area of Interest 2, projects must use carbon dioxide to produce useful products such as algal bio-fuels or carbon compounds such as sodium bicarbonate. The following are descriptions of the projects selected under Area of Interest 1; projects selected under Area of Interest 2 are not included as they do not sequester carbon dioxide in geologic formations.

Air Products & Chemicals Project – will sequester about 1 million tons of CO₂ annually via enhanced oil production

- Existing hydrogen production facility in Port Arthur, Texas.
- Will demonstrate capture and sequestration of carbon dioxide from a steam methane reformer used to produce hydrogen for use in a petroleum refinery.

- Over 46,000 tons of CO₂ have been sequestered since startup in December 2012.
- Facility would continue to use natural gas as its feedstock.
- DOE financial assistance: \$284 million
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/iccs1/bibliography/iccs_air.html

Archer Daniels Midland Project – will sequester about 1 million tons of CO₂ annually in a deep geologic formation

- Existing ethanol plant in Decatur, Illinois.
- Will capture CO₂ from the fermentation of corn to produce fuel-grade ethanol
- Facility will continue to use corn as its feedstock.
- DOE financial assistance: \$ 141 million
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/iccs1/bibliography/iccs_archer.html

Leucadia Energy – will sequester about 4.5 million tons of CO₂ annually via enhanced oil production

- New chemical plant located in Lake Charles, Louisiana.
- Will produce 700 million gallons of methanol and 110 million standard cubic feet of, hydrogen annually.
- Facility will use 100% petroleum coke as its feedstock.
- DOE financial assistance: \$ 261 million.
- For more information go to:
http://www.netl.doe.gov/technologies/coalpower/cctc/iccs1/bibliography/iccs_leucadia.html

FutureGen 2.0 Projects

The FutureGen 2.0 program consists of two projects in Illinois. The first project involves repowering an existing electrical generating unit with oxy-combustion technology and carbon capture. The second project would transport the captured CO₂ via a pipeline to an injection facility that would sequester it in a deep geologic formation.

- Will sequester about 1 million tons of CO₂ annually.
- Will produce 168 MW of electricity.
- Will burn a blend of 60% bituminous and 40% sub-bituminous coal.
- DOE financial assistance: \$ 1.05 billion
- For more information go to [web link]:
<http://www.netl.doe.gov/technologies/coalpower/futuregen/index.html>



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**AMENDED APPLICATION FOR CERTIFICATION
FOR THE HYDROGEN ENERGY
CALIFORNIA PROJECT**

**Docket No. 08-AFC-08A
PROOF OF SERVICE
(Revised 2/11/13)**

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DECLARATION OF SERVICE

I, Dale Shileikis, declare that on March 1, 2013, I served and filed copies of the attached Major Demonstration Projects Managed by the United States Department of Energy's Office of Fossil Energy, dated March 1, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: http://www.energy.ca.gov/sitingcases/hydrogen_energy/.

The document has been sent to the other persons on the Service List above in the following manner:

(Check one)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

 X I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the US mail with first class postage to those persons noted above as "hard copy required";
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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: 3/1/13

