

HECA news and update

low-carbon power for California

summer 2010

new ccs task force

With a goal to develop a comprehensive and coordinated federal strategy to speed the commercial development and deployment of clean coal technologies, President Obama has created a task force on carbon capture and storage.

President Obama announced plans for the Interagency Task Force on Carbon Capture and Storage in February. Co-chaired by the Department of Energy and the Environmental Protection Agency, the task force is charged with proposing a plan to overcome the barriers to the widespread, cost-effective deployment of CCS within 10 years.

The task force will develop a plan that addresses incentives for CCS adoption and any financial, economic, technological, legal, institutional, or other barriers to deployment. It may also consider how best to coordinate existing federal authorities and programs.

The plan is due to the president in August.

energy commission, DOE hold meetings on HECA

The California Energy Commission and the U.S. Department of Energy held separate public meetings in April to review the Hydrogen Energy California project, an electric generating facility proposed for western Kern County.

On April 12, the CEC conducted its data request and response staff workshop at Elk Hills School in Tupman, Calif., nearby the project's site. The purpose was to discuss responses to CEC staff's data requests and work toward resolving questions in such areas as air quality, biological and cultural resources, efficiency, geology and paleontology, hazardous materials, public health, socioeconomics, and soil and water resources.

The commission, which is the lead agency with permitting authority for the project, examines public health and safety, environmental impacts, and engineering aspects of proposed power plants and all related facilities, such as electric transmission lines and natural gas and water pipelines.

On April 14, the DOE conducted its environmental review scoping meeting in Bakersfield. One main purpose was to

obtain comments on the scope of DOE's Environmental Impact Statement that will assess the potential environmental impacts of DOE providing limited financial assistance to the HECA project, as required by the National Environmental Policy Act.

Last year, the agency selected the project for an award of financial assistance through a competitive process under the Clean Coal Power Initiative. The DOE awarded financial assistance of up to \$308 million of project costs, and the environmental review is a component of the DOE review associated with the award.

HECA representatives were on hand at both meetings to respond to comments and questions.



energy and clean air - Jessica Brown staffs HECA's booth at the Energy & Clean Air Expo on Feb. 16 in Bakersfield. See page 3.

what's inside

E3 study.....2

how it works.....3

community news.....3

why Kern County?...4

HECA joins California CCS Coalition

Hydrogen Energy California recently joined the California CCS Coalition, an educational and advocacy organization whose mission is to represent the interests of carbon capture and storage (CCS) stakeholders in the legislative and regulatory arena and educate key constituencies and organizations about facts regarding CCS.

The nonprofit organization was created earlier this year to ensure CCS is an important part of any state carbon stabilization program. The coalition's goal is to bring voices to the table throughout the state to demonstrate CCS is practical, effective and safe.

(continued on pg. 2)

California CCS coalition *(continued from pg. 1)*

The coalition will strive to increase awareness of CCS, encourage the deployment of CCS and incentives for low-carbon power production, establish definitions for low-carbon power and encourage purchases by electric utilities, and more.

In addition to HECA, coalition members to date include: Aera Energy, Chevron, Clean Energy Systems, Sempra Energy Utilities, Southern California Edison, Shell and Western States Petroleum Association.

Plans for the coalition began after a study published last fall by Energy and Environmental Economics, Inc. (E3) confirmed California was not likely to attain its long-term target of reducing greenhouse gas emissions without investment in new, more efficient and lower-carbon infrastructure, including the use of CCS *(see story below)*.

HECA, which provided funding for the E3 study, is seeking to build California's first industrial scale, hydrogen-fired power plant with CCS in western Kern County.



According to Jonathan Briggs, director of Americas for HECA, "California's regulatory and legislative climate should further encourage the development of new energy technology.

In particular, the state should create incentives for investment not just in renewable energy technology, but also for

low-carbon base load power generation, like the HECA project. The work of the coalition will be important in seeing this become a reality."



From left, Snuller Price, E3, and coalition representatives Pete Montgomery, executive director; Cathy Reheis-Boyd, vice chair, and Dan Skopec, chair.

study confirms ccs needed to cut emissions

The landmark study by San Francisco-based Energy and Environmental Economics, Inc. (E3), "Meeting California's Long-Term Greenhouse Gas Reduction Goals," is the first comprehensive look at the steps necessary to cut statewide greenhouse gas emissions by the year 2050.



It looks out 40 years and concludes that achieving long-term greenhouse gas reduction goals will require moving towards increased electrification, low-carbon power generation, and zero-emissions technologies. To reach emission reduction targets, the report stresses a mix of low-carbon power generation utilizing CCS, as well as wind, solar, biomass and nuclear.

"Without all of these emission reduction measures," the study states, "it will be extremely difficult to reduce statewide emissions to the range of 85 million metric tons of carbon dioxide equivalent by 2050."

If the electricity sector must move toward a low-carbon future by 2050, "almost all of the state's fleet of fossil-fuel based power plants must be replaced by some combination of renewable energy, nuclear power and power generation with carbon capture and storage."

The report adds, "Conventional power plants built today may risk early retirement before the end of their useful life or will need to be retrofit with CCS if California is to meet its long-term greenhouse gas reduction goal."

governor establishes blue ribbon panel

Gov. Arnold Schwarzenegger created a blue ribbon panel to advise state agencies and others on what policies, institutional and regulatory changes are needed to enhance greenhouse gas emissions reduction through the use of geologic carbon capture and storage (CCS) in California.

The panel, called the California Carbon Capture and Storage Review Panel, is tasked with identifying, discussing, and framing policies addressing the role of CCS in meeting the state's energy needs and emissions reduction strategies for 2020 and 2050.

The panel will prepare a report on the major barriers to CCS, recommendations for resolving these barriers, and the policy rationale for the recommendations.

The California Energy Commission, California Public Utilities Commission and Air Resources Board anticipate the panel's recommendations can be used for the development of legislation and regulations that will benefit the use of CCS in the state.

chamber adopts resolution on CCS

In May, the Greater Bakersfield Chamber of Commerce board adopted a resolution on CCS and enhanced oil recovery (EOR).

The board said new investments in low-emission power plants and integrated EOR could benefit California and Kern County through new energy projects, new jobs, reliable low emissions, in-state electricity, increased local oil production and new local taxes.

generating hydrogen power with 90% carbon capture - how HECA works

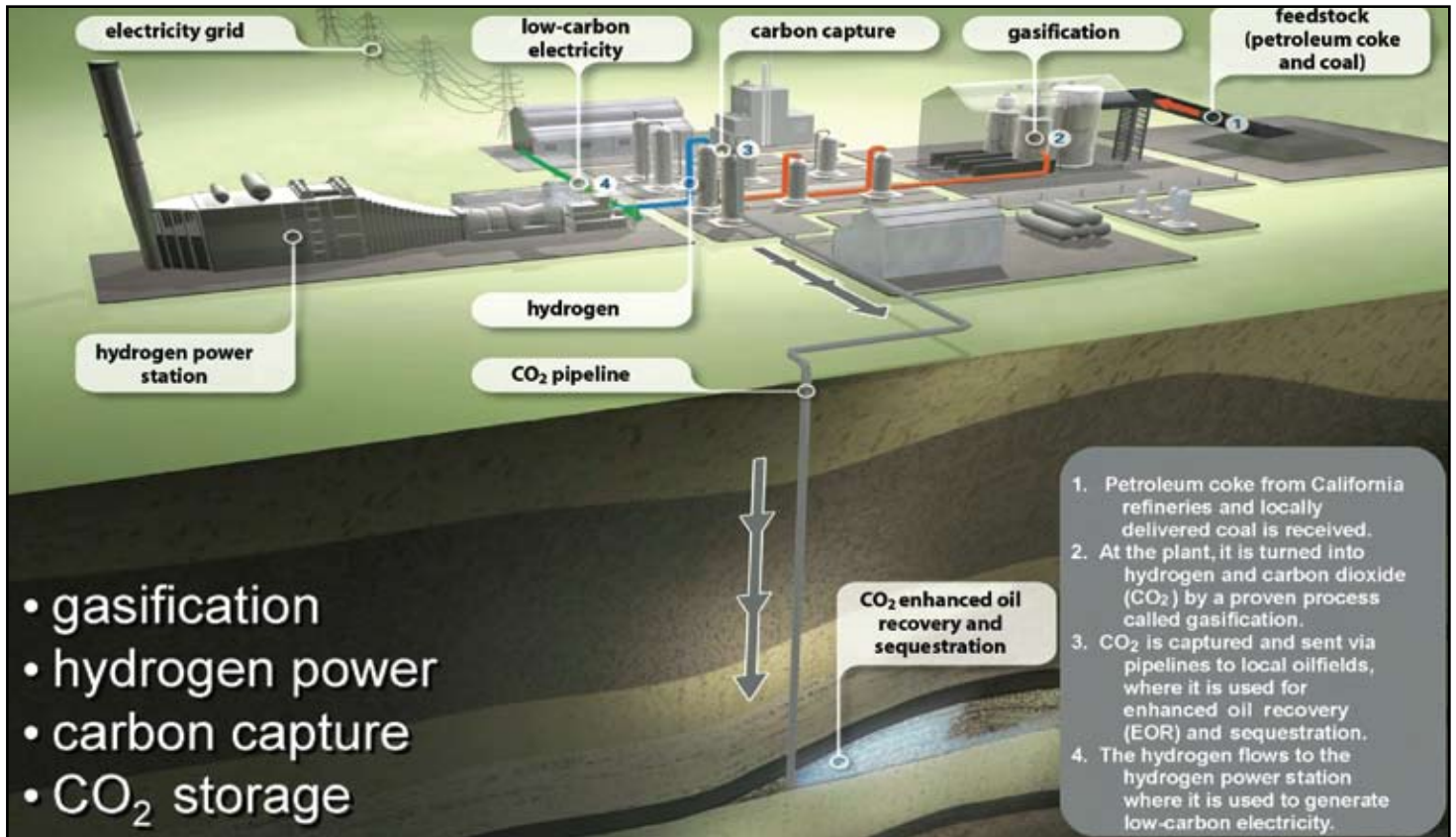
How will the Hydrogen Energy California project produce low-carbon electricity and capture and store 90% of its carbon dioxide emissions?

In simple terms, the proposed plant, which will be located nearby the existing Elk Hills oil field, plans to use petcoke with coal and non-potable water and convert them to hydrogen and carbon dioxide, or CO₂.

The hydrogen will then be used to fuel a combined cycle power plant to generate low-carbon electricity.

Ninety-percent of the CO₂ will be captured during steady state operations and sent via pipeline and injected deep below ground in oil reservoirs within the Elk Hills oil field for enhanced oil recovery and permanent storage.

The following diagram shows how the process works.



in the community

HECA gives to youth programs

Hydrogen Energy California recently donated \$15,000 to programs aimed at western Kern County youths.

HECA's donation will be used for Elk Hills Elementary School's field trip to the California Science Center in Los Angeles, Buttonwillow Elementary School's annual science camp, a college scholarship through the Buttonwillow Chamber of Commerce, the Alpha House Women's Shelter and a grant to Cal State Bakersfield's Department of Geology to fund a student research project on carbon capture and storage.

energy and clean air expo

For HECA, the 2010 Energy & Clean Air Expo held Feb. 16 in Bakersfield was another opportunity to spread the word about the project's promise of low-carbon power.

The event, organized by the Greater Bakersfield Chamber of Commerce, provided a unique opportunity for local business leaders to interact with key state and regional regulators, learn about pending regulations and offer

feedback. This was the second year HECA was a sponsor and had an exhibit booth.

economic summit

HECA was a sponsor at the 10th annual Kern County Economic Summit held March 24 in Bakersfield. The



HECA representatives Jordan Feilders (left) and Larry Pickett at the economic summit.

event, presented by Kern Economic Development Corporation, Greater Bakersfield Chamber of Commerce and Cal State Bakersfield, was dedicated to the issues impacting the county's economy, growth and diversification.

building public acceptance for CCS

Public acceptance, one of the biggest challenges in carbon capture and storage projects, was the topic of a recent presentation by Hydrogen Energy California at the 9th Annual Conference on Carbon Capture and Sequestration.

To build public acceptance for initial CCS ventures, according to Tiffany Rau, HECA's policy and communications manager, projects must identify a geologic formation where past history can lead to trust and engage the local community.

The conference, held May 10-13 in Pittsburgh, was sponsored by Exchange Monitor Publications & Forums in partnership with National Energy Technology Laboratory, Department of Energy and other organizations involved in CCS projects.

about HECA

Hydrogen Energy California has proposed its new hydrogen-powered electricity generating facility for the Kern County area that would store most of its carbon-related emissions. Instead of using natural gas to run its turbine electrical generators, this plant will use hydrogen. The result will be local low-carbon baseload power generation for a state with growing power demands - enough power for over 150,000 homes - along with reductions in the emission of carbon dioxide (CO₂), the most common greenhouse gas. The captured CO₂ emissions will be stored deeply underground and will not be released into the atmosphere.

For more information, visit www.hydrogenenergycalifornia.com or call the Information Line at (661) 632-2536. You can also visit HECA's Information Center, located at 189 E. Front St. in Buttonwillow. The center, which is open Monday through Friday from 8:30 a.m. to 5 p.m., can be reached at (661) 764-6442.

why Kern County?

Availability of land, close proximity to oil reservoirs, electric transmission and natural gas facilities and a local supply of non-potable water make western Kern County an ideal location for the Hydrogen Energy California project.



The area with its well-studied geological characteristics also offers easy access to highways and railways, oil refineries and nearby the Elk Hills oil field, ideal for storing CO₂ and enhanced oil recovery efforts.

In addition, the Elk Hills reservoir meets all of HECA's screening criteria. It also has a history of clear ownership, with full documentation of storage sites and wells.

The HECA project is an electric generating facility proposed for western Kern County that will produce low-carbon power while safely capturing and storing 90% of its carbon dioxide emissions.

printed on recycled paper 4

summer 2010



Hydrogen Energy California

One World Trade Center, Suite 1600
Long Beach, CA 90831-1600