

CALIFORNIA ENERGY COMMISSION1516 NINTH STREET
SACRAMENTO, CA 95814-5112

DOCKET 08-AFC-8	
DATE	AUG 14 2008
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August 14, 2008

Dear Librarian:

DOCUMENT HANDLING FOR THE HYDROGEN ENERGY CALIFORNIA PROJECT APPLICATION FOR CERTIFICATION (08-AFC-8)

On July 31, 2008, Hydrogen Energy International (HEI) submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate an Integrated Gasification Combined Cycle (IGCC) power generating facility called Hydrogen Energy California (HECA). HEI is jointly owned by BP Alternative Energy North America Incorporated and Rio Tinto Hydrogen Energy, LLC. The proposed project would be located on a 315-acre site in an oil producing area (Elk Hills) approximately 2 miles northwest of the unincorporated community of Tupman in western Kern County, California.

The proposed HECA project would gasify petroleum coke (or blends of petroleum coke and coal, as needed) to produce hydrogen to fuel a combustion turbine operating in combined cycle mode. The gasification component would produce 180 million standard cubic feet per day (MMSCFD) of hydrogen to feed a 390 megawatt (MW) gross/250 MW net combined cycle power plant providing California with a baseload power output to the grid. Due to the complex gasification and sequestration process, there is a larger than usual parasitic load.

In addition, the project would include a 100 MW net natural gas-fired peaking combustion generator that would provide power for plant startup, powering the gasifier when the plant does not generate and providing peaking power to the grid. Essentially 350 MW (250 MW baseload capacity plus 100 MW peaking performance) of power output would be available to the grid during high demand periods (e.g., summer months, etc.).

The gasification component would also capture approximately 130 MMSCFD of carbon dioxide (or approximately 90 percent at steady-state operation) which would be compressed and transported via a pipeline off-site for injection into deep underground oil-bearing formations, and used for enhanced oil recovery and sequestration in the existing Elk Hills Oil Field Unit operated by Occidental Petroleum Corporation (Oxy).

The HECA project is under the Energy Commission's siting authority. The power plant certification process examines engineering, environmental, public health, and safety aspects of power plant proposals and provides analyses pursuant to the California Environmental Quality Act (CEQA). When issuing a certificate, the Energy Commission is the lead state agency under CEQA, and its process is functionally equivalent to the preparation of an Environmental Impact Report.

The Energy Commission's siting process is open to the public and incorporates the input of the public as well as local, state, and federal agencies. To facilitate public participation in our review process, the Energy Commission has sent copies of the AFC to libraries in the

project area, and to libraries in Eureka, San Francisco, Sacramento, Fresno, Los Angeles, and San Diego.

Please make the enclosed AFC available for those who may wish to be informed about the project. We request that you not allow the AFC or any of its contents be removed from the library. To increase accessibility of the document, we ask, if possible, that you cross reference it as a general reference work under the title and author categories, as well as under such subjects as "Energy Commission," "electricity," "energy/generation," "power plant siting," or any other relevant subject.

Thank you for your cooperation. If you have any questions, please contact Rod Jones, Energy Commission Project Manager, at (916) 654-5191, or by email at rjones@energy.state.ca.us, or Angela Hockaday, Project Secretary, at (916) 654-3925, or by e-mail at ahockaday@energy.state.ca.us.

Sincerely,

A handwritten signature in black ink, appearing to read "Eileen Allen". The signature is fluid and cursive, with the first name being more prominent.

Eileen Allen, Manager

Energy Facilities Siting and Compliance Office

Enclosure

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov



August 14, 2008

To: MEMBERS OF THE PUBLIC

PUBLIC PARTICIPATION IN THE REVIEW OF THE HYDROGEN ENERGY CALIFORNIA PROJECT, APPLICATION FOR CERTIFICATION (08-AFC-8)

On July 31, 2008, Hydrogen Energy International (HEI) submitted an Application for Certification (AFC) to the California Energy Commission to construct and operate an Integrated Gasification Combined Cycle (IGCC) power generating facility called Hydrogen Energy California (HECA). HEI is jointly owned by BP Alternative Energy North America Incorporated and Rio Tinto Hydrogen Energy, LLC. The proposed project would be located on a 315-acre site in an oil producing area (Elk Hills) approximately 2 miles northwest of the unincorporated community of Tupman in western Kern County, California.

The proposed HECA project would gasify petroleum coke (or blends of petroleum coke and coal, as needed) to produce hydrogen to fuel a combustion turbine operating in combined cycle mode. The gasification component would produce 180 million standard cubic feet per day (MMSCFD) of hydrogen to feed a 390 megawatt (MW) gross/250 MW net combined cycle power plant providing California with a baseload power output to the grid. Due to the complex gasification and sequestration process, there is a larger than usual parasitic load.

In addition, the project would include a 100 MW net natural gas-fired peaking combustion generator that would provide power for plant startup, powering the gasifier when the plant does not generate and providing peaking power to the grid. Essentially 350 MW (250 MW baseload capacity plus 100 MW peaking performance) of power output would be available to the grid during high demand periods (e.g., summer months, etc.).

The gasification component would also capture approximately 130 MMSCFD of carbon dioxide (or approximately 90 percent at steady-state operation) which would be compressed and transported via a pipeline off-site for injection into deep underground oil-bearing formations, and used for enhanced oil recovery and sequestration in the existing Elk Hills Oil Field Unit operated by Occidental Petroleum Corporation (Oxy).

As part of our review process, the staff of the Energy Commission endeavors to work closely with local, state and federal agencies to ensure that all laws, ordinances, regulations and standards are met and incorporated into the final decision of the Energy Commission.

Project Location

The proposed project would be located on an undeveloped 315-acre site (once used for grazing, storage, and bee keeping), located adjacent to the Elk Hills Oil Field Unit, with existing surface elevations that vary from about 445 feet in the southwest corner to about 310 feet in the northeast corner above the mean sea level (msl). The proposed project site is further described as assessor's parcel number (APN) #159-180-12, located in Section 22 Township 30 South, Range 24 East, on the United States Geological State Survey quadrangle map. Agricultural and related operations occur north, northeast, and northwest of the site. According to Kern County Planning Department, the majority of the crop types within the affected environment and surrounding areas consist of cotton and alfalfa. One rural residence is located approximately 2800 feet north of the proposed project site along Tupman Road. Oil fields are located to the south, southeast, and southwest of the proposed project site. The California State Water Project (aqueduct) extends along the northeast boundary of the adjacent parcel.

Project Description

Highlights of the project are as follows:

- The proposed HECA project would be designed to operate with 100 percent petroleum coke from California refineries, and would have the flexibility to operate with up to 60 percent western bituminous coal as needed.
- The feedstock would be gasified to produce a synthesis gas (syngas) that would be processed and purified to produce a hydrogen-rich gas, which would be used to fuel the combustion turbine for electric power generation. A portion of the product (hydrogen-rich gas) would also be used to supplementally fire the heat recovery steam generator (HRSG) that produces steam from the combustion turbine exhaust heat.
- At least 90 percent of the carbon in the raw syngas will be captured in a high-purity carbon dioxide stream during steady-state operation, which would be compressed and transported by pipeline off-site for injection into deep underground oil reservoirs for oil enhanced oil recovery and sequestration.
- Project greenhouse gas emissions (e.g., CO₂) and sulfur emissions would be reduced through state-of-the art emission-control technology and carbon dioxide sequestration.
- The net electrical output from the project would provide approximately 250 MW of baseload power to the grid (PG&E), feeding major load sources to the north and to the south, plus power output from a 100 MW net natural gas-fired peaking combustion generator.

- The water source of the project would be brackish groundwater supplied by the Buena Vista Water Storage District and treated on site. Potable water would be supplied by West Kern Water District for sanitary purposes.
- There would be no direct surface water discharge of industrial wastewater or storm water. Process wastewater would be treated on site and recycled within the gasification and power plant systems. Other wastewaters from cooling tower blowdown and raw water treatment would be collected and directed to on-site underground injection wells.
- The proposed project gasification process would feature near zero sulfur emissions during steady-state operation, and incorporate technology to minimize flaring during startup and shutdown operations.

Major-on-site project components would include:

- Solids handling, gasification, and gas treatment;
- Feedstock delivery, handling, and storage;
- Sour shift/low temperature gas cooling (for producing syngas as part of the gasification process);
- Mercury removal;
- Acid gas removal;
- Combined-cycle power generation;
- Auxiliary combustion turbine generator;
- Electrical switching facilities;
- Natural gas fuel systems;
- Air separation unit;
- Sulfur recovery unit;
- Tail gas treating unit;
- Zero liquid discharge system for wastewater;
- Carbon dioxide compression;
- Wastewater injection wells;
- Raw water treatment plant; and
- Other plant systems.

Major off-site facilities:

- Electrical transmission line - A new electrical transmission line would interconnect the project to PG&E's (Pacific Gas and Electric) existing Midway Substation by utilizing a 230 kilovolt (kV) transmission line. The project may also include two alternative transmission routes, both of which would extend from the western edge of the proposed project site to the north, and west to the north side of the substation. Transmission Alternative 1 is approximately 9 miles long and transmission Alternative 2 would be 9.5 miles long.

- Natural gas supply - A natural gas interconnection would be made with either PG&E or Southern California Gas Company natural gas pipelines, both which would be located southeast of the proposed project site. The proposed new natural gas line would be approximately 7 miles long. The interconnect would consist of one tap off of an existing natural gas line, one meter set, one service pipeline service connection, and a pressure limiting station located on the proposed project site.
- Water supply pipelines - The project would utilize brackish groundwater supplied from the Buena Vista Water Storage District located to the northwest. The proposed new raw water supply pipeline for cooling and process needs would be approximately 18 miles in length. Potable water for drinking and sanitary use would be supplied by the West Kern Water District located near the State Route 119 (SR 119)/Tupman Road intersection (southeast of the project site). The potable water supply pipeline would be approximately 5.5 miles in length.
- Carbon dioxide pipeline - The proposed new carbon dioxide pipeline would transfer the carbon dioxide captured during gasification from the project site southwest to the custody transfer point for enhanced oil recovery and sequestration. The project may utilize two alternative pipeline routes. Alternative 1 is approximately 2 miles in length, while Alternative 2 is approximately 2.5 miles in length.
- All temporary construction equipment laydown and parking, including construction parking, offices, and construction laydown areas, will be located on the proposed project site.

If approved, construction of the project would begin in March 2011 with commissioning and initial startup occurring January 2014 through October 2014, with full scale operation by December of 2014.

Energy Commission's Facility Certification Process

The Energy Commission is responsible for reviewing and ultimately approving or denying applications for all thermal electric power plants, 50 MW and greater, proposed for construction in California. The Energy Commission's facility certification process carefully 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. The Energy Commission is the lead agency under the California Environmental Quality Act (CEQA), but through its certified regulatory program produces several environmental and decision documents rather than an Environmental Impact Report.

As part of our review process, the staff of the Energy Commission works closely with local, state and federal agencies to ensure that all laws, ordinances, regulations and

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standards are addressed in the final decision of the California Energy Commission. The first step in the review process is for the Energy Commission staff to determine whether or not the AFC contains all the information required by our regulations. When the AFC is deemed data adequate, we will begin the data discovery and issue analysis phases. At that time a detailed examination of the issues will occur.

Public Participation

Over the coming months, the Energy Commission will conduct a number of public workshops and hearings to determine whether the proposed project should be approved for construction and operation and under what set of conditions. The workshops will provide the public as well as local, state and federal agencies the opportunity to participate in reviewing the proposed project. The Energy Commission will issue notices for these workshops and hearings at least ten days prior to the meeting. If you are not currently receiving these notices and want to be placed on the mailing list, please contact Angela Hockaday, Project Secretary, at (916) 654-3925, or by email at ahockaday@energy.state.ca.us.

If you desire information about participating in the Energy Commission's review of the proposed project, please contact Elena Miller, the Energy Commission's Public Adviser, at (916) 654-4489, or toll free in California at (800) 822-6228, or by email at pao@energy.state.ca.us. Technical or project schedule questions should be directed to Rod Jones, Energy Commission Project Manager, at (916) 655-5191 or by email at rjones@energy.state.ca.us.

Note: Please retain this letter behind the front cover of the AFC. Thank You.