CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5112

DOCKET
08-AFC-8
DATE JUN 17 2009
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June 17, 2009

Dear Librarian:

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

On May 28, 2009, Hydrogen Energy International (HEI) submitted a revised 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. Previously HEI submitted an AFC to the Energy Commission, which proposed the project on a different site. HEI subsequently decided to move the project when it discovered the existence of previously undisclosed sensitive biological resources at the prior site. HEI respectively submits this revised AFC for the new project site, which supersedes and replaces the July 31, 2008 AFC in its entirety.

The proposed project would be located on a 473-acre site located approximately 7 miles west of the outermost edge of the city of Bakersfield and 1.5 miles northwest of the unincorporated community of Tupman in western Kern County, California. The site would be located near a hydrocarbon-producing area known as the Elk Hills Field. The site is used primarily for agricultural purposes.

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 block would provide fuel to a 390 megawatt (MW) gross/250 MW net combined cycle power plant providing California with baseload power to the grid. The gasification block would also capture approximately 90 percent of the carbon from the raw syngas (the direct end of the gasification process) at steady-state operation, which will be transported to the custody transfer point at Elk Hills Field for CO2 (carbon dioxide) EOR (enhanced oil recovery) and sequestration. Due to the complex gasification and sequestration (storage) process, there is a larger than usual parasitic load.

In addition, the project would include a 100 MW net peaking natural gas-fired combustion generator that would provide power for plant startup, powering the gasifier when the plant does not generate and provide 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 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 reviewing applications for certifications, the Energy Commission is the lead state agency under CEQA, and, because this regulatory

program has been certified by the Natural Resources Agency pursuant to Public Resources Code section 21080.5, several environmental and decision documents are prepared rather than 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 please contact April Albright, Project Secretary, at (916) 653-1640, or by email at AEsau@energy.state.ca.us.

Sincerely,

Original signed by
Eileen Allen, Manager
Energy Facilities Siting and Compliance Office

Enclosure

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

June 17, 2009

To: MEMBERS OF THE PUBLIC

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

On May 28, 2009, Hydrogen Energy International (HEI) submitted a revised 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. Previously HEI submitted an AFC to the Energy Commission, which proposed the project on a different site. HEI subsequently decided to move the project when it discovered the existence of previously undisclosed sensitive biological resources at the prior site. This revised AFC for the new project site supersedes and replaces the July 31, 2008 AFC in its entirety.

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 block would provide fuel to a 390 megawatt (MW) gross/250 MW net combined cycle power plant providing California with baseload power to the grid. The gasification block would also capture approximately 90 percent of the carbon from the raw syngas (the direct end of the gasification process) at steady-state operation, which will be transported to the custody transfer point at Elk Hills Oil Field for CO2 (carbon dioxide) enhanced oil recovery (EOR) and sequestration. Due to the complex gasification and sequestration (storage) process, there is a larger than usual parasitic load.

In addition, the project would include a 100 MW net peaking natural gas-fired combustion generator that would provide power for plant startup, powering the gasifier when the plant does not generate and provide peaking power to the grid. Essentially 350 MW (250 MW net 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.).

Project Location

The proposed project would be located on a 473-acre site (currently used for agricultural production of alfalfa, cotton, and onions), and is comprised of two parcels (Part of Assessor's Parcel # 159-040-16 and 159-040-18, respectively). The project site would be located in western unincorporated Kern County, Section 10 of Township 30 South, Range 24 East, approximately 7 miles west of the outermost edge of the city of Bakersfield. It is 1.5 miles northwest of the unincorporated community of Tupman, and approximately 4 miles southeast of the unincorporated community of Buttonwillow, is bounded by Adohr Road on the north, Tupman Road to the east, an irrigation canal

(California State Water Project, aqueduct) to the south, and Dairy Road to the west. Elk Hills Oil Field is located approximately 1 mile south of the project site.

The project site is currently subject to a Williamson Act agricultural land preservation contract. HEI is currently pursuing a contract cancellation process with Kern County. The project site represents approximately 0.03 percent of the 1,649,780 acres of Williamson Act contracted lands in Kern County (Kern County, 2007b). The western border of the Tule Elk State Natural Reserve (California state park) is located approximately 1,700 feet to the east of the project site. The nearest single-family dwellings are located approximately 370 feet to the northwest, 1,400 feet to the east, 3,300 feet to the southeast of the proposed project site, and 4,000 feet to the north.

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 75 percent thermal input from western bituminous coal. Transportation of petcoke and coal to the project would be by truck during business operations.

- 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 enhanced oil recovery and sequestration.

- Project greenhouse gas emissions (e.g., carbon dioxide) and sulfur emissions are proposed to be reduced through the use of the EOR CO_2 sequestration process. The objective of the technology is to mitigate impacts related to climate change by reducing average annual greenhouse gas emissions.

- 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 drinking and 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 one of the two on-site plant wastewater zero liquid discharge (ZLD) units.

- 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 components of the HECA project 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

- Power generation
  - Combined-cycle power generation
  - Auxiliary combustion turbine generator
  - Electrical switching facilities

- Supporting Process Systems
  - Natural gas fuel systems
  - Air separation unit
  - Sulfur recovery unit/tail gas treating unit
  - Zero liquid Discharge system for process and plant wastewater streams
  - Carbon dioxide compression
  - Raw water treatment plant
  - Other plant systems

- All temporary construction equipment laydown and parking, including construction parking, offices, and construction laydown areas, will be located on the proposed project site.

Major off-site facilities:

- Electrical transmission line - A new length electrical transmission line would interconnect the project to PG&E's (Pacific Gas and Electric) existing Midway Substation by a 230 kilovolt (kV) transmission line. Two alternative transmission routes are proposed; each alternative is approximately 8 miles in length, extending from the western edge of the proposed project site to the north, and west to the north side of the substation.

- Natural gas supply - A natural gas interconnection would be made with either PG&E or Southern California Gas Company natural gas pipelines. The

proposed new natural gas line would be approximately 8 miles long located southeast of the proposed project site. 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 15 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 7 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 (each four miles in length).

If approved, construction of the project would begin in May 2011 with commissioning and initial startup occurring October 2014 through August 15, 2015, with full scale operation by September of 2015.

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 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 complete or 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, if so, 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 April Albright, Project Secretary, April Albright, Project Secretary, at (916) 653-1640, or by email at AEsau@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) 654-5191 or by email at rjones@energy.state.ca.us.

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