

## DOCKETED

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**Docket No. 08-AFC-08A: HYDROGEN  
ENERGY CALIFORNIA, LLC  
Hydrogen Energy California (HECA) Project  
Monthly Progress Report for August 2015**

**In compliance to the Committee Order Denying Motion to Terminate  
Application for Certification and Granting Request for Suspension**

Submitted August 31, 2015



August 2015

## ***Introduction***

Pursuant to the terms of the CEC order titled “Committee Order Denying Motion to Terminate Application for Certification and Granting Request for Suspension” handed down on July 3, 2015 HECA is herein responding to and providing its 2nd status update regarding the milestones to be completed on or before January 6, 2015 as set forth in the ruling.

During the month of August, HECA renewed discussions regarding the Project’s status with Department of Energy headquarters, specifically, Mr. David Mohler, the newly appointed Deputy Assistant Secretary, Office of Clean Coal and Carbon Management. On July 27<sup>th</sup>, HECA had a conference call with Mr. Mohler to discuss the grant and provide a brief project update. HECA outlined its progress over the last several months, regarding both the financial status of the project and the direction the project is heading regarding the storage of its excess CO<sub>2</sub>. HECA informed Mr. Mohler that the Project is actively perusing Class VI well permits for permanent capture and sequestration of CO<sub>2</sub>. Mr. Mohler’s Senior Advisor, Clara Smith, suggested a follow up meeting at DOE’s Washington DC headquarters to discuss the project in more depth. That meeting is now scheduled for late September; attendees will be finalized over the next few weeks. As requested, HECA prepared a formal project synopsis for DOE review ahead of the September meeting. That document is attached.

## ***Milestone 1:***

*Documentation of an executed CO<sub>2</sub> off-take and carbon sequestration agreement, for a site that is both feasible and available for such use;*

As discussed in the previous update submitted July 31, 2015, HECA continues working on activities that support its pursuit of Class VI well permits for permanent CO<sub>2</sub> sequestration.

The Environmental Protection Agency is responsible for issuing Class VI well permits. EPA Region 9 has jurisdiction over California regarding Class VI wells. However, Region 9 will work with EPA HQ in its review of HECA’s application since this will be the first of its kind for Region 9. In addition to EPA HQ and Region 9 EPA, HECA will work with DOE and CEC as well as SJVAPCE and county staff to keep all interested parties up to date on current and planned permitting activities.

LBNL is thoroughly reviewing existing data for the San Joaquin Valley and specifically the HECA project site to determine the best injection location to begin the next phase of data and field testing. The first part of the Class VI well application to EPA is to provide details on site

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selection and site characterization. This is also an important step in determining the ideal injection site for the CO<sub>2</sub> and ultimately the location for performing field tests also required for permitting. The following section states EPA's guidelines for site selection and site characterization that HECA and LBNL are undertaking to begin the process of permitting Class VI wells.

These guidelines are also important in the immediate term as they are assisting HECA and LBNL in determining the short term budget and corresponding schedule.

### **EPA Guidelines for Site Selection and Characterization**

*The Class VI Rule, at 40 CFR 146.83, establishes minimum criteria for the siting of Class VI wells. Specifically, Class VI wells must be located in areas with a suitable geologic system, including: (1) the presence of an injection zone of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream; and (2) the presence of confining zones that are free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the carbon dioxide stream and displaced formation fluids and allow injection without initiating or propagating fractures. Additionally, at the UIC Program Director's discretion, owners or operators may be required to identify and characterize additional confining zones to ensure USDW protection, impede vertical fluid movement, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation.*

*Owners or operators must demonstrate that a proposed site is suitable for GS by performing detailed site characterization and submitting extensive geologic data to the UIC Program Director. These data, described at 40 CFR 146.82(a), are necessary to demonstrate that the well will be sited in an area with a suitable geologic system that will ensure USDW protection and meet the requirements of 40 CFR 146.83.*

*The types of site characterization information specified by the Class VI Rule that must be provided with a Class VI well permit application include:*

- *Maps and cross sections of the area of review (AoR);*
- *The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone(s) in the AoR, along with a determination that they will not interfere with containment;*
- *Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone(s) and on lithology and facies changes;*

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- *Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone(s) [40 CFR 146.82(a)(3)(iv)];*
- *Information on the seismic history of the area, including the presence and depths of seismic sources, and a determination that the seismicity will not interfere with containment;*
- *Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the local area;*
- *Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all USDWs, water wells, and springs within the AoR, their positions relative to the injection zone(s), and the direction of water movement (where known);and*
- *Baseline geochemical data on subsurface formations, including all USDWs in the AoR.*

*The types of site characterization information specified by the Class VI Rule that must be provided for the UIC Program Director to review and approve the operation of a Class VI well include:*

- *Any relevant updates to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, based on data obtained during logging and testing of the well;*
- *Information on the compatibility of the carbon dioxide stream with fluids in the injection zone(s) and minerals in both the injection and the confining zone(s);*
- *The results of formation testing; and*
- *All available logging and testing program data on the well required by 40 CFR 146.87*

*Owners or operators are expected to take full advantage of existing site characterization data to fulfill the requirements at 40 CFR 146.82. However, a stratigraphic well may need to be drilled in some cases (e.g., if adequate data are not already available). If owners or operators need to drill a stratigraphic well, they may consider ultimately using it for injection or monitoring.*

## **Milestone 2:**

*A letter dated June 18, 2015 (CEC Docket TN 205090) from Lorelei Oviatt, Director, Kern County Planning and Community Development Department, sets forth the County's position that the project is not authorized under current land use designations to operate a chemical production*

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*facility at the proposed site. Applicant shall provide an up-to-date listing of any and all commercial products proposed to be produced by the project. In addition, Applicant shall provide a written discussion of whether or not, and why, the production of each such commercial product is or is not in compliance with Kern County's General Plan and zoning ordinance.*

No change in August.

**Next Steps:**

Meet with the county and seek guidance.

**Milestone 3:**

*Completed docketed responses to all presently outstanding data requests from the parties. To the extent that any such outstanding data requests are no longer applicable due to changes in the HECA project since issuance of the data requests, Applicant shall provide a discussion of what changes to the project render the data requests inapplicable. To the extent possible, Applicant shall modify the inapplicable data requests so that they apply to the changes in the project and respond to those modified data requests.*

A majority of the outstanding data requests were the responsibility of Oxy/CRC and pertain to their site for EOR storage. As HECA moves toward qualifying an alternative site for permanent storage and sequestration of its captured CO<sub>2</sub>, HECA will provide a discussion of the changes and address the applicability of all data requests.

No change in August.

**Next Steps:**

Review all outstanding data requests with counsel, provide appropriate discussions of any proposed changes, and, respond to the data requests appropriately.