



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

Audit Report

The Hydrogen Energy California Project



OAS-RA-13-22

June 2013



Department of Energy
Washington, DC 20585

June 6, 2013

MEMORANDUM FOR THE ACTING DEPUTY ASSISTANT SECRETARY FOR CLEAN
COAL
DIRECTOR FOR POLICY, OFFICE OF ACQUISITION AND
PROJECT MANAGEMENT

A handwritten signature in black ink, appearing to read "David Sedillo".

FROM: David Sedillo
Director, Western Audits Division
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "The Hydrogen Energy California
Project"

BACKGROUND

Under the American Recovery and Reinvestment Act of 2009, the Department of Energy's (Department) Office of Fossil Energy received \$3.4 billion to focus on the research, development and deployment of technologies to use coal more cleanly and efficiently. In September 2009, the Department approved a cooperative agreement award with a Government contribution of \$308 million to Hydrogen Energy California, LLC (HECA) to construct a commercial power plant to demonstrate the capture and underground storage of carbon dioxide. The project was expected to be completed in November 2018, at a total cost of about \$2.8 billion.

In March 2011, after the Department and HECA spent approximately \$75 million, HECA's original recipients notified the Department that they intended to terminate the agreement because the project did not meet their requirements for economic viability due to rising capital costs and difficulties in securing power purchase agreements from potential customers. With the Department's assistance, HECA found new owners that believed the project could be economically viable. In September 2011, the Department modified the cooperative agreement to recognize the change in ownership and increased total project cost to approximately \$4 billion with a Department cost share of \$408 million.

We initiated this audit to determine whether the Department effectively managed the modification of the HECA cooperative agreement and subsequent cost share activities.

RESULTS OF AUDIT

The problems encountered with the terminated \$2.8 billion agreement, economic viability and securing power purchase agreement arrangements were acknowledged and understood within the Department and the Office of Fossil Energy. Thus, our audit focused on the revised agreement and on lessons learned from the earlier experience. In short, we found that in assessing the

viability of the modified project, the Department relied on financial projections that were not always fully supported and that the Department had not ensured that only allowable costs had been included in the recipient's cost share contribution.

Financial Projections

The Department had not obtained and reviewed recipient documentation to substantiate key projections in the financial model used to support approval of the modified \$4 billion agreement. The financial model is routinely required by the Department for projects of this nature and is used to demonstrate the financial viability of the project based on projected revenues and expenditures. Although the Department required the original recipient to support financial projections, the merit review of the award criticized the lack of supporting documentation provided by the recipient. In the case of the subsequent change of ownership, the Department did not require the new owners to provide supporting documentation for financial projections even though comparable information was available from other Departmental reports and projects at the time of the modification. For example, the Department:

- Did not reconcile interest rate projections of 5.25 percent for bonds and 6.5 percent for a bank loan. These rates were substantially lower than those previously identified by the Department as reasonable for similar projects. HECA officials stated that the interest rates projected in the financial model were based on conversations with one of its vendors and a financier; however, they did not have documentation to support these claims. Department studies published in 2008 and 2011, indicated interest rates of 8.5 percent to be reasonable for high-risk power projects with less debt, shorter debt repayment periods, and more equity than what HECA projected in its financial model.
- Did not require support for operations and maintenance costs from the recipient. We found that HECA's projected operations and maintenance costs were 36 percent lower than a similar, but smaller, carbon capture power plant. This information, while available at the time of the change in ownership, raised concerns, in our judgment, as to the reasonableness of HECA's assertions.
- Accepted estimates for property tax and insurance cost projections that were considered to be "place-holders" by the new owner. We found that an estimate by a local independent non-profit organization indicated that HECA's property taxes could be roughly 10 times higher than projected. Additionally, we found that a similar but smaller power plant's insurance costs were at least twice as high as HECA's projection. These information sources were readily available at the time of the HECA ownership change. A HECA official stated the costs presented in the financial model were placeholders and the actual amounts could be higher than the projected values.

Department officials stated that at the early stage of the project many of the projections were subject to change. We recognize that some projections in the financial model could change depending on the results of the first phase of the project. However, a realistic and fully supported financial model is an important tool for the Department to assess project risk and allows informed decisions as to future viability.

We noted that, the recipient provided seven updates to the financial model since the change in ownership was formalized, although not required by the Department. In particular, the recipient updated information on operations and maintenance, property tax and insurance costs. While recent updates included lowered projected interest rates, the recipient's current update to the financial model showed that the total project cost was likely to increase by about \$800 million after adjustments to the budgeted debt amount and expenses, including engineering costs. Department officials told us that they reviewed the updates for reasonableness, but had not required any supporting documentation and could not explain changes made in the updates.

In response to our concerns, Department officials stated that they chose to concentrate on the primary drivers of project returns, which included items such as the total project cost and debt to equity ratio. They stated the basic functionality of the model was also tested as well and it was always the Department's intention to validate the financial model assumptions in much greater detail before recommending advancement into the construction phase of the project. Department officials further noted that the recipient was required to submit special status reports and obtain Contracting Officer approval when there were significant favorable or adverse impacts on the project. However, in our view, the recent significant projected increase in the total project cost and potential adverse impact on the debt to equity ratio that has occurred since the change of ownership, as previously noted, increased the Department's risk and demonstrated the need for the Department to obtain and review supporting documentation for key projections made in financial models in modifying future cooperative agreements.

Department Guidance

Although the Department had policies and procedures governing the review and approval of original financial assistance awards, there was no guidance governing the extent of support or review required for changes in the ownership and terms of a project. In the absence of specific policies and procedures, the Department conducted a technical analysis of the new owner's revised budget but did not perform a more extensive merit review. A merit review was performed for the original award and included an evaluation of financial model projections. In a technical evaluation of budget, a high-level summary of the budget and cost elements is reviewed; however, a review of supporting documentation is not required.

Department officials did not agree with our concerns regarding the lack of supporting documentation for the financial projections. Department officials stated that the level of financial review conducted at the ownership change was likely equivalent to or better than the level performed for the original award. However, as noted, although the Department required supporting documentation for financial projections in the original award, the merit review was critical of the lack of supporting documentation for financial projections. In the case of the change of ownership, Department officials told us that they had not required supporting documentation. According to a 2007 report to Congress, *Issues Related to the Clean Coal Power Initiative*, the Department stated that in order to avoid unspent funding and failed financial or scientific projects in the Clean Coal Technology Program, the Department would ensure all future proposals would require comprehensive documentation and analysis of finance, marketing and siting information. Specifically, proposal evaluations were to include an extensive financial analysis in an effort to improve the staff skill levels and procedures used to manage cooperative agreements.

Although it recognized the very preliminary nature of financial projections provided by HECA, the Department did not require periodic updates or a detailed analysis of the financial projections in the modification agreement. To its credit, the recipient has provided evolving projections to the Department, even though such updates are not required under the terms and conditions of the modified agreement. The Department required HECA to only submit a revised financial model at the end of the definition phase; however, there were no requirements to submit updated and revised financial projections as the definition phase progressed and revisions were made to the projections. Department officials agreed that they could have added special terms and conditions to the cooperative agreement requiring updates to the financial model including support for the updates. However, they told us that they did not have concerns regarding the recipient that warranted the imposition of special terms and conditions. In our view, a requirement for the recipient to provide periodic updates to the financial projections was reasonable, given the history of the project, the preliminary nature of the projections related to the modified agreement, and the fact that the modified agreement was not subject to the same level of scrutiny as the original award.

Policy officials from the Department's Office of Acquisition and Project Management told us that the current policies and procedures do not address changes in ownership for financial assistance awards. These officials also indicated that the Department was reviewing its financial assistance procedures and considering possible changes at the time of our audit. In our view, having such policies and procedures in place would help ensure that proposals for changes in ownership are required to provide supporting documentation equivalent to the original award. Additionally, a provision could be made for periodic updates to financial projections that are relied on in approving the modifications.

Cost Share

We also found that the Department had not ensured that the new owner was credited for only allowable costs as part of its cost share contribution. HECA had not provided documentation supporting that its cost share contributions did not include unallowable costs. In particular, the Department approved a \$737,544 credit toward HECA's cost share for pre-award direct labor, but notified HECA that costs associated with work on modifying the cooperative agreement was not an allowable pre-award cost.

Federal Acquisition Regulation 31.205-27, *Organization Costs*, states that expenditures in connection with the acquisition of a business or changing the ownership interest of a business are not allowable. To its credit, the Department reviewed a HECA provided summary of the pre-award activities, hours worked and labor rates charged for reasonableness. While the summary provided during the cooperative agreement negotiations included cooperative agreement and acquisition activities, it contained no explanation to support the work performed and how the hours were allocated to each activity. Although the Department told HECA that the cooperative agreement and acquisition costs were not allowable as pre-award costs, we noted that HECA continued to charge the entire \$737,544 against its cost share commitment and never decreased the amount associated with cooperative agreement and acquisition costs.

Department officials told us that HECA recently underwent a compliance audit that included a review for unallowable costs. The audit was completed in September 2012 and covered costs

incurred, including the pre-award costs from September to December 2011. The audit did not identify any questioned costs associated with the pre-award costs; however, we noted that the invoices reviewed only contained a cost share credit for the pre-award cost. The Department recently requested additional documentation from HECA to support the cost; however, HECA provided the same initial summary of work that included the work on cooperative agreement and acquisition activities, which the Department had identified as unallowable. A Department official acknowledged that unallowable costs could have been incurred without HECA providing supporting documentation to prove otherwise.

Potential Project Impact

Our audit found that the project is progressing. However, in our view, the Department is managing HECA at an increased risk level. Department officials asserted that HECA, as modified, actually reduced the risk of the project by adding a fertilizer production capability, thereby adding a second source of income to the project. We agree that this is potentially a positive step. However, we noted that the modified cooperative agreement actually represented a substantial increase in upfront risk to the Department by allowing HECA to substantially decrease its cost share in the early stages of the project. As such, the Department is at risk of expending \$133 million for its share of project costs in the first phase without it being completed if the recipient is unable to obtain funding for the next project phase.

SUGGESTED ACTIONS

To help mitigate the risks we identified in the HECA project, ensure similar situations do not recur, and improve the management of cooperative agreements, we suggest that the Director for Policy, Office of Acquisition and Project Management:

1. Develop policies and procedures that provide guidance for:
 - a. Ownership changes in financial assistance awards, especially in the area of financial records and documentation review; and
 - b. Reviewing changes to financial projections and cost share contributions to assess their impact on projects.

Furthermore, we suggest that the Deputy Assistant Secretary for Clean Coal ensure that:

2. Program officials complete thorough reviews of HECA projections; and
3. Costs included in the recipient's cost share contribution are allowable.

Attachment

cc: Deputy Secretary
Acting Under Secretary of Energy
Acting Chief of Staff

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The objective of the audit was to determine whether the Department of Energy (Department) effectively managed the modification of the Hydrogen Energy California (HECA) cooperative agreement and subsequent cost share activities.

SCOPE

We conducted the audit from November 2011 to May 2013, at the National Energy Technology Laboratory, located in Pittsburgh, Pennsylvania, the Department's Office of Fossil Energy in Washington, DC; and the cooperative agreement partner in Concord, Massachusetts.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable Federal regulations, Department policies and related prior reports;
- Reviewed and analyzed data and documents related to the HECA cooperative agreement; and
- Interviewed key Department and HECA recipient personnel.

The audit was conducted in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. The Department established performance measures regarding cooperative agreements related to Fossil Energy Programs as required by the *GPR Modernization Act of 2010*. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not solely rely on computer-generated data to satisfy our objective. Instead, we performed other procedures to satisfy ourselves as to the reliability and competence of the data by reviewing and analyzing data and performing interviews as it relates to the HECA cooperative agreement. In addition, we confirmed the validity of other data, when appropriate, by reviewing supporting source documents.

Management waived an exit conference.

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