



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

# Audit Report

The Department of Energy's  
Geothermal Technologies Program  
under the American Recovery and  
Reinvestment Act



OAS-RA-11-05

March 2011



**Department of Energy**  
Washington, DC 20585

March 22, 2011

MEMORANDUM FOR THE UNDER SECRETARY OF ENERGY

FROM: *Greg Friedman*  
Gregory H. Friedman  
Inspector General

SUBJECT: **INFORMATION:** Audit Report on "The Department of Energy's Geothermal Technologies Program under the American Recovery and Reinvestment Act"

**BACKGROUND**

Under the American Recovery and Reinvestment Act of 2009 (Recovery Act), the Department of Energy's Geothermal Technologies Program received \$400 million to promote the exploration and development of new geothermal fields and innovative research into advanced geothermal technologies. This funding represents an almost ten-fold increase over the \$44 million originally appropriated to the Geothermal Technologies Program for 2009. As of January 2011, the Department had awarded \$368 million in financial assistance agreements for 135 geothermal technologies projects, with about \$68 million having been expended.

Recovery Act funding supports geothermal projects undertaken by private industry, academic institutions, tribal entities, local governments, and the Department's National Laboratories. The projects, covering activities in 39 states, represent a significant expansion of the U.S. geothermal industry and are intended to create or save thousands of jobs in drilling, exploration, construction, and operation of geothermal power facilities and manufacturing of ground source heat pump equipment.

We initiated this audit to determine whether the Department had effectively managed the geothermal awards funded under the Recovery Act.

**CONCLUSIONS AND OBSERVATIONS**

In general, the Department followed established procedures for the solicitation, merit review, selection and award of geothermal projects. However, we identified weaknesses in project administration that need to be addressed to ensure that the government's interests are protected, that financial assistance recipients fully comply with Federal requirements, and that the goals of the Recovery Act are met. Specifically, our review of six major projects revealed that:

- Five of the six for-profit award recipients had been paid in excess of \$110,000 for items that were either expressly unallowable under Federal regulations and award conditions or were questionable. Recipients claimed and had been reimbursed for unallowable costs such as alcohol, excessive travel, and entertainment expenses, as well as for duplicate payments, unauthorized pre-award expenses, and for other expenses that lacked sufficient supporting documentation; and,

- Five of the six award recipients had not required subcontractors to implement Davis-Bacon Act requirements to pay prevailing wage rates as mandated by the Recovery Act. Subcontract awards account for an estimated 90 percent of the \$57 million in project costs for the 5 recipients.

The Department's approach to monitoring geothermal awards was not fully effective. Specifically, it had not developed and implemented procedures for monitoring projects. Additionally, it had not assigned adequate staff to monitoring activities and had not adequately trained recipients on Federal rules regarding unallowable costs. Award recipients also indicated that they were uncertain about how Davis-Bacon Act requirements could be applied to their awards.

Payment of unallowable and questionable expenses reduces the amount of funds available for mission objectives and represents waste and abuse of taxpayer dollars. Accordingly, we are questioning \$110,000 in award payments that need to be resolved by the Department's contracting officer. These costs were identified from expenses totaling \$7.6 million, of which \$4.3 million was reimbursed by the Department as of June 2010. As a result of our audit, one recipient informed us that it reduced the December 2010 invoice to the Department by over \$43,000 for pre-award costs and overcharges noted in the example discussed previously.

While the overall amount of the inappropriate payments outlined in this report are relatively small in relation to the total authorized for the Geothermal Technologies Program, they demonstrate that safeguards designed to prevent or promptly detect unallowable costs were not completely effective. Because our review was confined to a sample of active projects and with almost \$300 million remaining to be spent as of December 2010, it is essential that the Department take immediate action to avoid similar problems in the future.

#### Costs Billed to and Reimbursed by the Department

Five of the six recipients included in our sample had erroneously claimed and been paid for a total of about \$110,000 for costs incurred under their awards. These recipients billed the Department for alcohol, excessive travel expenses, and entertainment costs as well as for unauthorized pre-award expenses. Further, we found duplicate payments and identified other claims that lacked supporting documentation. For example:

- Two recipients had been reimbursed for alcohol, totaling \$141. Alcohol is specifically prohibited by Federal Acquisition Regulation (FAR) Part 31.205-51, the provision applicable to these financial assistance awards.
- Four recipients had been reimbursed about \$1,400 for travel expenses in excess of the limits prescribed by the Federal Travel Regulation, FAR Part 31.205-46. This amount resulted from numerous instances where recipients had been reimbursed for lodging expenses and meal allowances in excess of prescribed maximum amounts. Additionally, we found various other questionable expenses including unauthorized airline upgrades.

- One recipient over-billed the Department for \$20,000 due to a typographical error on an invoice. Although this error was later identified by the recipient, we noted that neither the recipient's nor the Department's control systems had identified the error before the costs were reimbursed. The recipient indicated that the error would be corrected on the next invoice submission. The correction had not occurred, however, as of November 2010, nearly 4 months after the Department had reimbursed the recipient.
- Without required Contracting Officer approval, a recipient had been reimbursed about \$42,000 for costs incurred before the financial assistance agreement took effect.
- Another recipient had been reimbursed almost \$43,000 in costs that had already been included in its indirect cost rate. This recipient had included expenses for depreciation and legal costs in its indirect cost rate and then billed these same expenses directly.
- One recipient had been reimbursed \$1,100 for an overcharge by a subcontractor. In this instance, the recipient paid the subcontractor for an employee's overtime salary that should have been charged as regular time.
- Three recipients had been reimbursed \$2,074 for costs without sufficient supporting detail, including an explanation of the business purpose for the expenditures. For example, one recipient had been reimbursed \$667 in airfare with only a copy of a company credit card statement submitted as supporting documentation rather than an airline receipt and attestation of business purpose. In another case, a recipient was reimbursed over \$500 for working lunches that were categorized as "business entertainment" without supporting documentation explaining the business purpose of the lunches.

#### Wage Rates for Subcontractors

The Davis-Bacon Act was designed to ensure that laborers are compensated in accordance with prevailing wage rates for the geographic area where they work. The Recovery Act extends the requirement to adhere to the Davis-Bacon Act to include financial assistance agreements not previously subjected to that law. It also requires the Department to make a determination whether the Davis-Bacon Act provisions apply on a program basis. The Department determined that the requirements of the Davis-Bacon Act applied to the Geothermal Technologies Program and included special terms and conditions in each award to promulgate that Act. Under the Act, recipients must ensure that they include Davis-Bacon Act terms and conditions in subcontracts for the types of labor and other activities covered by the Act, maintain detailed subcontractor payroll records, and conduct audits as necessary to ensure compliance with requirements.

Five of the six recipients in our sample had not included provisions to ensure that subcontractor laborers were paid at the minimum prevailing wage rates as required by the Davis-Bacon Act. The sixth recipient had not subcontracted any work at the time of our audit. While the Department included provisions implementing the Davis-Bacon Act in its Geothermal Technologies financial assistance awards, including requirements to flow-down Davis-Bacon

Act provisions to subcontractors, our audit of subcontracts made by the five recipients as of August 2010, showed that none of the awards contained the Davis-Bacon Act requirements.

Recipient officials stated that they were uncertain as to how they would apply wage rates since, in their view, Davis-Bacon Act labor categories did not specifically apply to geothermal well drilling. However, we identified a number of subcontracts awarded by the recipients that involved standard type construction activities such as fence construction and painting. We were unable to determine the amount that any workers had been underpaid, since records had not been maintained. In total, the six recipients we visited had planned to subcontract more than \$57 million.

#### Monitoring and Training

Insufficient monitoring of the awards and inadequate training of recipients on applicable Federal requirements directly contributed to the improper reimbursements and failure to adhere to grant terms. We noted that in some cases, the costs we identified were visible in the invoices submitted to the Department by the recipients but were not questioned by project officers. Similarly, at the time of our audit, the Geothermal Technologies Program had not developed procedures for monitoring projects, including reviews for compliance with Davis-Bacon Act provisions.

Geothermal Technologies Program staffing issues contributed to weaknesses in monitoring recipients. Specifically, each project officer in the Geothermal Technologies Program is responsible for monitoring at least 50 awards. To help mitigate the workload, the Branch Chief had assumed responsibilities for monitoring about 20 awards. Although the Department had not estimated resources needed for the Geothermal Technologies Program, a Department official stated that 30 to 40 awards per Project Officer would be more reasonable, given the make-up and attributes of individual projects in the Geothermal Technologies Program. According to officials, there are no plans to hire additional staff to manage the Geothermal Technologies Program.

We have previously reported on the impact of insufficient staffing on the oversight of financial assistance awards. In our audit [Selected Energy Efficiency and Renewable Energy Projects](#) (DOE/IG-0689, May 2005), we concluded that project officers could not effectively oversee 50 awards each and found that responsibility for such a high number of awards led to problems similar to those we identified during this audit.

Given staffing limitations, Geothermal Technologies Program officials informed us that their primary objective was to complete the awarding of the geothermal financial assistance agreements and that they would later focus their attention on certain monitoring activities. Geothermal Technologies Program officials told us that cost reviews would be conducted by independent auditors at a later time, and that they intended to train project officers in Davis-Bacon Act compliance. Additionally, the Department developed a guide for the implementation of Davis-Bacon Act requirements and distributed it to recipients in November 2010. However, the Department did not have a schedule of cost audits to show how many recipients will be audited. Also, Geothermal Technologies Program officials told us that Davis-Bacon Act

compliance reviews will only occur at recipients selected for site visits. According to our discussions with project officers, site visits will not occur until after drilling rigs are in place and operational. In these instances, subcontracts may have already been put into place and it may be too late to ensure Davis-Bacon Act requirements are included in subcontracts. Department officials stated that not all recipients would receive an on-site monitoring visit.

Finally, recipients, many of whom were new to receiving Federal financial assistance awards, told us that they were uncertain of Federal rules governing allowable costs and Davis-Bacon Act requirements. Although the recipients lacked prior experience with Federal financial assistance awards, the Department had not provided training on allowable costs and wage rate compliance requirements to them.

## **RECOMMENDATIONS**

The Department is at risk of not meeting the goals and objectives of the Recovery Act for its Geothermal Technologies Program. Specifically, costs totaling nearly \$110,000 have been reimbursed by the Department – costs that, in our opinion, likely represent waste and abuse of taxpayer dollars. Further, prevailing wage rates were not required for subcontractors even though they were a key requirement of the Recovery Act. Given the sizable sum that remains to be spent on the Geothermal Technologies Program, the Department has an opportunity to rectify these situations and ensure a successful path forward.

To help achieve the objectives of the Recovery Act, as they relate to the Geothermal Technologies Program, we recommend the Acting Deputy Assistant Secretary for Renewable Energy direct responsible officials to:

1. Review resource allocations and adjust Federal project manager-to-financial assistance award ratios as necessary to ensure that projects are adequately monitored;
2. Develop formal procedures for project officer review of projects including compliance with Davis-Bacon Act provisions;
3. Provide training to recipients as necessary to ensure compliance with Federal award requirements in areas such as Federal cost standards and David-Bacon Act compliance for wage rates; and,
4. Require awardees to amend subcontracts to include compliance with Davis-Bacon Act requirements where applicable.

Additionally, we recommend that the Contracting Officer for the Geothermal Technologies Program financial assistance awards:

5. Determine whether the \$110,000 in questioned costs identified in this report are allowable.

## MANAGEMENT'S RESPONSE

The Department concurred with the findings and recommendations contained in our audit. Specifically, management stated that it had either completed or had ongoing actions to: (1) adjust resource allocations for project monitoring; (2) develop procedures to review compliance with Davis-Bacon Act requirements; (3) provide recipient training on laws and regulations applicable to awards, including Davis-Bacon Act requirements; and, (4) monitor recipient flow-down of requirements in subcontracts and direct compliance when required. Further, the Department reported that it had already recovered 97 percent of the costs we questioned. Finally, management pointed out that our review occurred early in the project period and that future unallowable costs would be identified during annual incurred cost reconciliations. Management also stated that it had requested post-award audits of Recovery Act-funded projects.

Management's actions are responsive to our recommendations.

Management's comments are included in their entirety in Attachment 3.

### Attachments

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

## **OBJECTIVE, SCOPE AND METHODOLOGY**

### **OBJECTIVE**

The objective of this audit was to determine whether the Department of Energy (Department) had effectively managed the awards funded under the American Recovery and Reinvestment Act of 2009 (Recovery Act).

### **SCOPE**

This audit was performed between June 2010 and January 2011, at the Department Headquarters in Washington, DC, and the Golden Field Office in Golden, Colorado. In addition, we visited six financial assistance recipients. Due to other ongoing audits being conducted by an independent accounting firm, we did not review accounting controls at the recipients we visited.

### **METHODOLOGY**

To accomplish the objective, we:

- Obtained and reviewed relevant laws and regulations related to implementation of the Recovery Act and financial assistance awards administration;
- Reviewed programmatic and planning documents such as the Funding Opportunity Announcement and Project Operating Plans;
- Reviewed and evaluated procedures, results reports, and other documents related to the merit review of applications and selection of recipients;
- Obtained access to the Department's Strategic Integrated Procurement Enterprise System and reviewed individual award files for a sample of geothermal financial assistance agreements;
- Reviewed subcontracts for inclusion of Davis-Bacon Act wage requirements as prescribed by the Recovery Act;
- Interviewed Project Officers, Contract Specialists, and the Contracting Officer for sampled financial assistance awards made under the Geothermal Technologies Program; and,
- Conducted site visits to six geothermal financial assistance recipients to observe implementation of work, interview officials, and analyze financial transactions and implementation of financial assistance requirements as prescribed by the terms and conditions of the awards.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our finding and conclusions based on our audit objective. We believe the evidence obtained provides a reasonable basis for our finding and conclusions based on our audit objective. 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 also assessed performance measures in accordance with the *Government Performance and Results Act of 1993* and determined that performance measures were established for the Geothermal Technologies Program. We conducted an assessment of computer processed data relevant to our audit objective and found it to be reliable.

Management waived an exit conference.

## **PRIOR AUDIT REPORTS**

### **Office of Inspector General Reports**

- [Progress in Implementing the Advanced Batteries and Hybrid Components Program under the American Recovery and Reinvestment Act](#) (OAS-RA- L-10-04, April 2010). This report revealed that the Department of Energy (Department) had made significant progress in implementing the Advanced Battery and Hybrid Components Program. During the audit, nothing was noted to indicate that the Department had not followed its predetermined award process and selection criteria. In addition, a comprehensive monitoring plan was implemented, and if successful, should reduce the financial, technical, and marketing risks associated with the projects.
- [Selected Energy Efficiency and Renewable Energy Projects](#) (DOE/IG-0689, May 2005). The report concluded that over half of the 20 cooperative agreements included in the review did not receive sufficient attention from management. For many of the agreements, required site visits were not performed. In addition, it was determined that administering up to 50 projects simultaneously is unreasonable.

### **General Accountability Office Reports**

- [Increasing the Public's Understanding of What Funds are Being Spent on and What Outcomes Are Expected](#) (GAO-10-581, May 2010). This report found that an estimated 33 percent of geothermal awards met the transparency criteria, 62 percent partially met the criteria, and 5 percent did not meet the criteria. The report focused on one aspect of transparency and accountability: the extent to which descriptions of awards found on Recovery.gov foster a basic understanding of award activities and expected outcomes. Although supplemental materials were available to assist with recipient reporting, recipients did not always follow the directions. Additionally, Geothermal Technologies Program officials did not review narrative description fields in Recovery.gov, which may have led to some reporting errors.

**MANAGEMENT COMMENTS**

MAR - 9 2011

MEMORANDUM FOR: Ricky R. Haas  
Deputy Inspector General  
for Audit Services  
Office of Inspector General

FROM: Steven G. Chalk   
Acting Deputy Assistant Secretary  
for Renewable Energy  
Energy Efficiency and Renewable Energy

SUBJECT: Response to the Office of Inspector General Draft Report on "The Department of Energy's Geothermal Technologies Program under the American Recovery and Reinvestment Act"

The Office of Energy Efficiency and Renewable Energy (EERE) appreciates the opportunity to review the Office of Inspector General's (IG) Draft Audit Report "The Department of Energy's Geothermal Technologies Program under the American Recovery and Reinvestment Act."

The Department of Energy is committed to properly managing Recovery Act projects across the EERE portfolio, to include the Geothermal Technologies Program. DOE concurs with the Inspector General's recommendations and DOE has already completed most of the actions recommended in the audit. We have documented those actions in our attached response. DOE takes very seriously its responsibility to promote and support America's clean energy economy.

EERE has a robust monitoring plan for all projects within the Recovery Act portfolio; within Geothermal resources were re-allocated to quickly address any issues, including increasing oversight and providing technical assistance. DOE has also shifted resources to the Geothermal Program at the Golden Field Office to improve project monitoring and has developed monitoring procedures to comply with the requirements of the Recovery Act.

DOE will continue to work closely with all recipients to monitor their projects to ensure the success of the Geothermal Technologies Program.

Should you have any questions, please contact our audit coordinator Adam Tucci at 303-275-4850.

**"The Department of Energy's Geothermal Technologies Program under the American Recovery and Reinvestment Act"**

**DOE RESPONSE TO THE OFFICE OF INSPECTOR GENERAL  
RECOMMENDATIONS**

***1. Review resource allocations and adjust Federal project manager-to-financial assistance award ratios as necessary to ensure that projects are adequately monitored***

**Concur** – The Department of Energy (DOE) has reviewed and taken steps to adjust resource allocations for project monitoring of Recovery Act funded geothermal projects by shifting internal resources. In January, 2011, DOE posted a position announcement for collateral duty Project Officers who will be detailed to the Geothermal Technologies Program (GTP) at the Golden Field Office (GO) and posted an announcement for one permanent Geothermal Project Officer position. At Headquarters (HQ), GTP added four highly qualified individuals to improve its ability to manage Recovery Act projects. In order to appropriately monitor the complex technical aspects of geothermal demonstration projects, GTP continues to fund technical teams at the National Laboratories to provide diverse technical support.

***2. Develop formal procedures for project officer review of projects including compliance with Davis-Bacon Act provisions***

**Concur** – DOE has taken steps to develop a formal procedure to review compliance with Davis-Bacon Act (DBA) requirements. To complement the EERE monitoring plan, DOE has developed an on-site DBA monitoring checklist for Project Officers to use during future site visits and on project monitoring conference calls where appropriate. GO also plans on cross-training with EECBG Project Officers who have conducted numerous site visits with emphasis on DBA compliance. On November 5, 2010, GO sent an email to all Recovery Act funded Geothermal Recipients with supplemental documents and website links to provide detailed instructions regarding DBA requirements.

***3. Provide training to Recipients as necessary to ensure compliance with Federal award requirements in areas such as Federal cost standards and Davis-Bacon Act compliance for wage rates***

**Concur** – It is the responsibility of each Recipient to comply with the laws and regulations that are applicable to its awards, including applicable DBA requirements. To help Recipients understand the DBA requirements, DOE has routinely provided DBA webinar training since July 2010 GO sent an email in November, 2010 to all Recovery Act funded GTP Recipients with detailed guidance regarding DBA requirements and applicable website links. This email included a reminder about the requirement to “flow-down” the DBA regulations to all subcontracts. Three DBA webinars are posted on DOE’s website at [http://www1.eere.energy.gov/wip/davis-bacon\\_act.html](http://www1.eere.energy.gov/wip/davis-bacon_act.html), in addition, DOL made several DBA presentations which are also available on-line at <http://www.dol.gov/whd/recovery/#Presentations>. GO sent an email to all Recovery Act

funded GTP Recipients with links to these webinars on January 31, 2011. GO also sent an email to all the Recovery Act funded GTP Recipients that includes references to the Federal Cost Principles and list of the most common unallowable costs. Additionally, DOE is in the process of developing a pre-recorded webinar regarding Federal Cost Principles and audit requirements.

**4. *Require awardees to amend subcontracts to include compliance with Davis-Bacon Act requirements***

**Concur** – DOE incorporates all DBA clauses, including the requirement to flow down the DBA requirements to contractors and subcontractors, in the Recovery Act grants and cooperative agreements awarded under GTP. In addition, on November 5, 2010, DOE notified all GTP Recovery Act funded Recipients via email that DBA requirements flow down to subcontractors. Recipients do not typically consult DOE before awarding their subcontracts, but when they do, DOE advises them regarding the circumstances under which DBA clauses are applicable to their subcontractors. Should it be discovered that a Recipient has not properly included DBA requirements in a subcontract, they will be directed to do so. DOE ensures Recipient compliance with DBA flow down provisions when performing on-site visits. DOE has developed an on-site monitoring DBA checklist for all Project Officers to use during site visits. During their regular conference calls with Recipients, Project Officers will also remind Recipients of their responsibility to flow-down DBA provisions in subcontracts.

**5. *Additionally, we recommend that the Contracting Officer for the Geothermal Technologies Financial Assistance awards determine whether the \$110,000 in questioned costs identified in this report are allowable.***

**Concur** – The Contracting Officer for the GTP financial assistance awards reviewed all questioned costs to determine if they were unallowable, and addressed all questioned costs as appropriate. Most of the questioned costs were found to be unallowable. Of the unallowable costs, 97% have been corrected and the remaining 3% will be corrected with the recipients' next invoice(s). Recipients with unallowable costs were notified and instructed to deduct the unallowable costs and provide supporting receipts.

There are existing safeguards in place to identify unallowable costs and other payment discrepancies such as: 1) the requirement for submitting invoices before Recipients can be paid; 2) the incurred cost reconciliation process; and 3) post-award audits. Depending on the payment provision included in the financial assistance award, these safeguards may be initiated at the time the Recipient requests payment, or later in the award process when the payments are audited. All Recipients of DOE financial assistance awards are required to submit an annual incurred cost submission within 180 days of the end of their fiscal year. This process normally identifies unallowable costs and ensures that the Recipient does not charge unallowable costs to the DOE project. Please note that the OIG Recipient audits occurred early in project period before Recipients had submitted their incurred cost proposals. Future unallowable costs would be identified during the annual incurred cost reconciliation. Furthermore, GO has requested post-award audits on all Recovery Act funded projects for which GO is cognizant.

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