



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

Audit Report

The Department of Energy's Solid-State Lighting Program



OAS-RA-L-13-03

February 2013



Department of Energy

Washington, DC 20585

February 28, 2013

MEMORANDUM FOR THE DIRECTOR, NATIONAL ENERGY TECHNOLOGY LABORATORY

A handwritten signature in black ink, appearing to read "Jack Rouch", positioned above a horizontal line.

FROM: Jack Rouch, Director
Central Audits Division
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "The Department of Energy's
Solid-State Lighting Program"

BACKGROUND

The Department of Energy's (Department) Office of Energy Efficiency and Renewable Energy established the Solid-State Lighting Program to advance the development and market introduction of energy-efficient white-light sources for general illumination. Since 2003, the Department has cooperated with industry partners to invest in research and development of solid-state lighting – including both light emitting-diodes (LED) and organic light emitting-diodes (OLED) technologies. The American Recovery and Reinvestment Act of 2009 appropriated more than \$41 million to accelerate solid-state lighting research and development and jumpstart the manufacturing research and development initiative. Through competitive solicitations, the Department awarded financial assistance instruments to various recipients such as industry partners, universities and national laboratories each year since the program's inception.

At the time of our review, the Department had awarded 111 cooperative agreements since 2004 with a total value of over \$168 million in Federal funding. These financial assistance awards were managed by the National Energy Technology Laboratory. Due to the significant investment and the importance of developing affordable and energy efficient next-generation lighting solutions, we initiated this audit to determine whether the Department effectively and efficiently managed the Solid-State Lighting Program.

CONCLUSIONS AND OBSERVATIONS

Our review determined that the Department had controls in place, in most instances, to effectively and efficiently manage the Solid-State Lighting Program. In particular, the Department had implemented planning and monitoring controls to ensure that selected financial assistance awards were competed in accordance with policies and procedures, implemented a process for evaluating recipient accounting control systems and monitoring corrective actions, and established a system to evaluate and annually assess ongoing projects. Our review

identified certain actions, through the application of lessons learned, that could improve the Department's management of the Solid-State Lighting Program. Specifically, we noted that the Department could enhance program operations by:

- Ensuring recipients have effective accounting controls and financial systems in place to adequately segregate and accumulate costs; and,
- Tracking external audit findings to develop lessons learned for reviewing financial assistance awards.

As outlined in the remainder of our report, we believe that action to address these challenges will enhance the overall management of the Solid-State Lighting Program.

Lessons Learned

If the Department proactively alerts recipients at the time of award to their responsibilities to segregate and separately account for costs then it is likely to reduce the incidence of unallowable costs being incurred under cooperative agreements. Specifically, our review of accounting control and financial systems audits conducted by the Defense Contract Audit Agency (DCAA) identified a number of weaknesses at various Solid-State Lighting Program recipients. In particular, we noted that issues existed relating to development and implementation of policies and procedures for the segregation and separate accounting of cooperative agreement costs. For example, of the four recipients reviewed:

- None had developed adequate policies, procedures and practices for appropriately segregating and accumulating direct and indirect costs. Specifically, each of the recipients lacked the ability to correctly identify direct and indirect costs, which increased the risk that indirect costs could be double-billed.
- None had developed adequate policies and procedures for identifying and segregating unallowable costs, which increased the risk that such costs could be inappropriately billed to the financial assistance award. In fact, one of the DCAA audits identified unallowable costs that were billed and reimbursed to the recipient such as costs incurred prior to the award and sales tax.
- None had developed and implemented adequate timekeeping policies and procedures. Timekeeping policies and procedures are critical to ensuring that costs are properly allocated to Federal financial assistance awards. This is especially important for the Solid-State Lighting Program because the majority of costs are related to labor activities.
- Three had not required supervisory approval for submitted timecards.

Additionally, we noted that annual internal controls and compliance audits conducted by independent public accounting firms as required by the Department identified accounting and financial system weaknesses at two of six Solid-State Lighting Program cooperative agreement

recipients included in our sample. The two recipients incurred approximately \$3 million of questionable costs related to the allocation of labor charges, overhead costs and vendor purchases.

We recognize that the recipients had taken corrective actions to address the DCAA identified weaknesses and that the Department closely monitored the implementation of these actions. However, we found that the Department had not conducted an overall comparative review of audit findings to identify common issues among the recipients in the program. Had such a review been completed, the Department may have been able to proactively address weaknesses in recipients' activities. In particular, such an analysis would be useful in identifying the root cause of non-compliance with requirements for accounting and financial systems. For example, one of the four recipients told us that training on segregation and separate accounting for cooperative agreement costs would have been beneficial at the outset of the award. Furthermore, we noted that the Department's emphasis during meetings with recipients and site visits was focused more on technical rather than financial aspects of the projects. Specifically, in discussions with Department contract administrators and recipients, officials informed us that they had not met with financial personnel when they conducted briefings at either the Department or recipient locations.

Path Forward

In light of the significance of the Solid-State Lighting Program, it remains important that the Department continue to monitor actions taken by recipients to enhance financial controls and address issues identified from external audits. In addition, we believe that implementation of our suggestions could provide an opportunity to improve management of financial assistance awards across the Department's programs.

SUGGESTED ACTIONS

To address the lessons learned identified in this report and improve management of the Solid-State Lighting Program, we suggest that the Director for the Project Management Center at the National Energy Technology Laboratory:

1. Ensure financial assistance recipients are aware of and implementing accounting controls and financial system requirements; and,
2. Track external audit findings to develop lessons learned for reviewing financial assistance awards.

Attachments

cc: Deputy Secretary
Associate Deputy Secretary
Acting Under Secretary of Energy
Assistant Secretary for Energy Efficiency and Renewable Energy
Acting Chief Financial Officer
Chief of Staff

OBJECTIVE, SCOPE AND METHODOLOGY

OBJECTIVE

The objective of this audit was to determine whether the Department of Energy (Department) effectively and efficiently managed the Solid-State Lighting Program.

SCOPE

The audit was performed between April 2012 and February 2013 at the National Energy Technology Laboratory in Pittsburgh, Pennsylvania. Additionally, we visited three financial assistance recipients: two in Research Triangle Park, North Carolina and one in San Jose, California. Finally, we gathered detailed documentation to conduct testing from three other recipients in San Jose, Santa Clara and Goleta, California.

METHODOLOGY

To accomplish the audit objective we:

- Obtained and reviewed relevant laws and regulations related to the management of financial assistance awards and the implementation of the American Recovery and Reinvestment Act of 2009;
- Identified a universe of 111 cooperative agreements under the Solid State Lighting Program and reviewed award documentation for a judgmental sample of 14 awards;
- Reviewed individual cooperative agreement award files from the Department's Strategic Integrated Procurement Enterprise System;
- Reviewed independent audits of accounting control systems and recipient compliance with laws, regulations and award terms;
- Interviewed project officers, contract specialists and contracting officers regarding cooperative agreements made under the Department's Solid-State Lighting Program;
- Interviewed officials of six financial assistance recipients and analyzed financial transactions incurred and billed to the financial assistance award; and,
- Reviewed the Department's selection and award process, Solid-State Lighting Program planning process and the monitoring and resolution of corrective actions from independent audits.

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 findings and conclusions based on our audit objective. We believe the evidence obtained provides a reasonable basis for

our findings and conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed the Department's implementation of the *GPRAModernization Act of 2010* and found the Department had established performance measures related to the Solid-State Lighting Program. 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 conducted an assessment of computer-processed data relevant to our audit objective and found it to be reliable.

Management waived an exit conference.

PRIOR REPORTS

Office of Inspector General

- Audit Report on [*Solar Technology Pathway Partnerships Cooperative Agreements*](#) (OAS-M-11-02, March 2011). This audit found that the Department of Energy's (Department) financial monitoring of projects under the Solar Technology Pathway Partnerships Program was not always adequate. Specifically, the Department had not ensured that recipients had independent audits of their internal control structures and compliance with applicable laws and regulations as required by Federal regulations. Furthermore, the Department had not established a process to track, collect, review and follow-up on required audits.

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