U.S. Department of Energy
Office of Inspector General
Office of Audit Services

# Audit Report

## Office of Science's Energy Frontier Research Centers

OAS-RA-L-10-09 August 2010

# Memorandum

DATE: August 27, 2010 Audit Report Number: OAS-RA-L-10-09

REPLY TO ATTN OF: IG-32 (A10RA003)

SUBJECT: Audit Report on "Office of Science's Energy Frontier Research Centers"

TO: Associate Director, Office of Basic Energy Sciences, SC-22

## INTRODUCTION AND OBJECTIVE

In 2008, the Department of Energy's (Department) Office of Science (Science) issued a Funding Opportunity Announcement seeking applications from the scientific community for the establishment of Energy Frontier Research Centers (EFRCs). The purpose of the EFRCs is to integrate the talent and expertise of leading scientists to accelerate the rate of scientific breakthroughs needed to create advanced energy technologies for the 21st century. The EFRCs are to pursue the fundamental understanding necessary to meet the global need for abundant, clean, and economical energy. The EFRC research areas include solar energy, electricity storage, materials sciences, biofuels, advanced nuclear systems, and carbon capture and sequestration.

In April 2009, Science announced the establishment of 46 EFRCs, of which 16 would be funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act). The Recovery Act was enacted to stimulate the United States' economy, create jobs, and make infrastructure investments in energy and other areas. Science plans to invest a total of $777 million over five years, providing each EFRC between $2 million and $5 million per year. The 16 EFRCs funded by the Recovery Act are funded for the full 5 years in the amount of $277 million, whereas the other 30 EFRCs as well as other types of research awards require annual requests for funding to continue.

Due to the significant investment in this program and the emphasis placed on Recovery Act funding, we initiated this audit to determine whether Science had established effective controls over the use of Recovery Act funds and EFRCs.

## CONCLUSION AND OBSERVATIONS

Nothing came to our attention which indicated that Science had not substantially complied with Recovery Act requirements in expending funds for the EFRCs. For example, we found that the EFRCs were generally in compliance with reporting guidelines, had segregated funds, and had ensured that Recovery Act requirements were included in subcontracts.

Further, nothing came to our attention which indicated that Science had not established controls over the award and monitoring of EFRC research awards. For the 12 grant

applications we selected for review, Science's Merit Review Panel had rated each of the applications using the criteria described in the Funding Opportunity Announcement, including the scientific merit of the project and competency of the personnel. Additionally, Science had approved management plans for the EFRC grants and had performed site visits to the EFRCs, held monthly teleconferences to review scientific progress and maintained frequent communication with the EFRCs.

It is important to note that the EFRCs have characteristics which increase their risk and complexity. Specifically, the EFRCs:

- support high-risk, high-reward experimental and theoretical research;
- use multiple investigators rather than an individual investigator as is the case in other Science awards; and,
- receive more funding than the typical Science award.

Because the EFRCs are newly established and display characteristics that increase complexity and risk, Science will need to provide continued oversight and monitoring of the EFRCs throughout their five-year life.

Since no recommendations are being made in this report, a formal response is not required. We appreciated the cooperation of the various Department elements and all the staff at the contractors during this effort.

David Sedillo, Director
NNSA & Science Audits Division
Office of Inspector General

Attachment

cc: Director, Office of Risk Management, CF-80
Team Leader, Office of Risk Management, CF-80
Audit Resolution Specialist, Office of Risk Management, CF-80
Audit Liaison, Office of Science, SC-41
Audit Liaison, Chicago Office

## SCOPE AND METHODOLOGY

This audit was performed between April 2010 and August 2010. Our audit included the activities of the Department of Energy's Office of Basic Energy Sciences in Germantown, Maryland; the Chicago Office - Integrated Support Center in Argonne, Illinois; the Arizona State University Energy Frontier Research Center (EFRC) in Tempe, Arizona; the University of Arizona EFRC in Tucson, Arizona; the Purdue University EFRC in West Lafayette, Indiana; and the Institute for Atom-Efficient Chemical Transformations at Argonne National Laboratory in Argonne, Illinois.

To accomplish the audit objective, we reviewed and evaluated documentation related to the EFRCs as well as interviewed key personnel responsible for the projects.

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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings 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. Also, we considered the establishment of performance measures in accordance with the *Government Performance and Results Act of 1993* as they related to the audit objective. There were no performance measures specific to the EFRCs. We relied on computer processed data during our audit. We traced the data to supporting documents to validate the reliability of the information as necessary to accomplish our audit objectives.

Management waived an exit conference.

IG Report No. OAS-RA-L-10-09

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