



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

AUDIT REPORT

The Department of Energy's Implementation
of the Pilot Program for Agreements for
Commercializing Technology

OAS-M-15-04

June 2015



Department of Energy
Washington, DC 20585

June 22, 2015

MEMORANDUM FOR THE ACTING DIRECTOR, OFFICE OF TECHNOLOGY
TRANSITIONS

A handwritten signature in black ink, appearing to read "Rickey R. Hass".

FROM: Rickey R. Hass
Deputy Inspector General for Audits and Inspections
Office of Inspector General

SUBJECT: INFORMATION: Audit Report: "The Department of Energy's
Implementation of the Pilot Program for Agreements for
Commercializing Technology"

BACKGROUND

The Department of Energy's (Department) 17 national laboratories have unique scientific capabilities that extend beyond those available to academic and industrial institutions. Each year the Department spends billions of dollars advancing research in basic and applied sciences. To maximize the impact of Federal research and development investments in its laboratories, the Department is tasked with promoting innovations to advance U.S. economic competitiveness. This is accomplished through mechanisms such as Cooperative Research and Development Agreements, Work for Others Agreements, and licensing of intellectual property. Additionally, in February 2012, the Department announced that eight laboratories would participate in a 3-year initiative, the Agreements for Commercializing Technology (ACT) pilot, to enable the private sector to utilize the laboratories' research capabilities by removing barriers that hindered access to the laboratories and the commercialization of technology. Barriers included client advance payments, contract terms and conditions required by the Government, and laboratory contractors' inability to provide performance guarantees.

The ACT pilot was implemented through the addition of a new contract clause titled "Non-Federal Agreements for Commercializing Technology," which established semiannual reporting requirements and ensured that the laboratory contractor protected the Government's interests and assets. From the inception of the ACT pilot to May 2014, 4 of the 8 participating laboratories had a total of 73 ACT proposals approved by the Department with a total value of over \$60 million. Given the importance of providing mechanisms for accessing the laboratories and advancing the development and commercialization of the research, we initiated this audit to determine whether the Department was effectively managing the implementation of the ACT pilot.

RESULTS OF AUDIT

We found that the ACT pilot, as envisioned, provided private industry with increased access to the Department's laboratories and a new mechanism to facilitate the transfer of laboratory

knowledge and capabilities. However, our review identified opportunities to improve the effectiveness of the Department's management of the ACT pilot. While we detected no specific harm to the Department, we did note that many of the ACT agreements were for unique laboratory services that had low potential for the development and commercialization of technology. We also identified issues with the review and reporting process in areas such as identifying foreign ownership or control and the use of Federal funds.

Technology Development

The ACT pilot was intended to be a multipurpose tool to provide an additional option for accessing the laboratories and to facilitate the commercialization of technology. However, after 2 of the pilot's 3 years, only the Pacific Northwest National Laboratory (PNNL) established ACT as a regular part of providing such access. To its credit, from the inception of the ACT pilot to May 2014, PNNL administered 68 of the Department's 73 ACT agreements (93 percent) at a total value of approximately \$9.4 million.

While the ACT pilot was being used as an alternative mechanism for access to the laboratories, it has provided limited opportunities for commercialization of technology. Our review found that half (34 out of 68) of PNNL's ACT agreements were for laboratory and analytical services. The Department and PNNL management asserted that such services were within the scope of the ACT pilot. We do not disagree; however, these agreements, in our view, did not appear to provide opportunities for the commercialization of the Department innovations or aid clients in commercializing their own technology. For example, PNNL performed:

- Twenty-two agreements to provide dosimeter calibration services. Under these agreements, PNNL calibrated radiological equipment used in nuclear applications such as commercial reactors. While PNNL management officials told us that these services were specialized and not available in the private sector, they were necessary for the clients' ordinary operations and, in our view, had little or no direct impact on technology development or transfer.
- Two studies, with Battelle Memorial Institute as the contract client, to determine the mercury content in seawater and studies on carbon dioxide storage and utilization in China. Contractor officials we spoke with believed that it was appropriate for national laboratories to perform this sort of work. However, we saw no plans to further develop the technology or to advance its commercialization.
- Ten agreements for analytical services related to the environment. For example, PNNL performed analytical services using its computational fluid dynamic models to determine habitat impact from the operations of hydroelectric dams. This work clearly used the unique capabilities of the national laboratory; however, like the previous examples, we observed no plans for further technology development or activities intended to commercialize such work.

Management asserted that many of the other agreements may have a promising future for technology development. For example, as of November 2014, Lawrence Livermore National

Laboratory (LLNL) had the largest single ACT agreement, a \$46 million agreement focused on advancing the state of the art in laser technology. Management also pointed out successes at other national laboratories. Federal officials noted that the PNNL services we evaluated accounted for less than 20 percent of the approximately \$80 million total value of agreements as of November 2014. In preliminary comments on our report, program officials also indicated that those involved with establishing the ACT pilot envisioned that while it could provide more opportunities for technology transfer, it did not anticipate that it would be evaluated primarily based on whether technology was actually transferred. Rather, increased access itself was viewed as beneficial to all parties of the ACT agreement.

Management officials contended that the name "Agreements for Commercializing Technology" was being interpreted too narrowly in this report. They told us that technology transfer goals of the ACT pilot are consistent with the goals for the Strategic Partnership Projects, formerly the Work For Others Program, except that ACT was carefully structured under the pilot to better encourage engagement with the laboratories by addressing certain terms and conditions in Strategic Partnership Project agreements that private parties find problematic. Notwithstanding the emphasis on the term "commercializing" in the name, the goal was not just to enhance commercialization of technologies that originate at the laboratories, but also to encourage access to laboratory knowledge and capabilities in order to enhance the ability for the private companies to commercialize their own technologies.

We agree with management's assertions regarding the goals for the ACT pilot. However, we are concerned that, while they provide enhanced access to the laboratories and are important in and of themselves, many of these service agreements do not appear to significantly advance the Department's technology development and commercialization goals. A significant portion of the agreements also do not appear to enhance the ability of companies to commercialize their own technologies. As previously noted, a number of the agreements related to the services did not mention any activities intended to transfer Department-developed knowledge or to commercialize the activities. We acknowledge there were a number of agreements that achieved the technology commercialization goals of the ACT pilot and that this was a positive program outcome.

Review/Reporting Process

We also found that contract requirements were not always consistently followed. For example, we discovered one instance in which foreign ownership rules were not adhered to. Specifically, PNNL did not identify and report foreign ownership or control in an ACT agreement to develop a new battery technology capable of storing multiple megawatts of energy. The ACT pilot requires a rigorous review and approval process for agreements with entities with foreign ownership or control. However, this ACT proposal was approved by Pacific Northwest Site Office without the required Headquarters review to ensure that national security was not undermined and to ensure compliance with applicable treaties and international agreements and consistency with foreign policy objectives.

A senior PNNL official asserted that significant steps were taken to ratify the assertion made by the company in its application that it was, in fact, a U.S.-owned/controlled enterprise. However,

in our review of PNNL's files, we could not locate any documentation describing the steps taken by PNNL to ensure that the entity was domestically owned or controlled. In fact, a PNNL program official stated that PNNL relied on the client's assertion that it was not foreign owned and did not complete a foreign checklist for the agreement. We took action to determine whether the client was foreign owned or controlled. Specifically, we observed that within the ACT proposal itself, PNNL selected intellectual property licensing terms specifically for foreign entities, even though the rest of the proposal identified the client as a domestic entity. Furthermore, PNNL had documentation indicating that the partnering entity was a U.S.-based corporation created by a foreign entity. According to a Site Office official, after we brought this matter to management's attention, the Pacific Northwest Site Office instructed PNNL to retract this proposal. PNNL retracted the proposal to address the foreign requirements but did not resubmit for approval because the client declined to go forward with the work. A senior PNNL official asserted that the agreement was canceled because the client elected not to pursue the activity, an action that had nothing to do with our audit work. A PNNL program official indicated that it terminated the approval of this agreement after foreign ownership was questioned. The agreement had not been signed and no work was started as the client had not secured funding to go forward with the work.

Additionally, we identified problems with the review process PNNL employed to identify whether Federal funding was used in ACT agreements. The ACT pilot prohibits any use of Federal funds for work performed under an ACT agreement. Similarly, work falling within the scope of a federally funded contract or award is also not permitted. However, we found one agreement that used Federal funds and three other agreements that may include Federal funding. PNNL had an ACT agreement with the following:

- A research board using funds from the Department of Commerce;
- An entity whose ACT agreement involved the calibration of equipment used to support work conducted for the Government and non-Federal clients;
- An entity whose principal customers and end users of the services provided under ACT were the Department staff and contractors, as well as others; and
- An entity whose ACT agreement fell within the scope of its Department-funded grant awards and whose ACT agreement was asserted to be funded from internal research and development.

We found that in each of these cases, neither PNNL nor Federal Site Office personnel identified these as federally funded entities. In spite of our findings, PNNL management informed us that it believed its review processes were sufficient.

Our review also questioned the approach used in reporting the number of new clients from ACT agreements by PNNL. Specifically, PNNL reported 33 new clients under ACT. However, only 21 were actually new customers to the laboratory, with the remainder related to clients who previously accessed PNNL's capabilities under the Use Permit or Work for Others. During our

review, we discovered that PNNL counted entities that previously worked with the laboratory under a different name. The identification of new clients was a requirement of the ACT pilot and was intended to measure the performance of bringing new clients to the laboratory.

ACT Participation

According to Department and laboratory officials, the relatively low rate of participation in ACT was attributable to a number of factors. First, most laboratories lacked experience acting in what was essentially a private capacity and did not always initially present ACT to its customers as an option along with other technology transfer mechanisms. Further, although clients are not required to indemnify the Government under ACT agreements, laboratory contractors are required to protect the Government from potential liabilities associated with ACT work. Accordingly, the laboratory contractors were reluctant to assume the financial risk associated with ACT. Finally, the 3-year timeframe for the pilot was not sufficient to allow laboratory contractors to develop an ACT implementation plan and conduct negotiations that sometimes could be difficult and lengthy.

In contrast, PNNL's large volume of ACT agreements partly was due to its experience with assuming additional risks. Prior to the ACT pilot, Battelle, the prime contractor for PNNL, had a contract (Use-Permit) with the Department that allowed it, on a cost reimbursable basis, to utilize employees and facilities at PNNL to perform work in a private capacity. The Use-Permit was the principal way PNNL performed work for non-Federal clients. Unlike the other laboratories, because of the increased financial risk under the Use-Permit, PNNL had already developed ways to address this risk.

Management Issues

Similar to findings reported in our February 2014 Audit Report on *Technology Transfer and Commercialization Efforts at the Department of Energy's National Laboratories* (OAS-M-14-02), the Department did not have a management structure in place to oversee a coordinated, strategic effort to monitor and assess the ACT pilot. Specifically, there was no permanent management official responsible for the ACT pilot since the Technology Transfer Coordinator's departure from the Department in April 2013. The Technology Transfer Coordinator position was created by the *Energy Policy Act of 2005* to accelerate the process of moving discoveries from the laboratory to the marketplace. However, after the ACT pilot was initiated in February 2012, the Technology Transfer Coordinator left the Department, and the position has, until recently, remained vacant.

We noted that the Department has begun to take action to better manage its technology transfer mission activities. Specifically, Department management stated that beginning in May 2014, a senior advisor to the Secretary of Energy took over the duties of the Technology Transfer Coordinator until the position could be filled. More recently, on February 11, 2015, the Secretary of Energy announced the launch of a new Office of Technology Transitions, which will work closely with the national laboratories and engage with industry to commercialize technology and coordinate the Department's technology transfer activities. The Secretary also named an acting Technology Transfer Coordinator. Additionally, the Department drafted a

required 5-year report (2009 through 2013) on technology transfer, which was in the Department's review and concurrence process at the time this report was issued. Further, the Department is completing corrective actions to address the findings identified in the Office of Inspector General's February 2014 report on equity holdings in licensees received as part of laboratories' technology transfer efforts. Finally, the Department informed us that it recommended that the ACT pilot be extended by 2 additional years.

Impact on Technology Transfer Efforts

The ACT contract mechanism could be a viable tool for strengthening domestic industries by helping to bring innovative, job-creating technology to the marketplace. However, the Department did not establish performance goals or measures that would allow it to track the pilot's progress and measure its success in maximizing a return on the public's investment in unique laboratory capabilities. In addition, without adequate identification of work that involves Federal funds or falls within the scope of a federally funded contract or award, the Department officials told us that the disposition of intellectual property rights would not be in accordance with the governing law. There are specific requirements for governing which party (the client, the laboratory contractor, and the Government) retains rights to any intellectual property created when Federal funds are involved.

RECOMMENDATIONS

The issues identified in this report are intended to provide management information and insights on the status of ACT in the field, and our observations on management controls governing the ACT pilot activities. Management has begun to address the leadership issues discussed in this report and has informed us that it has recommended an extension of the term of the pilot from 3 to 5 years. In addition to these positive steps, we recommend that the Acting Director, Office of Technology Transitions, in coordination with applicable program officials:

1. Evaluate whether the current structure of the ACT pilot is sufficient to achieve the Department's technology development and commercialization objectives; and
2. Improve oversight on compliance issues.

MANAGEMENT RESPONSE

Management concurred with the report's findings and recommendations and provided corrective actions to address the issues identified in the report. The Department's Office of Technology Transitions will review the current structure of the ACT pilot to determine whether it is sufficient to achieve the objectives of the pilot, along with developing and implementing an updated management plan to track the performance of the extended pilot, and define an evaluation process for the ACT pilot. The Office of Technology Transitions will also review existing guidance and, as needed, develop and issue additional guidance to site offices and national laboratories regarding oversight on key compliance issues. Management's formal comments are included in Attachment 3.

AUDITOR COMMENTS

We consider management's comments and planned corrective actions to be responsive to our findings and recommendations.

Attachments

cc: Deputy Secretary
Under Secretary for Nuclear Security
Under Secretary for Science and Energy
Deputy Under Secretary for Management and Performance
Chief of Staff

OBJECTIVE, SCOPE, AND METHODOLOGY

OBJECTIVE

The objective of this audit was to determine whether the Department of Energy (Department) was effectively managing the implementation of the Agreements for Commercializing Technology (ACT) pilot.

SCOPE

This audit was performed between October 2013 and June 2015. We conducted the audit at Department Headquarters in Washington, DC; Pacific Northwest National Laboratory in Richland, Washington; Brookhaven National Laboratory in Upton, New York; Lawrence Livermore National Laboratory in Livermore, California; and National Renewable Energy Laboratory in Golden, Colorado. The audit was conducted under Office of Inspector General project number A13RL060.

METHODOLOGY

To accomplish the audit objective, we:

- Reviewed applicable laws and regulations pertaining to technology transfer mechanisms and intellectual property rights;
- Reviewed prior reports issued by the Office of Inspector General;
- Interviewed officials at Headquarters and the four site offices and laboratories with approved ACT agreements to obtain an understanding of each entity's implementation of ACT;
- Obtained and reviewed all 73 ACT agreements approved as of May 2014; and
- Obtained and reviewed the ACT implementation plans and related policies and procedures at the four laboratories with approved ACT agreements.

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 that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, the audit included tests of controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed compliance with the *GPRA Modernization Act of 2010* and determined it had not established performance measures for the management of the ACT pilot. 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. Finally, we did not rely on computer-processed data to satisfy the audit objective and therefore did not conduct a data reliability assessment. Management waived an exit conference.

PRIOR REPORT

- Audit Report on [Technology Transfer and Commercialization Efforts at the Department of Energy's National Laboratories](#) (OAS-M-14-02, February 2014). This review revealed opportunities to improve the effectiveness of the Department of Energy's (Department) management of its technology transfer and commercialization efforts. Specifically, we found that the Department had not finalized quantitative performance metrics necessary for it to determine the success of its technology transfer and commercialization efforts, developed a forward-looking approach for investing the Energy Technology Commercialization Fund required by the *Energy Policy Act of 2005*, and ensured the national laboratories were consistently treating their equity holdings in licensees received as part of their technology transfer efforts. Due to turnover in key staff, the Office of Inspector General was unable to definitively determine why the Department had failed to finalize and transmit its Execution Plan to Congress.


MANAGEMENT COMMENTS



Department of Energy
Washington, DC 20585

May 27, 2015

MEMORANDUM FOR RICKEY R. HASS
DEPUTY INSPECTOR GENERAL
FOR AUDITS AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: JETTA WONG 
ACTING DIRECTOR
OFFICE OF TECHNOLOGY TRANSITIONS

SUBJECT: Response to Inspector General’s Draft Report, “The
Department’s Implementation of the Pilot Program for
Agreements for Commercializing Technology”

Thank you for the opportunity to review and comment on the subject draft report. The Office of Technology Transitions (OTT) appreciates the efforts of the Inspector General (IG) to identify opportunities to improve the effectiveness of the Department’s management of the Agreements for Commercializing Technology (ACT) pilot mechanism.

As a general comment on behalf of Department of Energy (DOE) Management, OTT would like to fully acknowledge that the primary purpose of the ACT pilot mechanism – as defined in the original Secretarial Memo and DOE Management guidance establishing the pilot – was to provide an additional agreement mechanism with unique flexibilities to address barriers that have hindered non-Federal access to national laboratory capabilities. As the subject draft report recognizes, the pilot mechanism was not intended solely to further the development or commercialization of laboratory-developed technologies, though it was recognized that the mechanism could support commercialization by providing additional flexibility to structure effective agreements with non-federal partners.

As per existing national laboratory agreement mechanisms, the ACT pilot mechanism is available for use to serve a variety of non-Federal needs, including but not limited to technology development and commercialization. As such, the Department does not believe the ACT pilot mechanism can be held to a higher standard for achieving technology development and commercialization objectives than Cooperative Research and Development Agreements (CRADAs), Strategic Partnership Projects (SPPs), or user facility agreements. The Department requires that the national laboratories participating in the ACT pilot make all of these agreement mechanisms available to entities to serve a variety of needs which fall under the general scope of allowable non-Federal work.



The Office of Technology Transitions (OTT) response to the Inspector General's (IG) recommendations follows.

Recommendation 1

Evaluate whether the current structure of the ACT pilot is sufficient to achieve the Department's technology development and commercialization objectives.

Management Response: Concur

Action Plan: OTT will review the current structure of the ACT pilot mechanism to determine if it is sufficient to achieve the objectives of the pilot. These objectives include evaluating whether the unique flexibilities offered by an additional agreement mechanism improved non-Federal access to the Labs above and beyond the traditional SPP and CRADA mechanisms, and hence provided benefit to the Department's technology transfer mission. Based on OTT's findings, OTT will develop and implement an updated management plan to track the performance of the extended pilot, in collaboration with the cognizant program offices with ownership over the pilot labs. In addition, OTT will define an evaluation process for the ACT pilot mechanism to determine early outcomes, lessons learned, and best practices to inform OTT's recommendation to the Secretary in 2017 on whether to formalize, modify and formalize, or discontinue the ACT contracting mechanism.

Estimated Completion Date: October 30, 2015

Recommendation 2

Improve oversight on compliance issues.

Management Response: Concur

Action Plan: In collaboration with the cognizant program offices with ownership over the pilot labs, OTT will review existing guidance and, as needed, develop and issue additional guidance to site offices and national laboratories regarding oversight on key compliance issues for the remainder of the ACT pilot, including foreign ownership or control and the use of Federal funds.

Estimated Completion Date: December 31, 2015

If you have any questions on these comments, please contact Jetta Wong at 202-586-8109.

FEEDBACK

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