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Executive Summary

In December 2011, the Department of Energy (DOE) announced a 3-year pilot program for a new contracting mechanism to facilitate the national laboratories' ability to partner with industry on research and technology transfer projects. Called Agreements for Commercializing Technology (ACT), the new mechanism was motivated by the limitations of the DOE's existing contracting structures.

The White House Office of Science and Technology Policy, in conjunction with the DOE Technology Transfer Coordinator, asked the IDA Science and Technology Policy Institute (STPI) to examine the ACT pilot program's background, perceived benefits, stakeholder concerns, and indications of success.

STPI researchers interviewed 24 individuals from DOE laboratories and headquarters, including representatives from laboratories participating and not participating in the pilot. The eight DOE laboratories currently participating in the ACT pilot program are:

- National Nuclear Security Administration laboratory
  - Lawrence Livermore National Laboratory
- Office of Energy Efficiency and Renewable Energy laboratory
  - National Renewable Energy Laboratory
- Office of Environmental Management laboratory
  - Savannah River National Laboratory
- Office of Nuclear Energy laboratory
  - Idaho National Laboratory
- Office of Science laboratories
  - Ames National Laboratory
  - Brookhaven National Laboratory
  - Oak Ridge National Laboratory
  - Pacific Northwest National Laboratory

Background

The first national energy laboratories were established as government-owned, contractor-operated organizations during World War II. Of the 17 present-day national laboratories, 16 are managed by contractors—universities, university consortia, nonprofit corporations, industrial firms, and hybrid organizations—for the DOE.

DOE national laboratories have had a mandate for technology transfer since the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). One method that the DOE has employed to transfer technologies has been engaging the commercial sector through cooperative research programs. Traditionally, two mechanisms have existed for this purpose: the Cooperative Research and Development Agreement (CRADA) and the Work-For-Others (WFO) agreement. However, these mechanisms have been criticized as being too complicated and taking too long to implement. The ACT program was developed to overcome these shortcomings.

In contrast to the other funding mechanisms, ACT agreements are separate contracts between the laboratory contractor and a third-party company. CRADAs and WFO agreements are between the national laboratory and a third party and must be approved by the DOE. The ACT mechanism uses contracting terms that are better aligned with industry practice, includes a flexible framework for negotiating intellectual property rights, and provides participants with the ability to more easily collaborate to address complex technological challenges that require input from multiple sources. For these agreements, companies pursuing work with the national laboratories are no longer required to assume all the risk (indemnification), provide advance payments, or agree to less flexible assignment of intellectual property rights.

The design of ACT was partly inspired by the Pacific Northwest National Laboratory's Use Permit; first awarded to the laboratory's contractor in 1965 to stimulate private industry and economic development and allowing much more flexibility than existing contracting mechanisms.

The table on the next page provides a comparison between CRADA, WFO, and ACT attributes.

Comparison of WFO, CRADA, and ACT Attributes

Attribute	Non-Federal WFO	CRADA	ACT
Parties	Laboratory and Company*	Laboratory and Company	Contractor** and Company
Approval	DOE approves each WFO agreement	DOE approves each CRADA	DOE approves statement of work, plan to mitigate organizational conflicts of interest, if applicable, and WFO-like "checklist" but does not approve ACT contract with company
Performance guarantee	None	None	Contractor can commit to negotiated schedule or performance guarantee
Advance payment	Company provides 60-day advance payment, with some exceptions by DOE approval***	Company provides 60-day advance payment, with some exceptions by DOE approval***	Negotiable; contractor ensures funds are available before work is performed
Indemnification	Company indemnifies both contractor and government	Company indemnifies both contractor and government	Contractor indemnifies government; company indemnification is negotiable
Intellectual property	Company may elect title to inventions with certain restrictions	Company owns its inventions; laboratory owns its inventions Undivided rights in joint patents; company has option to license laboratory rights	Rights waived to "IP lead" designated in deal negotiation (either company or contractor); in some cases, contractor can retain title on contract termination
Government use license	Government always retains a use license to Intellectual property	Government always retains a use license to Intellectual property	Negotiable; government may retain only a research license to Intellectual property

Source: Adapted from Edmonds (2012) and Paulus (2011).

* Company sponsors work performed by the laboratory. Also called a sponsor.

** Contractor is the organization that operates the laboratory. It is used interchangeably with laboratory operator.

*** The DOE recently reduced the 90-day advance payment requirement to 60 days (Edmonds 2011).

Benefits and Concerns

ACT shifts the risk from the sponsoring companies to the laboratory contractor by allowing the contractor to make advance payments to the DOE on behalf of company sponsors and to enter into performance guarantees with the companies. At the same time, the DOE continues to be sheltered from these risks. In return, under ACT, the DOE has agreed to streamline the approval process to 10 days, and the laboratory contractor can begin work within 3 days if the DOE gives preliminary approval. ACT also allows for more flexibility to negotiate intellectual property allocation compared to CRADAs or WFO agreements. In addition, with ACT, the laboratory contractor can engage with multiple private clients or

private sector consortia using one contract, not individual contracts as required under a CRADA. Finally, ACT allows the laboratory contractor and the commercial sponsor to negotiate ahead of time who will retain rights to various parts of the intellectual property. The advantage of this mechanism is that the contractor can retain intellectual rights to parts of the work in which the sponsor has no interest.

Many of the stakeholders interviewed believe these changes will encourage a closer, more productive relationship between the laboratories and commercial sector by making it easier to negotiate contracts, thus allowing them to work together without lengthy delays. An additional expected benefit is that ACT will promote an entrepreneurial culture by encouraging the laboratory staff members to think more actively about the possible commercial implications of their research and technology, even in early stages of development. The overall benefit of ACT may be that it can help laboratories better meet the needs of the DOE and other Federal agencies by providing resources to maintain facilities and staff with a broader array of capabilities and skills.

Despite the perceived benefits of ACT, not all of the laboratories or laboratory contractors seem eager to embrace the new mechanism, and they are cautious about the risks that it brings. Some are worried that ACT work will be given preference over the laboratory's Federal research mission, although the ACT approval process is designed to ensure that necessary equipment and personnel are available and the work will not conflict with Federal work. Furthermore, there is debate over the issue of using ACT to allow sponsors to use Federal funding, such as Small Business Innovation Research or Small Business Technology Transfer grants, as part of their work with the laboratories. Currently, Federal funds are prohibited from use in an ACT; however, there is concern that this may limit the effectiveness of the mechanism itself. The benefits of and concerns about the ACT pilot are summarized in the following table.

Benefits of and Concerns about ACT

Benefits	Concerns
Allows the laboratory to offer more commercial transactions	Contractors may not be able to manage the risks
Increases the speed of agreements	Potential conflicts with Federal research
Enables multiparty collaborations	Pilot will not have sufficient time to demonstrate results
Enhances intellectual property flexibility	Inability to use Federal funds
Promotes a more entrepreneurial culture	
Insulates the laboratories from budget reductions	

Defining and Tracking Success

As part of the ACT pilot, the DOE requires the laboratories to report on metrics related to use of the mechanism. The required metrics focus primarily on counts such as the number of ACT agreements; the number of multicompany or multilaboratory agreements; the number of new companies working with the laboratory as a result of ACT; and the number of invention disclosures, licenses, and start-ups arising from ACT agreements. In addition, laboratory staff members must track the reasons the outside entity chose ACT as the contracting mechanism and the amount of funds used for ACT work.

Despite these requirements, some stakeholders feel that additional qualitative and quantitative metrics are needed, such as length of time to finalize an agreement and begin work; customer satisfaction; the ability of laboratory contractors to manage ACT agreements; and the success of the work done under ACT.

The expectation for ACT is that it will facilitate partnerships between DOE laboratories and companies with the ultimate goal of accelerating the transfer of technologies from the laboratory to the market. Pacific Northwest National Laboratory is the only pilot laboratory with ACT agreements in place; the other participating laboratories are the process of obtaining approval for their ACT programs or have just recently received approval.

Conclusion

Despite the many benefits ACT offers, the success of the pilot may be jeopardized by its lack of implementation at several of the participating laboratories. STPI researchers offer the following options for the DOE to help ensure a more successful ACT pilot: (1) extend the pilot to 5 years (from 3 years) to allow more time for the pilot to take hold, (2) work more closely with participating laboratories to implement ACT plans, or (3) assign laboratories that have implemented ACT or are close to implementing it (Brookhaven National Laboratory, Idaho National Laboratory, Lawrence Livermore National Laboratory, National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory) as mentors to the laboratories who are still preparing their plans (Ames National Laboratory and Savannah River National Laboratory).

As the laboratories are increasingly able to work with the private sector, more and more of the technology developed at the laboratories will be developed into technologies that can benefit the United States. As several interviewees explained, the benefit of this increased integration between the laboratories and the private sector is that it both fosters the economic competitiveness of the country (by bringing more advanced technologies to U.S. firms) and provides a tangible, economic return to U.S. taxpayer investment in the Federal laboratories.

Contents

A. Introduction

The Department of Energy (DOE) has had a mandate for technology transfer since the Stevenson-Wydler Technology Innovation Act of 1980 (Public Law 96-480). One method that the DOE has employed to transfer technologies has been engaging the commercial sector through cooperative research programs. Traditionally, two mechanisms have existed for this purpose: the Cooperative Research and Development Agreement (CRADA) and the Work-For-Others (WFO) agreement. Both of these mechanisms, however, have been criticized for being too complicated and taking too long to implement.

The White House Office of Science and Technology Policy, in conjunction with the DOE Technology Transfer Coordinator, asked the IDA Science and Technology Policy Institute (STPI) to study a new DOE program. The purpose of the new program is to overcome the difficulties of negotiating traditional technology agreements between the national laboratories and the commercial sector. This program, known as Agreement for Commercializing Technology (ACT), is being piloted at eight DOE facilities.

1. Approach

The STPI research team interviewed 24 individuals (hereafter referred to as "interviewees") about the ACT program. The interviewees included technology transfer and contracting management personnel from laboratories participating and not participating in the pilot, as well as relevant representatives from DOE headquarters. (See Appendix A for a list of interviewees and Appendix B for the discussion guide). Additionally, the STPI researchers reviewed available literature on issues surrounding technology transfer and commercial agreements with the DOE laboratories. Through the interviews and literature review, the research team examined the background of the ACT pilot, its potential benefits, concerns raised by interviewees, and definitions and measures of a successful pilot.

2. Background

The first national energy laboratories, including what are now known as Los Alamos National Laboratory and Oak Ridge National Laboratory,[1] were established as government-owned, contractor-operated organizations during the World War II era. Currently, there are 17 national laboratories, 16 of which are Federally Funded Research and Development Centers (FFRDCs) managed by a contractor for the DOE. Laboratory managing contractors include universities, university consortia, nonprofit corporations, industrial firms, or hybrid organizations.

[1] Los Alamos was originally known as Project Y, Los Alamos Laboratory, and Los Alamos Scientific Laboratory and Oak Ridge was originally known as Clinton Laboratories.

Management of DOE national laboratories involves multiple parties—the laboratory leadership, the DOE office that oversees the laboratory, the laboratory managing contractor that operates the laboratory for the DOE, and often, the parent organization(s) for that managing contractor. For example, UT-Battelle, LLC, a private nonprofit 50-50 limited liability partnership between the University of Tennessee and Battelle Memorial Institute, Inc. operates Oak Ridge National Laboratory for the Office of Science. The DOE also runs a site office for each laboratory to provide on-location oversight and house the contracting officer for the laboratory.

3. Development of ACT

ACT is a new contracting mechanism for DOE national laboratories to enter into agreements with industrial and commercial partners. The impetus for this new mechanism stemmed from a June 2009 Government Accountability Office (GAO) report, which noted that the "lack of flexibility to negotiate the terms to commercial transfer agreements" was a primary barrier to improving technology transfer at the national laboratories (GAO 2009). To further explore these challenges, the DOE issued a Request for Information (RFI) in November of 2009 that sought input on the issues stakeholders faced when developing commercial partnerships with DOE laboratories. The RFI respondents identified several obstacles to industrial partnerships with the laboratories, including the requirement that the commercial partner indemnify the laboratory, the need to provide advance payments, the DOE's U.S. competitiveness requirement, and contention over the intellectual property allocation for WFO agreements (Hughes et al. 2011, 51). See Table 1.

Table 1. Summary of Four Main Issues Identified by 2009 Request for Information

Issue	Description
Indemnification	Federal laboratories are free from compensation or damages in the event that a technology developed under a CRADA infringes upon other intellectual property
Advance funding requirement	All DOE laboratories require at least 90-day advance funding prior to the start of work for a CRADA*
DOE's U.S. competitiveness requirement	University and Small Business Patent Procedures Act of 1980 (Public Law 96-517), known as the Bayh-Dole Act, requires a preference for U.S. manufacturing for anything stemming from a CRADA; DOE's guidance is more stringent than other agencies and the statutory requirement
The sponsor retaining title to intellectual property (IP) in Work-for-Others (WFO) agreements	Regulations do not take into account rights to IP that result from WFOs, which leaves space for contention over the issue

Source: Hughes et al. (2011, 51).

* The DOE recently reduced the requirement from 90 days to 60 days. See (Edmonds 2011).

Another incentive for developing ACT stemmed from the phasing out of the Use Permit at Pacific Northwest National Laboratory (PNNL). The Use Permit, also referred to as provision 1831 (its section number in the original 1965 management and operating (M&O) contract between Battelle and the DOE), was a mechanism uniquely available to PNNL. The Use Permit allowed Battelle to contract directly with third parties for the use of the laboratory's personnel and equipment, provided that the work did not interfere with any federally sponsored research (Use Permit Agreement 2004).

> [T]he work performed by Battelle under this agreement is performed neither on behalf of DOE nor as a part of PNNL in its status as a Federally Funded Research and Development Center [FFRDC] or as a DOE national laboratory, but as a separate division of Battelle for its own account.

The Use Permit was intended to provide the laboratory with incentive to engage in local economic development to counteract expected losses from the decommissioning of the Hanford Site nuclear production complex.[2] Battelle and the DOE agreed to phase out the Use Permit by 2012. Those familiar with the Use Permit explained that it enabled the contractor to take on certain risks in its agreements with commercial partners. This allowed the laboratory, in its private capacity, to be more flexible in negotiating agreements with the private sector. In many cases, the contractor was able to bring in work to the laboratory that would otherwise be "off-limits" given the DOE restrictions enforced through the traditional agreement mechanisms (GAO 2009).

In light of the issues raised by GAO and the RFI and drawing on PNNL's experience with the Use Permit, DOE representatives participated in discussions with members of the laboratory Technology Transfer Working Group (TTWG). The goal of these discussions was to create a new contracting mechanism that would address the concerns and be acceptable to all stakeholders involved, including the DOE, the laboratories, and the commercial sector. The involvement of different stakeholders allowed representatives of both the laboratories and the DOE to better understand the concerns of the other. According to some interviewees, it could even serve as a model for future negotiations to address other issues. The conclusion of these discussions led to the December 2011 announcement of the ACT pilot, through which the new program would be tested at eight laboratories for 3 years before potential full-scale adoption.

4. ACT Attributes

The primary distinguishing feature of ACT is that the parties to these agreements are the industry partner and the laboratory contractor, not the DOE laboratory on behalf of the agency. In its private capacity, the laboratory contractor is able to assume more

[2] Of the 12 nuclear reactors at Hanford Site, 11 were shut down between 1964 and 1971 (Harvey 2000).

financial risks associated with performance guarantees, advance payments and indemnification and be more flexible when negotiating commercial agreements. An ACT partnership can therefore be more similar to a typical commercial agreement, theoretically increasing the willingness of the commercial sector to work with a national laboratory. Under ACT agreements, the contractor may charge industry parties additional compensation beyond the direct costs of the work at the laboratory in exchange for accepting additional risk.

ACT enables the contractor to provide performance guarantees. Under traditional technology transfer mechanisms like CRADAs and WFOs, neither the DOE nor the laboratory can guarantee a research outcome for a commercial partner. In addition, for a CRADA or WFO agreement the laboratory cannot agree to a fixed-price contract, where payment depends on an outcome regardless of the effort expended to achieve it. Under ACT, the contractor can sign a commercial agreement that offers performance and milestone achievement guarantees and fixed-price contracts. Should the laboratory miss one of its performance guarantees in an ACT agreement, the contractor, in its private capacity, is liable for making up the cost.

A second attribute of ACT related to risk is the added incentive for the contractor to make an advance payment on behalf of a commercial partner. The DOE requires that any private partner pay a 60-day advance on any work to be performed. The laboratory contractor can front the money to the DOE on behalf of the client for whom the work is performed, but under traditional mechanisms, there is no financial incentive to do so. Under ACT, the laboratory contractor can accept a fee for meeting the advance payment requirement, thus providing a necessary inducement.

ACT also allows more flexible intellectual property (IP) allocation. Under CRADAs, IP rights are generally retained by the party responsible for the invention, subject to a royalty-free nonexclusive license for government use. Under WFO agreements, the partner has the first option to own the IP unless Federal funding is used, in which case the laboratory contractor has the first option. Under ACT, the laboratory contractor and the private client are permitted to negotiate which party has the first option to own the IP, also known as the designation of the IP lead (DOE Waiver No W(C)-2011-013). In particular, a contractor can agree to only relinquish an exclusive license to a certain portion of the IP in which the sponsor is interested; the other portion of the IP can be retained by the contractor to be licensed elsewhere. As with the other mechanisms, the government retains a royalty-free use license.

Another unique attribute of ACT is its approval process. Because the contractors agree to indemnify the DOE from any risks they take on in negotiating commercial agreements, the headquarters approval process is greatly streamlined. For an ACT agreement, laboratories are not required to submit to the DOE the specific terms and conditions for approval, but simply an overview of the project. The laboratory may begin

work after receiving preliminary approval within 3 days. The DOE ultimately has 10 days to review the ACT agreement to ensure there are adequate resources at the laboratory to accomplish the work proposed. This is expected to cut time to signature significantly relative to other technology transfer agreements. See Table 2 for a comparison of attributes of ACT, WFO, and CRADAs.

Table 2. Comparison of WFO, CRADA, and ACT Attributes

Attribute	Non-Federal WFO	CRADA	ACT
Parties	Laboratory and Company*	Laboratory and Company	Contractor** and Company
Approval	DOE approves each WFO agreement	DOE approves each CRADA	DOE approves statement of work, plan to mitigate organizational conflicts of interest, if applicable, and WFO-like "checklist" but does not approve ACT contract with company
Performance guarantee	None	None	Contractor can commit to negotiated schedule or performance guarantee
Advance payment	Company provides 60-day advance payment, with some exceptions by DOE approval***	Company provides 60-day advance payment, with some exceptions by DOE approval***	Negotiable; contractor ensures funds are available before work is performed
Indemnification	Company indemnifies both contractor and government	Company indemnifies both contractor and government	Contractor indemnifies government; company indemnification is negotiable
Intellectual property	Company may elect title to inventions with certain restrictions	Company owns its inventions; laboratory owns its inventions Undivided rights in joint patents; company has option to license laboratory rights	Rights waived to "IP lead" designated in deal negotiation (either company or contractor); in some cases, contractor can retain title on contract termination
Government use license	Government always retains a use license to Intellectual property	Government always retains a use license to Intellectual property	Negotiable; government may retain only a research license to Intellectual property

Source: Adapted from Edmonds (2012) and Paulus (2011).

* Company sponsors work performed by the laboratory. Also called a sponsor.

** Contractor is the organization that operates the laboratory. It is used interchangeably with laboratory operator.

*** The DOE recently reduced the 90-day advance payment requirement to 60 days (Edmonds 2011)

Lastly, under an ACT agreement, industry partners are currently prohibited from using Federal funds to pay for the work performed by that national laboratory. (The debate over the potential inclusion of Federal funds for use in ACT agreements is discussed further in Section E.)

It is important to note that ACT is not a reincarnation of PNNL's Use Permit and there are critical distinctions between the two. Unlike the Use Permit, which allowed PNNL to step outside of its FFRDC role, ACT is written entirely into the M&O contract. Because of the Use Permit, PNNL was able to respond to competitive solicitations, including those issued by Federal agencies, and compete against private entities for research and development work. Competing for this work would have otherwise been off limits to PNNL as an FFRDC. In contrast to the Use Permit, the ACT pilot does not allow its participant laboratories to respond to competitive solicitations.

B. Description of the ACT Pilot

1. ACT Pilot Laboratories

The DOE and the laboratory TTWG agreed that ACT would first be tested in a 3-year pilot. All DOE FFRDCs were offered the opportunity to participate in the pilot and eight ultimately chose to do so. Table 3 lists the eight laboratories.

Of these laboratories, Ames Laboratory is the only pilot laboratory whose contractor is a single university; the remaining laboratories are operated by nonprofit companies or a nonprofit consortium of a university and a company or companies.

2. Implementing the ACT Pilot

To implement the ACT pilot, the DOE and volunteer laboratory contractors first signed amendments modifying Section H of their M&O contracts, adding "H.44 Non-Federal Agreements for Commercializing Technology (Pilot)."[3] The pilot laboratories are required to develop an implementation plan subject to approval by the laboratory board of directors and site contracting offices. To obtain this approval, the laboratories must demonstrate that they have effective ways to review and manage ACT projects, keep a separate accounting system, and provide the metrics required by DOE for the pilot. As of February 2013, BNL, INL, LLNL, ORNL, and PNNL have received approval from their laboratory boards and DOE site offices, NREL is waiting for laboratory board approval, and Ames and SRNL are still developing implementation plans.

In addition to contracting office requirements, the laboratory contractors are developing their own comprehensive risk management and review systems for implementation of the pilot. Execution of these mechanisms varies by laboratory; for example, one laboratory is developing an institutional risk management committee and a new system for project management to deal with the additional risks posed by ACT work.

[3] See, for example, "Amendment of Solicitation/Modification of Contract DE-AC05-76RL01830," Feb. 21, 2012, available at http://doeprimecontract.pnnl.gov/docs/1830_contract_M842.pdf.

Most laboratories are developing their own plans and then submitting them for approval from the laboratory director and contractor boards. A few of the laboratories noted that they looked to the PNNL experience with the Use Permit as a starting point for developing processes and organizational changes to manage the risks under ACT.

Table 3. DOE Laboratories Participating in ACT Pilot

DOE Steward	Laboratory	Laboratory Contractor	Contractor Parent Organization(s)	Status as of Feb. 2013
National Nuclear Security Administration	Lawrence Livermore National Laboratory (LLNL)	Lawrence Livermore National Security, LLC	Bechtel National, University of California, Babcock and Wilcox, the Washington Division of URS Corporation, Battelle Memorial Institute, Inc., and The Texas A&M University System	1. Section H amendment signed; 2. Implementation plan approved by DOE and laboratory board; 3. Negotiating ACT contracts.
Office of Energy Efficiency and Renewable Energy	National Renewable Energy Laboratory (NREL)	Alliance for Sustainable Energy, LLC	Battelle Memorial Institute, Inc. and MRIGlobal	1. Section H amendment signed; 2. Implementation plan approved by DOE.
Office of Environmental Management	Savannah River National Laboratory (SRNL)	Savannah River Nuclear Solutions, LLC	Flour Corp., Honeywell International Inc., and Newport News Nuclear, Inc.	1. Section H amendment signed.
Office of Nuclear Energy	Idaho National Laboratory (INL)	Battelle Energy Alliance, LLC	Battelle Memorial Institute, Inc.	1. Section H amendment signed; 2. Implementation plan approved by DOE and laboratory board.

DOE Steward	Laboratory	Laboratory Contractor	Contractor Parent Organization(s)	Status as of Feb. 2013
Office of Science	Ames National Laboratory (Ames)	Iowa State University of Science and Technology	N/A	1. Section H amendment signed.
	Brookhaven National Laboratory (BNL)	Brookhaven Science Associates, LLC	Battelle Memorial Institute, Inc. and The Research Foundation of State University of New York on behalf of Stony Brook University	1. Section H amendment signed; 2. Implementation plan approved by DOE and laboratory board; 3. Negotiating ACT contracts.
	Oak Ridge National Laboratory (ORNL)	UT-Battelle, LLC	Battelle Memorial Institute, Inc. and the University of Tennessee	1. Section H amendment signed; 2. Implementation plan approved by DOE and laboratory board.
	Pacific Northwest National Laboratory (PNNL)	Battelle Memorial Institute, Inc.	N/A	1. Section H amendment signed; 2. Implementation plan approved by DOE and laboratory board; 3. Signed ACT contracts.

PNNL is the only pilot laboratory that has finalized ACT agreements and has executed about 20 agreements so far. BNL—having recently received approval to participate in ACT—has at least 5 potential ACT agreements lined up, and LLNL is in negotiations for its first ACT agreement.

3. Choosing Whether to Participate

The primary reason for laboratories to participate in the ACT pilot is their desire to work with companies with whom CRADA or WFO agreements were difficult to put in place. Several laboratory representatives pointed to specific examples where the laboratory hoped to enter into an agreement with a commercial entity but were unable to do so because the terms of the CRADA or WFO agreement were unacceptable to the

potential partner. Thus, the primary motivation for participation was to access new commercial partners for technology transfer.

PNNL is unique in that the motivation to participate in the pilot was its desire to replace the loss of the Use Permit. PNNL sought to continue to engage in commercial transactions with the private sector. PNNL's participation in the pilot is directly linked to its desire to continue the type of work and agreements that it performed under the Use Permit. However, ACT is not the same as the Use Permit. For one thing, Federal funding could be used under a Use Permit agreement, but not under an ACT agreement.

In addition, we spoke to interviewees from laboratories that chose not to participate in the ACT pilot. Three of the laboratories noted that their primary reason for abstaining from the pilot was that they were operated by universities, and their university contractors were unwilling or unable to take on additional risks (such as performance guarantees, advance payment, or indemnification) under an ACT agreement. The university-run laboratories thought their contractors did not have sufficient cash reserves to cover the advance payment or indemnification for private companies. Accordingly, ACT was less appealing for them.

Interviewees from laboratories that focus on basic research indicated they were not inclined to participate in the ACT pilot, noting that since most of their research is early stage work, the commercial sector is rarely interested in entering into technology transfer partnerships. A few interviewees noted that since basic science often does not have well-defined outputs, the benefits of being able to offer performance guarantees or fixed-price contracts were not as useful to laboratories focused on early stage research. Furthermore, one interviewee mentioned that because there is pressure from the research community to keep basic research costs low, there is little demand for the more expensive ACT mechanism.

A third reason that many of the laboratory staff members gave for not participating in the pilot was a concern over the cost of implementing the necessary management institutions. Given that ACT allows the contractor to assume additional risk, new mechanisms are needed to effectively manage the risks for these projects. Since only PNNL has had any experience with such risk management, nearly all the laboratories would need to invest resources and time for developing effective processes and procedures to deal with ACT. This high implementation cost was cited by nearly all the nonparticipating laboratories as a reason for not immediately entering the pilot, and was voiced particularly strongly by representatives of laboratories for which ACT did not appear as beneficial.

Finally, some laboratory representatives felt the existing technology transfer mechanisms were sufficient for their work with the commercial sector. Although these laboratories acknowledged that the traditional technology transfer requirements could be

burdensome at times, they professed that they had always been able to make their agreements work using these mechanisms.

Representatives of laboratories that did not participate expressed a strong interest in the outcome of the ACT pilot. In particular, laboratory staff members are interested in whether the program will successfully attract new commercial clients to the laboratories. If the pilot laboratories are successful in doing this, the nonparticipating laboratories plan to take advantage of lessons learned for developing an implementation plan and managing ACT agreements. Almost all of the laboratory interviewees said that as the pilot ran its course they would consider petitioning DOE to include ACT in their contracts. Table 4 summarizes the reasons for choosing whether to participate.

Table 4. Reasons to Participate/Not Participate in ACT Pilot

Reasons to participate	Reasons to not participate
Partner directly with new companies, especially those they wanted to work with in past	Existing technology transfer mechanisms work
Replace loss of Use Permit (PNNL only)	University contractor unwilling to assume risk
	Implementation costs are high
	Laboratories conduct basic research and have little interaction with commercial sector

C. Potential Benefits of ACT

Nearly all of the interviewees noted that the attributes of ACT offer the potential for significant benefits. The overall benefit of ACT is that it may allow the laboratory to better meet the needs of DOE and other Federal agencies by providing resources to maintain facilities and staff with broader capabilities and skills. The specific benefits are that ACT (1) allows the laboratory to offer more commercial transactions, (2) increases the speed of agreements, (3) enables multiparty partnerships, (4) enhances flexibility of IP, (5) promotes an entrepreneurial laboratory culture, and (6) insulates the laboratory from budget reductions. These benefits are described more fully in the subsections that follow.

1. Allows the Laboratory to Offer More Commercial Transactions

One of the most often cited benefits of ACT was that it would enable laboratories to sign agreements more amenable to commercial entities. These have the ability to attract new partners to the laboratory, resulting in greater technology transfer. Through ACT's provision that the laboratory contractors can accept risk on behalf of the sponsor—by making advance payments to DOE, offering performance guarantees and milestones, or using fixed-price contracts—the laboratories can offer contracts that "look and feel" more like traditional business contracts than the other DOE technology transfer mechanisms.

The absence of these factors has often precluded commercial entities from signing agreements in the past.

For example, the majority of our interviews cited the issue of advance payment as a barrier when negotiating previous agreements. Both CRADAs and WFOs require the partner provide cash payment in advance of any work done. Advance payments require a substantial cash flow, and the interviewees noted that many businesses, small and large, found this requirement prevented them from entering into partnerships with the national laboratory. ACT provides a monetary incentive for the laboratory contractor to provide the advance payment to the DOE on behalf of its industry partner for a fee, which protects the Federal Government from risk while still allowing the laboratories to offer businesses a contract that is similar to a commercial agreement. In PNNL's experience with the Use Permit, its laboratory contractor, Battelle, was similarly incentivized to provide advance payments. One interviewee thought that the PNNL contractor provided the advance payment to the DOE up to "one-half to two-thirds of the time" and that this greatly facilitated business with the laboratory.

ACT allows the contractor to make advance payments and cover other risks (namely fixed-price contracts, milestones, and performance guarantees), which gives the laboratories an additional tool to engage with the commercial sector without putting DOE or the Federal Government at risk. In fact, the laboratory contractors can spread the risks across all of the laboratory's work. Many of the interviewees argued that the laboratories would be able to develop better relationships with the commercial sector and "remove some of the roadblocks" to partnerships with the laboratories. This goal is something that many of the interviewees thought critical to improving technology transfer.

2. Increases the Speed of Agreements

Nearly all of the interviewees thought that ACT would decrease the time needed to sign a commercial agreement. CRADAs and WFOs often involve lengthy deliberations with private entities over the contracting requirements mandated by the Federal Government. Additional time is required to obtain DOE headquarter approval, though recent efforts have been made to reduce the approval time. One interviewee pointed out that companies would often drop out of negotiations due to long negotiation times.

For ACT agreements, the DOE does not require the contractor to submit the exact terms of each agreement, since the contractor agrees to bear any risks. Accordingly, ACT shortens the DOE review and approval process, which is now limited to ensuring that the proper facilities are available at the laboratory for the requested work. ACT limits this simplified approval period to 10 days. In addition, the laboratory may begin work after receiving preliminary approval within 3 days.

Many of the interviewees expected the diminished need to negotiate over Federal contracting requirements and the streamlined approval process to significantly cut down on the time it takes to sign agreements with the private sector. One interviewee speculated it could reduce the time from the start of negotiations to the beginning of work by half.

3. Enables Multiparty Collaborations

ACT could facilitate the laboratories' ability to enter into multiparty agreements. One interviewee stated that the traditional technology transfer authorities make it difficult to work with multiple partners. In these cases, the DOE requires the laboratory to sign individual agreements with each one of the parties. Obtaining approval for all the contracts in such multiparty projects could take as long as 2 years. With ACT, the laboratory contractor can engage with multiple private clients or private sector consortia at once. Since DOE approval hinges only on verifying there is no conflict of interest in the work proposed or the equipment allocated, the contractor can develop its own terms for working with the industry partners. In addition to attracting more customers to the laboratories, this aspect will also give the laboratories greater leeway to encourage resource pooling and cooperation from the private sector. By doing this, ACT may help to address complex research challenges and advance technologies that previously received less commercial attention.

4. Enhances Intellectual Property Flexibility

A number of the interviewees stated that ACT's improvements in IP allocation would have positive benefits on the laboratories' ability to transfer technology in cases where the company is not interested in developing all of the IP awarded and plans to turn only one facet into a patent or a product. In some cases, the company does not have the resources to fully explore all of the potential applications from the IP it has received. In addition, much of the IP created through work at the laboratory has multiple functions; as a result, a part of the IP transferred to the private sector remains undeveloped.

ACT corrects this problem by allowing the laboratory contractor and the commercial sponsor to negotiate ahead of time who will retain rights to various parts of the IP. The advantage of this mechanism is that the contractor can retain IP rights in which the work sponsor has no interest. The contractor can then license that aspect of the IP to another start-up or commercial client with the hope that they will develop a new technology in a yet unexplored field. This will potentially allow for wider dissemination of the IP and spillover benefits from laboratory technologies. As in with the other mechanisms, the Federal Government retains a royalty-free nonexclusive use license.

Negotiating Intellectual Property Rights:
Example of the Increased Flexibility ACT Will Allow

One interviewee gave a compelling example of a wave-millimeter technology developed at Pacific Northwest National Laboratory (PNNL) that had applications in several different fields. Using the authority in its Use Permit, the laboratory licensed part of the IP to a security firm and part to a clothing-fitting client. As a result, the IP was developed into two different technologies, neither of which are in competition with each other, but both of which helped advance the goals of the laboratory's partners. Furthermore, neither of those two companies would have been interested in developing the technology of the other. Under the traditional contracting mechanisms, one would have had to assume all of the IP, leaving the other portion of the IP undeveloped. By allowing more flexible IP arrangements, ACT can help to increase the impact of the IP generated through work at the laboratory.

Note: Following the negotiation over ACT, the WFO contracting mechanism was modified to include a similar provision for flexibility in IP assignment.

5. Promotes an Entrepreneurial Culture

A few of interviewees also noted that a potential side benefit of ACT was that it would introduce laboratory scientists to the commercial sector. For example, PNNL's Use Permit activity led to increased interactions with the private companies. This encouraged the laboratory staff to think more actively about the possible commercial implications of their research and technology and promoted an entrepreneurial culture. This culture also spilled over to the laboratory's federally sponsored research.

6. Insulates the Laboratory from Budget Reductions

Several interviewees mentioned that ACT may help sustain the laboratories by providing them additional revenue. Within the limitations set forth by ACT, the laboratory contractors are permitted to charge a premium or fee—agreed on by the contractor and the sponsor—in exchange for accepting some of the various business risks referenced above. Accordingly, this new source of revenue can be dedicated by contractors to enhance or preserve some of the capabilities at the laboratory. For example, one interviewee noted that PNNL used its additional revenue from the Use Permit to purchase new laboratory equipment and even maintain staff capacity. In addition, if ACT revenue is not spent on enhancing laboratory capability, the contractor can use those funds to defray the cost of the laboratory's Federal research.[4]

[4] Almost all contractors are nonprofit organizations, so are not looking to maximize profits or shareholder dividends.

D. Concerns Regarding ACT

While the interviews reflected a largely positive view of ACT and its potential benefits, almost all of them also reflected some concerns about the new mechanism. These concerns include: (1) the worry that the laboratory contractors will not be able to manage the new risks, (2) the apprehension of a potential conflict between ACT work and Federal research, and (3) a concern that the pilot will need more time to adequately show success. One of the most often cited concerns about ACT as it currently exists—the preclusion from using Federal funds in ACT agreements—is addressed separately in the section on the debate over a Federal ACT (Section E).

1. Contractors May Not Be Able to Manage the Risks

One concern voiced by several of the interviewees was that the contractors may find it difficult to manage the new risks associated with ACT. This worry was expressed particularly strongly by the laboratories who decided not to participate in the pilot. Furthermore, not all of the laboratories have the ability to offer some of the provisions that ACT allows. Interviewees mentioned that they were either incapable of or uninterested in making advance payments, granting performance guarantees, and so forth, because the risk from these would be too great. Several of these same interviewees pointed to the fact their contractors were not able to spread the risks across several laboratories like some of the others, such as Battelle, and that this made the risks of ACT unmanageable.

One response to this concern is that ACT is not an "all or nothing mechanism." While ACT offers the laboratory contractors the ability to accept risk in several areas, the laboratory contractors can pick and choose which terms they are comfortable with for each individual agreement. In fact, the contractor could potentially agree to an ACT agreement with a sponsor that preserves many of the same terms of a traditional WFO contract and simply takes advantage of the decreased approval time. However, one interviewee pointed out the risk of industry pressuring the contractors into accepting more risk than they might like. The commercial sector may start to demand only ACT agreements, which in turn might push the contractors to accept more risk than is feasible. PNNL, which has the most experience in risk management given its Use Permit history, recently hosted a best practices workshop on how to manage the risks inherent in these transactions. Other interviewees felt that the contractors were sufficiently risk averse so as to prevent this concern from escalating into a problem.

Several interviews echoed the concern that even if the laboratory contractors would be willing to accept additional risks and could strike a proper risk balance with the commercial sector, they would need to develop appropriate mechanisms and management bodies. The cost of implementing these institutions from scratch was considered

significant, and many signaled that they doubted the benefits of ACT would outweigh these costs in the near future.

2. Potential Conflict with Federal Research

Some interviewees voiced concern over a potential for conflict between ACT and federally sponsored work. They worried that ACT work—in which the laboratory contractor has assumed risk and thereby has financial liability—will be given preference over the laboratory's Federal research mission. The ACT approval process is intended to screen agreements to make sure necessary equipment and personnel are available and the work will not conflict with Federal work. In an extenuating circumstance, some interviewees feared that the contractors would give preference to ACT work in which they have staked a claim. For example, if an ACT project with pledged performance guarantees and milestones fell behind schedule, the laboratory contractor might feel pressure to prioritize that research over the other work at the laboratory.

The ACT mechanism, as designated in the H Clause of the laboratory operator's M&O contract, gives specific legal prioritization to federally sponsored work. In particular, this clause specifies that DOE can terminate any ACT work that it believes is interfering with its Federal mission:

> If the Government determines that an activity conducted under this Clause interferes with the Department's work under the Contract, or that termination/stay/suspension of work under an ACT agreement is in the best interest of the Government, the Contractor must stop the interfering ACT work immediately to the extent necessary to resolve the interference.[5]

Given this clause, one interviewee believed that ACT had a sufficient legal structure to prevent such a conflict. Nevertheless, the concern was voiced by others and something that should be monitored throughout the ACT pilot.

3. Pilot Will Not Have Sufficient Time to Demonstrate Results

Several interviewees worried that the pilot—slated for 3 years—would not be long enough to provide adequate data to assess the impact of ACT in promoting more commercial relationships. One interviewee noted that much of his/her concern rested on the fact that implementing ACT at the laboratories will take a long time given the need to set up new processes for risk management and for collecting the metrics required by the pilot. Even though the 3-year timeline for the pilot begins when the laboratories add the ACT clause into their contracts, the laboratory contractors still need to submit

[5] See, for example, "Amendment of Solicitation/Modification of Contract DE-AC05-76RL01830," February 21, 2012, http://doeprimecontract.pnnl.gov/docs/1830_contract_M842.pdf.

implementation plans to their site offices before they can negotiate any ACT agreements. One year into the pilot most of the laboratories have yet to receive approval for their implementation plans.

While some of the laboratories with pending approval also have agreements lined up, there is a chance that there will not be a large enough sample size for the pilot to show the benefits. Furthermore, the pilot will require time to collect and analyze data from the required metrics. Given this, a few of the interviewees noted the potential need to extend the pilot, and one suggested extending it to at least 5 years.

E. Debate over Federal ACT

One limitation of the ACT mechanism is that it cannot be used with any Federal funding. Businesses with Small Business Innovation Research (SBIR) or Small Business Technology Transfer (STTR) grants, for example, are precluded from using that funding to work with laboratories under ACT. The prohibition on using Federal funds for ACT agreements was discussed at length in nearly every interview, and a great deal of interviewees reflected concern over the potential challenges this posed for the ACT pilot's success. Others, however, voiced concerns about allowing use of Federal funds. The following subsections summarize their arguments for and against using Federal dollars under ACT. The issue is still under consideration by the DOE.

1. Arguments for Using Federal Funding

The central argument that the interviewees conveyed for allowing use of Federal funding in ACT was that without such an inclusion, the pool of eligible business partners decreases significantly. Many small businesses with Federal grant funding, often in the form of SBIR and STTR grants, are essentially excluded from participating in a laboratory partnership through ACT.

In PNNL's experience with the Use Permit, 70% of the work involved Federal funding. A large part of PNNL's current work under CRADAs and WFOs includes Federal funding—ranging from 40% to 60%. The interviewees felt strongly that use of Federal funds should also be allowed as part of an ACT agreement.

The prohibition of Federal dollars in ACT agreements also limits the ability of the laboratories to organize multiparty collaborative work. Promoting multiparty work was integral to ACT's creation in the first place, so excluding the use of Federal funds diminishes program's ability to fulfill its purpose.

2. Arguments against Using Federal Funding

Some interviewees noted various concerns with expanding ACT to include Federal dollars. Federal dollars often come with restrictions and conditions, and these restrictions

could conflict with some of ACT's provisions, such as flexible IP allocation. In essence, working with Federal dollars might negate some of the intended benefits of ACT. Additionally, they mentioned the concern that by working with Federal agencies or their subcontractors, the laboratories might be pushed into accepting flow-down requirements that would contradict DOE operational provisions. For example, a Memorandum of Agreement between the DOE and the Department of Defense (DOD) exempts the national laboratories from certain DOD-related contractual requirements.

Others believed these issues (IP allocation was again referenced) were solvable problems that had been previously handled when Federal funding was used under WFO agreements and the PNNL Use Permit. As such, some thought these problems could be accommodated by an appropriate legal framework.

Interviewees also stated using Federal funding in ACT may be deemed an unfair use of Federal funds. When an entity signs an ACT agreement with a laboratory, it pays a premium for the research being done because the laboratory contractor has agreed to accept certain risks. This means that a portion of the Federal money—whether directly from an agency or from a Federal grant through a business—is being used to pay the contractor's fee and is not directly funding research. As one interviewee made clear, the inclusion of Federal funding in ACT could result in Federal funding for additional costs and not for actual work performed. That interviewee was less concerned about this issue for companies using mixed Federal and nonfederal dollars since the nonfederal money could be slated to pay for the fee. Another interviewee made the argument that using Federal funds to pay a contractor premium is not necessarily a bad thing if there is value added by having the contractor assume important risks. Regardless, several interviewees stressed the importance of the issue, particularly with regard to the public perception of using Federal funds for this purpose.

F. Defining and Tracking Success of the ACT Pilot

1. Required Metrics

The DOE initiative that created ACT and the ACT pilot included express requirements for the laboratories to collect metrics and report them to the DOE. The metrics and records currently required for participating in the ACT pilot are:

1. Number of ACT agreements
2. Amount of funds for ACT work
3. Number of private sector entities engaged through ACT that had not previously engaged with that laboratory

4. Number of private sector entities engaged through ACT that had not previously engaged with any other DOE laboratory
5. Amount of funds reimbursed to DOE from entities newly engaged in ACT agreements
6. Number of parties and types of entities engaged in each ACT agreement
7. Number of invention disclosures, licenses, and start-ups arising from ACT
8. Reason each entity decided to select ACT for engaging the laboratory.

The laboratories are required to semiannually report these data to the DOE.[6]

2. What Does Success Look Like for the Pilot?

The interviewees provided a number of measures that they thought might reflect a successful pilot. Many of these tie into ACT's intended mission of strengthening the relationship between the commercial sector and the laboratories and removing barriers to technology transfer.

The majority of interviewees thought that the linchpin of a successful pilot hinged on showing that ACT brought new commercial partners to the laboratories. This measure is comparative and asks the question: Did ACT bring customers that previously had difficulty engaging with the national laboratories through the other technology transfer mechanisms? It was not enough, many argued, for ACT to simply replace CRADAs and WFO agreements with the same partners; a successful pilot will show that ACT is filling an important role for a need that is currently unmet.

Related to that point, a second measure is that the pilot should show that ACT is satisfying the customers' needs. Does ACT leave the commercial sponsors content, and will they come to work with the laboratories again? Part of ACT's mission is to strengthen the relationship between the laboratories and the private sector, so customer satisfaction with the laboratory on ACT projects is a key aspect for the pilot's success.

A third measure of success for the pilot involves the laboratories' ability to manage the risks inherent to ACT. Within the 3-year pilot, it will be important to observe whether the laboratories can successfully manage the risks that they assume. Several of the interviewees from laboratories who are not participating in the pilot noted that they would not adopt ACT if the contractors in the pilot experience negative consequences from accepting additional risk. A successful ACT pilot will demonstrate that the

[6] DOE laboratories are required to annually report the number of agreements and dollar amounts for the other technology transfer mechanisms (CRADAs and WFO agreements).

laboratories can effectively manage the risks and are financially successful after adding ACT to their portfolios.

Fourth, a critical measure of success is the timeliness of signing ACT agreements. While ACT theoretically cuts negotiation time and streamlines the approval process, the pilot needs to show that ACT agreements can be executed more quickly than the other mechanisms. If the approval process becomes bureaucratic, one interviewee cautioned, the pilot will not have been as successful as it could have been.

A fifth perspective on the pilot's success focuses on the output of ACT agreements at the pilot laboratories. Do ACT agreements produce positive work? Are the ACT agreements leveraging the intellectual assets of the laboratory better than WFOs and CRADAs? Do they successfully promote technology transfer, particularly compared to the other mechanisms? In particular, the interviewees expressed interest in knowing whether the ACT agreements increased the numbers of patents, licenses, and start-ups and how these compared to the traditional mechanisms. Several interviewees warned, however, that these metrics take a long time to measure and may not properly reflect the success of the pilot at the end of 3 years.

Finally, one interviewee suggested observing PNNL and Ames. PNNL's case is interesting because they have a long history of direct contracting with the commercial sector through the Use Permit. If PNNL is unable to do a significant volume of ACT work with their previous clients, then that would be a negative marker for the pilot. In contrast, Ames is unique because it is the only university-operated laboratory in the pilot. If Ames is able to use ACT successfully, that would be a positive marker for the pilot. See Table 5 for additional suggested metrics that encompass the above measures of success.

Table 5. Additional ACT Metrics Suggested by Interviewees

Metric	Reason
Comparison of the types of entities engaged in ACT and other mechanisms	Demonstrates whether ACT appealed to a unique group of companies that were not previously engaged
Time to agreement	Monitors whether ACT represents an actual improvement over CRADA and WFO
Number of multicompany or multilaboratory agreements	ACT intended to encourage such multiparty collaboration
Ability of the laboratories to manage their ACT agreements	Laboratories not participating in the pilot interested in whether ACT was financially sustainable for the laboratories or whether the mechanism carried too much risk for the pilot contractors to handle
Customer satisfaction	Provide feedback from the commercial sector on the benefits of ACT towards furthering cooperation
Success of the work done under ACT	Shows whether ACT agreements produced quality output; patents, licenses, and start-ups do not tell the whole story

G. Summary and Conclusion

The DOE piloted the ACT program in response to findings from a 2009 GAO report and Request for Information that identified the challenges companies face when setting up agreements to work with DOE laboratories. ACT responds to the issues by allowing the laboratory contractor to assume the risks of an agreement with industry. This means that they can negotiate terms and use a streamlined approval process. Further, the laboratories are motivated to provide advance payments on behalf of the company and able to create flexible intellectual property agreements that will potentially allow broader dissemination of the technology. Importantly, ACT could allow the laboratory to better meet the needs of DOE and other Federal agencies by exposing them to real-world problems and providing them with additional resources for facilities, infrastructure, and staff.

The primary concerns about ACT are that the 3-year pilot will not be sufficient to evaluate the program and that Federal funds cannot be used in an ACT agreement, thus eliminating many small companies that may want to work with laboratories but depend on SBIR/STTR grants or other Federal funding. Other concerns are the difficulty setting up a new risk management system and associated potential negative consequences of taking on more risk.

Interviewees generally agreed that a successful pilot should show that ACT allows the laboratories to access new customers, especially with companies that previously had

difficulty negotiating an agreement using traditional mechanisms. Despite the many benefits ACT offers, the success of the pilot may be jeopardized by its lack of implementation at several of the participating laboratories. STPI researchers offer the following options for DOE to help ensure a more successful ACT pilot: (1) extend the pilot to 5 years (from 3 years) to allow more time for the pilot to take hold, (2) work more closely with participating laboratories to implement ACT plans, or (3) assign laboratories that have implemented ACT or are close to implementing it as mentors to the laboratories who are still preparing their plans.

As the laboratories are increasingly able to work with the private sector, more and more of the technology developed at the laboratories will be developed into technologies that can benefit the United States. As several interviewees explained, the benefit of this increased integration between the laboratories and the private sector is that it both fosters the economic competitiveness of the country (by bringing more advanced technologies to U.S. firms) and provides a tangible, economic return to U.S. taxpayer investment in the Federal laboratories.

Appendix A.
List of Interviewees

Representatives from Laboratories Participating in ACT Pilot

Debra Covey
Ames National Laboratory, Associate Director for Sponsored Research Administration

Walter Copan
Brookhaven National Laboratory, Managing Director, Office of Technology Commercialization and Partnerships

Gerry Stokes
Brookhaven National Laboratory, Associate Laboratory Director for Global and Regional Solutions

J. Patrick Looney
Brookhaven National Laboratory, Chair of Sustainable Energy Technologies Department

Erik Jon Stenehjem
Lawrence Livermore National Laboratory, Director of the Industrial Partnerships Office

Roger Werne
Lawrence Livermore National Laboratory, Director

William Farris
NREL, Commercialization & Technology Transfer

Michael Paulus
ORNL, Director of Technology Transfer

Vincent Branton
PNNL, Legal Department

Marty Conger
PNNL, Chief Finance Officer and Associate Laboratory Director - Business Systems

Bruce Simanton
PNNL, Sales Management

Representatives from Laboratories Not Participating in ACT Pilot

Deborah Clayton
Argonne National Laboratory, Technology Development and Commercialization

Cheryl Fragiadakis
Lawrence Berkeley National Laboratory, Department Head of Technology Transfer and Intellectual Property Management

Mary Monson
Sandia National Laboratories, Business Development Manager

John Mott
Los Alamos National Laboratory, Technology Transfer Division

Joseph Scarcello
Jefferson National Laboratory, Chief Financial Officer & Manager Business Operations

Roy Whitney
Jefferson National Laboratory, Chief Technology Officer

Janet Tulk
SLAC National Accelerator Laboratory, Contracts Manager

Department of Energy (DOE) Officials and Others Involved in ACT

Drew Bond
Battelle Memorial Institute, Inc., Vice President of Public Policy

Richard Bonnell
Department of Energy, Office of Acquisition and Procurement Management (OAPM)

Scott Geary
Department of Energy, OAPM

Jackie Kniskern
Department of Energy, OAPM

John LaBarge
Department of Energy, Office of Science, Acting Associate Director for the Office of Laboratory Policy and Evaluation

John Lucas
Department of Energy, General Counsel

Appendix B.
Discussion Guide

Project Overview

The White House Office of Science and Technology Policy and the Department of Energy asked our organization, the Science and Technology Policy Institute, to write a short white paper about the Agreements for Commercializing Technology (ACT). This white paper will discuss the history, benefits, and concerns related to this new mechanism. To capture an array of DOE laboratory's opinions on ACT, this interview will relate to your perceived benefits and concerns.

Consent Statement

Your participation is completely voluntary, and our conversation will be audio-recorded, but if you'd like to tell us something that is off the record, feel free to do so. We will stop recording and writing until you tell us that we can start again. We may quote you or attribute statement to you or your project. If we quote you, we will ask you to review these quotes.

Background

- What do you do in your day-to-day job?
- How are you involved with ACT at your laboratory or at the Department of Energy?
  - If so, how?

ACT Benefits

- When you first heard of ACT, what did you perceive as its benefits?
- What do you currently perceive as the benefits to using ACT at your laboratory?
  - Do these benefits apply to other DOE laboratories?
  - Why or why not?
- In addition to those listed, what benefits does ACT bring to other laboratories or stakeholders (e.g. DOE)?

ACT Concerns

- When you first heard of ACT, what concerns did you have?
  - As time went on, did these concerns diminish? Why or why not?
- What do you currently perceive as the concerns to using ACT at your laboratory?
  - How are you dealing with these concerns?
  - Do these concerns apply to other DOE laboratories?
  - Why or why not?
- Do you see using ACT with Federal funding as an issue at your laboratory?
  - Why or why not?
- What do other laboratories currently perceive as concerns to using ACT?
  - Do you agree with any of these concerns?
  - If not, how do you respond to them?
- What do other stakeholders currently perceive as concerns to using ACT?
  - Do you agree with any of these concerns?
  - If not, how do you respond to them?

ACT Metrics

- Does your laboratory currently use ACT?
  - If so, how many agreements are in the progress of being signed?
  - How many are already signed?
- What aspect(s) of ACT has your laboratory utilized?
  - Modified financial requirements (e.g. advance payment)
  - Negotiated IP ownership
  - Modified government use rights or "march-in" rights
  - Modified approval process
  - Reprioritization of work
  - Performance guarantee
  - Modification of reporting requirements
  - Another aspect

- How do you currently measure the success of ACT contracts?
- How do you plan to measure the success of ACT contracts?
- Do you have any ACT success stories that you can share with us?

Misc. Questions

- Do you recommend that we talk to anyone else at your laboratory about ACT?
  - If so, why?
- Do you recommend that we talk to anyone else about ACT?
  - If so, why?

Other Programs

- Do you have a tech maturation fund?
- Do you have thoughts on whether basic science needs these funds?
- In the next phase of the project, we will be exploring technology transfer programs that could be implemented at DOE laboratories, are there any at your laboratory that you would recommend others adopt?
- Programs at other laboratories you have been interested in adopting?

Thank You

We greatly appreciate your participation in interviews. Thank you!

Abbreviations

ACT	Agreement for Commercializing Technology
Ames	Ames National Laboratory
BNL	Brookhaven National Laboratory
CRADA	Cooperative Research and Development Agreement
DOD	Department of Defense
DOE	Department of Energy
FFRDC	Federally Funded Research and Development Center
GAO	Government Accountability Office
IDA	Institute for Defense Analyses
INL	Idaho National Laboratory
IP	Intellectual Property
LLNL	Lawrence Livermore National Laboratory
M&O	Management and Operating
NREL	National Renewable Energy Laboratory
OAPM	Office of Acquisition and Procurement Management
ORNL	Oak Ridge National Laboratory
PNNL	Pacific Northwest National Laboratory
RFI	Request for Information
SBIR	Small Business Innovation Research
SRNL	Savannah River National Laboratory
STPI	Science and Technology Policy Institute
STTR	Small Business Technology Transfer
TTWG	Technology Transfer Working Group
WFO	Work-For-Others

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13. SUPPLEMENTARY NOTES

14. ABSTRACT

In December 2011, the Department of Energy (DOE) announced a 3-year pilot program for a new contracting mechanism called Agreement for Commercializing Technology (ACT), which is designed to facilitate the national laboratories' ability to partner with industry on research and technology transfer projects. IDA Science and Technology Policy Institute researchers interviewed individuals from DOE national laboratories, both participating and not participating in the pilot, and DOE headquarters. The ACT mechanism uses contracting terms that are better aligned with industry practice, includes a flexible framework for negotiating intellectual property rights, and provides participants with the ability to more easily collaborate with multiple parties. Many of the stakeholders interviewed believe these changes will encourage a closer, more productive relationship between the laboratories and commercial sector. However, not all of the laboratories were eager to embrace the new mechanism, and are cautious about the risks that it brings. Furthermore, there is debate over the issue of using Federal funding for their work with the laboratories, which is currently prohibited under ACT. DOE requires the laboratories to report on metrics related to use of the mechanism but some stakeholders feel that additional qualitative and quantitative metrics are needed. Despite the many benefits ACT offers, the success of the pilot may be jeopardized by its lack of implementation at several of the participating laboratories.

15. SUBJECT TERMS

advance payment, Agreement for Commercializing Technology (ACT), Cooperative Research and Development Agreement (CRADA), Department of Energy (DOE), Federally Funded Research and Development Center (FFRDC), intellectual property, metrics, national laboratories, performance guarantees, technology transfer, Use Permit, Work-for-Others (WFO)

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