

THE TECHNOLOGY TRANSFER WORKING GROUP

Guide to Partnering with DOE's National Laboratories





This Guide to partnering with DOE's national laboratories was prepared by a committee of the Technology Transfer Working Group consisting of Mike Furey, committee chair, (Brookhaven National Laboratory), Jason Stolworthy (Idaho National Laboratory), Mark Reeves (Oak Ridge National Laboratory), and Mary McManmon (US Department of Energy). The guide is an adaption of the 2003 guide "Doing Business with the National Labs", edited by Steven Weiner. The Guide was revised and updated by a TTWG Committee in the Spring of 2016.



INTRODUCTION

The Department of Energy (DOE) owns twenty national laboratories that combine decades of experience with billions of dollars in research and development to address matters of national security, environmental stewardship, economic competitiveness and energy sustainability. The technologies and capabilities developed and maintained to support core mission work can have concomitant benefits to businesses of all sizes, universities, and non-profits through technology transfer mechanisms. This Guide to Partnering with DOE's National Laboratories provides a high level overview of the most common methods utilized in working with the DOE laboratories. While there is a common operating framework through legislation and administrative law, each laboratory may have unique requirements and regulations and any prospective partner should contact a specific laboratory of interest for detailed information. Those interested in the Department's overall efforts and many opportunities in technology transfer should contact DOE's Office of Technology Transitions.

PARTNERING MECHANISMS

There are numerous ways to partner with the labs to access their unique capabilities including:

- Cooperative Research and Development Agreement (CRADA)
- Strategic Partnership Project (SPP)
- Agreements for Commercializing Technology¹ (ACT)
- Technical Assistance (TA) Agreement
- User Agreement
- Technology Licensing Agreement
- Material Transfer Agreement (MTA)
- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)

It is noted that not all technology transfer mechanisms are available at each of the laboratories. Please contact the laboratory that you are interested in partnering with for additional information. If you are interested in more information about the Department's overall efforts and many opportunities in technology transfer, please contact DOE's Office of Technology Transitions

<http://energy.gov/technologytransitions/office-technology-transitions>.

¹ The ACT agreement is currently being piloted at PNNL, INL, LLNL, BNL, NREL, and ORNL

COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS (CRADA)

A CRADA is an Agreement between one or more laboratories and one or more non-federal entities (CRADA Participants), including industry, that facilitates private sector collaboration utilizing laboratories' technologies, processes, R&D capabilities, or technical know-how. The Participant benefits from access to each laboratory's unique technologies, capabilities, and expertise; the option to negotiate up to an exclusive license in a field of use for any laboratory inventions that result from the work performed under the CRADA (subject inventions); and protection for up to five years of commercially valuable information generated through the work under the CRADA. The CRADA Participant must contribute in-kind resources manifest in personnel, equipment, facilities etc. As most DOE laboratories are full cost recovery, a funding source for the laboratory work must be identified before work can start; often the laboratory funding source under a CRADA is funding sent directly from the CRADA Participant. The DOE requires either 1) advance payment of the entire amount of funding or 2) a pay plan that requires the first payment to include a 60 (at minimum – some labs require 90) day reserve and in some instances funding for the first 30 days of work. DOE has developed a model CRADA that establishes uniform conditions for doing business with the laboratories. The modular CRADA can be viewed using the following link:

<https://www.directives.doe.gov/directives-documents/400-series/0483.1-BOrder-A>

Strategic Partnership Projects (SPPs) (Non-Federal)

Strategic Partnership Projects (SPPs) enable industry, non-profit institutions, and other non-federal entities to engage the laboratory to perform a defined scope of work or tasks on a full-cost recovery basis. The laboratory cannot compete with industry so any work must draw upon the unique facilities, equipment, or personnel intrinsic to the laboratory. The rights to the inventions and data that arise under such a contract (subject inventions) may vest in the sponsor if the sponsor is a U.S. entity and pays for the work with private funds; however if the sponsor is subcontracting federal funds to the laboratory or if the sponsor is a non-U.S. entity, then the rights of subject inventions will typically vest with the laboratory performing the work. The Government will retain a license for all Subject Inventions for use by or on behalf of the Government. The DOE requires either 1) advance payment of the entire amount of funding or 2) a pay plan that requires the first payment to include a 60 (at minimum – some labs require 90) day reserve of expected cost and in some instances funding for the first 30 days of work.

AGREEMENTS FOR COMMERCIALIZING TECHNOLOGY

Agreements for Commercializing Technology (ACT) is a pilot program which functionally enables Laboratory Contractors to act in a Private Capacity and conduct privately-sponsored research at the Contractor's risk for third parties. This program was put in place in response to concerns that were raised in public responses to a Notice of Inquiry regarding Technology Transfer practices at DOE laboratories. These responses can be viewed at the following link:

<http://techtransfer.energy.gov/responses>.

While also a contract for services, an ACT agreement differs from a SPP agreement. Except for the IP terms, ACT is a negotiable agreement with more flexibility than a SPP agreement. Under this mechanism, DOE allows the laboratory contractor to enter into agreements on a commercial basis as a private entity, and assume the risk of some terms of the agreement. For example, the laboratory contractor may 1) waive part or all of the advance payment requirement, 2) assume some of the indemnity requirements, and 3) may accept payment based on milestones or deliverables. Because the contractor can assume contractual and financial risk under this mechanism, the agreement can carry a fee. While ACT agreements are also available to industry, non-profit institutions, and other non-federal entities, under current rules none of the funds used to pay for these services can come from any federal source. ACT is currently a pilot program available at six DOE laboratories. The Laboratories currently participating in the pilot include Brookhaven National Laboratory, Idaho National Laboratory, Lawrence Livermore National Laboratory, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, and the National Renewable Energy Laboratory.

USER AGREEMENTS

Specialized, standard agreements are available to expedite user access to DOE [Designated User Facilities](#). Each national laboratory has state of the art facilities that are open to industrial and academic users for conducting research in diverse technology areas, including biology and medicine, chemistry and environmental sciences, physics and material science. It is possible to perform proprietary or non-proprietary research at the Designated User Facilities. There is typically no charge for users who are performing non-proprietary research with the understanding that they are expected to publish their results. For proprietary research that is not intended for publication, access to facilities is available on a full cost recovery basis. The submission process for individual or collaborative research may differ at each laboratory; however, access generally begins with an invitation from an employee or through submission and approval of a peer-reviewed proposal. More complete descriptions and models of these Agreements are found in the Class Waiver for Non-Proprietary Users and the Class Waiver for Proprietary Users. More complete

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TECHNOLOGY LICENSING AGREEMENT

Intellectual Property (IP) developed by the DOE's national laboratories is typically held and licensed by working with the responsible technology transfer office/organization within the laboratory where the technology was developed. Because of the unique set of laws related to IP generated at DOE laboratories, licensing agreements for these technologies include some provisions that may not be present in a license agreement between private entities, e.g. march-in-rights, government-use rights, and indemnification of the federal government. This guide is available at the following link:

<http://techtransfer.energy.gov/LicensingGuideFINAL.pdf>.

Typical financial and milestone terms present in a commercial license include:

- An issue fee, which is non-refundable and due upon execution of the agreement
- A running royalty, which is most commonly based on a percentage of sales
- A minimum annual royalty
- Other financial terms appropriate to the technology and market, such as milestone payments and patent cost reimbursements
- Equity ownership terms which may be negotiated in some cases in lieu of cash payments
- Milestone commitments for development (e.g. alpha & beta products) and introduction of commercial product in marketplace

Licenses may be exclusive for a particular field of use or geographic region, or non-exclusive.

Most of the technologies available for licensing will require additional development before they are commercially viable. An Option Agreement is available that protects an entity's right to license a technology at a future time. Option Agreements are generally available for a time period of one year. Many labs will approve an extension to the Option Agreement if sufficient milestones towards making the technology commercially-viable have been met.

Several of the technologies available for licensing can be found on the Energy Innovation Portal <http://techportal.eere.energy.gov/>. The Energy Innovation Portal was created as a one-stop resource for DOE Energy Efficiency and Renewable Energy (EERE) technologies. These technologies can be viewed as marketing summaries, which provide business friendly descriptions of the technology, or the patent itself. Online contact forms are provided to get directly in touch with the licensing representative from each laboratory. Many of the Labs also maintain their own online database of technologies available for licensing.

TECHNICAL ASSISTANCE

Many Labs offer a Technology Assistance Program, which leverages the expertise of laboratory scientists and engineers to help members of the small business community solve important challenges free of charge. Examples of assistance include:

- Advising on existing or emerging products
- Providing advanced technology for hardware and software applications
- Improving production and manufacturing processes
- Resolving technical problems
- Performing scientific peer reviews
- Recommending energy conservation and environmental technologies

Funds for Technical Assistance are limited and are only available at certain DOE national laboratories.

MATERIAL TRANSFER AGREEMENT

A Material Transfer Agreement (MTA) protects biological materials and tangible research products provided either to or by the Laboratory. This is an agreement that biological materials and tangible research products provided by one party to another will be protected from further transmittal. The agreement normally requires return or destruction of materials and products at the end of the agreement.

SMALL BUSINESS INNOVATION RESEARCH AND SMALL BUSINESS TECHNOLOGY TRANSFER

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are research and development programs that are only open to eligible U.S. small businesses. Both programs offer small businesses the ability to collaborate with DOE National Labs or other partners as subcontractors. The SBIR/STTR programs have three distinct phases:

- Phase I explores the feasibility of innovative concepts with awards up to \$225,000 over 12 months.
- Phase II is the principal R&D effort used for prototype or process research and development with awards up to \$1,500,000 over two years.
- Phase III offers opportunities to small businesses to continue their Phase I and II R&D work to pursue commercial applications of their R&D with non SBIR/STTR funding. Under Phase III, Federal agencies may award noncompetitive, follow-on grants or contracts for products or processes that meet the mission needs of those agencies, or for further R&D.

The Department of Energy manages two independent Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) programs: the DOE SBIR/STTR Programs Office within the Office of Science (<http://science.energy.gov/sbir>) and the SBIR/STTR Programs within the Advanced Research Projects Agency – Energy (ARPA-E) (<http://arpa-e.energy.gov/>). Interested small businesses are encouraged to submit applications that address the specific technology innovations sought by these programs, which span the majority of the Department’s mission in areas relating to clean energy, advanced scientific instrumentation and software, and nuclear security. The Department issues over 300 Phase I and 150 Phase II awards annually totaling more than \$200M.

FREQUENTLY ASK QUESTIONS

Question #1: Why does DOE retain a government-use license and march-in rights?

Answer #1: Retention of these rights in agreements involving federally-funded research is required by law. The Government license is viewed as recognition of the Government investment that created the facility and the research from which the technology arises. March-in rights are retained by the Government to assure that technology arising from laboratories is made available to the public. Should a laboratory licensee or CRADA partner abandon use or dissemination of the technology yet retain a license to the technology, the government has the right to require the partner to license to a third party, who is interested in commercializing the technology, at a reasonable royalty.

Question #2: How can companies protect their confidential and proprietary information while working with the DOE national laboratories?

Answer #2: CRADAs, SPPs, and ACT arrangements can be contracted to contain provisions addressing protection of a partner’s proprietary data. User Agreements often include such provisions as well. In addition, Nondisclosure Agreements (NDA) can easily be put in place to protect a partner’s proprietary information prior to the initiation of any work or even at the discussion stage if necessary. While a company’s proprietary information agreement template can be used as a starting point the nature and contractual requirements of the national laboratories will require amendments and the use of the standard agreement offered by the Laboratory of interest often expedites the signature of these agreements. Data generated in the performance of a CRADA can be protected from public release by the laboratory or the Government for five years. It is important that companies mark all of the information that they provide to the laboratories’ staff in accordance with the agreements between the parties for protection of data. Data generated under a SPP or ACT can be kept proprietary by the Sponsor indefinitely in many cases.

Question #3: How can the intellectual property interests of multiple collaborators be accommodated?

Answer #3: There are examples of successful multi-party collaborations that accommodated the interests of various organizations, including multiple DOE laboratories. Clear communications and up-front negotiations of intellectual property rights can help save time. For example, in the alternative feedstocks for chemicals program, five laboratories set up agreements for sharing intellectual property among themselves and with a company. The intellectual property developed by one laboratory was used by other laboratories, and the company benefited from inventions at several laboratories. The new Agreement for Commercializing Technology (ACT) also provides flexibility in addressing multiparty collaborations.

Question #4: How long does it take to negotiate a license?

Answer #4: This varies from lab to lab and technology to technology. It generally takes a few months.

Question #5: How much does a license cost?

Answer #5: This varies depending on the market value of the technology, common licensing practices in the relevant industrial sector, additional development costs involved in bringing the technology to market, and the scope of the field of use or geographic region.

Question #6: Are licenses available to non-U.S. companies?

Answer #6: Yes, although as federally-funded facilities, DOE's national laboratories, have a preference to license to U.S. companies and an obligation to consider U.S. Competitiveness in all license agreements. The requirement for U.S. Competitiveness can be satisfied by either substantially manufacturing in the United States or by having a business unit in the United States and providing a significant economic and technical benefit to the United States. All DOE Laboratories are also required to include an export control clause in their license agreement. This clause simply states that the Licensee agrees to comply with export control laws designed to protect items and information important to the United States. It restates the existing requirement and does not impose additional requirements.

Question #7: I am interested in working with a national lab on my particular technology. What is the best way to determine which lab(s) are doing research in my technology area?

Answer#7: The Federal Lab Consortium (FLC) has set up a [Technology Locator](#) tool to put a potential partner in contact with a federal laboratory with expertise and capability in a specific area of interest. This Technology Locator service may determine that a federal lab outside of the DOE laboratory system is best suited to work on the specific interest, in which case different agreements and requirements may be applicable.



Technology Transfer Mechanisms at DOE Laboratories at a Glance

Agreement	Use	Funding	Subject Inventions	Generated Data	U.S. Competitiveness	Cost	Highlights
Cooperative Research and Development Agreement (CRADA)	Collaborative research between DOE Labs and public and/or private entities for the mutual benefit of the parties	Private and/or Federal funds	Lab and Participant may elect their own inventions and Participant has right to negotiate exclusive license to Lab inventions	Protected for up to 5 years	Products embodying IP resulting from CRADA shall be manufactured substantially in the U.S.	Lab and Participant may share costs or Participant pays 100% funds-in	✓ Collaborative research ✓ 5 year data protection ✓ Designed for multi-party collaborative research
Strategic Partnership Project (SPP)	Work for businesses and other non-federal entities using highly specialized or unique DOE facilities, services or technical expertise	Private funds	Sponsor may elect title to Subject Inventions ¹	Protected as Sponsor's proprietary data w/limited exceptions ^{1,2,3}	U.S. Preference: Sponsor agrees not to grant any party exclusive right to use or sell products embodying Subject Inventions in the U.S. unless products are manufactured substantially in the U.S.	Sponsor pays full cost recovery	✓ Sponsor typically retains right to elect title to subject inventions ✓ Generated data treated as proprietary ✓ Option for limited Gov. R&D license³
		Federal funds (e.g. grantee)	Lab may elect title to Subject Inventions of the Lab	Unlimited Gov. rights	U.S. Preference (see above)	Sponsor pays full cost recovery	✓ Access to unique facilities and expertise using federal funds

Agreement	Use	Funding	Subject Inventions	Generated Data	U.S. Competitiveness	Cost	Highlights
Agreements for Commercializing Technology (ACT)	Work for businesses and other non-federal entities using highly specialized or unique DOE facilities, services or technical expertise	Private funds	Initial title to the designated IP Lead. (ACT Participant or Lab Contractor)	Protected as proprietary data w/limited exceptions ^{1,2,3}	U.S. Preference (see above)	Participant pays full cost recovery <u>plus</u> additional negotiated compensation to the Contractor	✓ Flexible terms for IP, indemnity, adv. payment ✓ Optional performance guarantee ✓ Negotiable IP terms ✓ Option for limited Gov. R&D license³
Proprietary User Agreement	Proprietary research at Designated User Facilities	Private funds	User may elect title to its Subject Inventions	User may protect as proprietary	n/a	User pays full-cost recovery for the marginal use of the facility	✓ Merit based access to unique facilities ✓ Generated data treated as proprietary
Non-Proprietary User Agreement	Non-proprietary research at Designated User Facilities	Typically federal funds (e.g., grantee)	Lab and User may elect their own Subject Inventions	Unlimited Gov. Rights	U.S. Preference (see above)	No cost	✓ Merit based access to unique facilities ✓ No cost for non-proprietary use

¹ Certain exceptions or restrictions may apply (e.g. foreign SPP Sponsors may be granted the right to elect title to inventions and receive proprietary data protection but only after the approval of DOE field patent counsel and concurrence from the cognizant DOE program office).² Proprietary data protection may not be available at all facilities. ³ If the limited Gov. R&D license is utilized, data protection will be limited to 5 years.

CONTACT INFORMATION: Licensing, CRADAs and SPPs

If you are interested in learning more about partnering opportunities and the mechanisms described in this Guide, the first step is to visit the technology transfer section of each of the lab's websites to determine mutual areas of interest. The following table provides a list of the Technology Transfer Websites for each of the national laboratories, as well as general contact information.

Laboratory/Facility	Contact	Website
Ames Laboratory	Joiner@ameslab.gov	https://www.ameslab.gov/techtransfer
Argonne National Laboratory	partners@anl.gov	http://www.anl.gov/technology/technology-development-and-commercialization
Brookhaven National Laboratory	tech@bnl.gov	https://www.bnl.gov/techtransfer/
Fermi National Accelerator Laboratory	optt@fnal.gov	http://www.fnal.gov/directorate/techtransfer/
Idaho National Laboratory	Collaboration@inl.gov	https://www.inl.gov/inl-initiatives/technology-deployment/
Kansas City Plant	Customer_inquiry@kcp.com	http://honeywell.com/sites/aero-kcp/Partnering/Pages/partnering-agreements.aspx
Lawrence Berkeley National Laboratory	ipo@lbl.gov	http://ipo.lbl.gov/
Lawrence Livermore National Laboratory	pitcock1@llnl.gov	https://ipo.llnl.gov/
Los Alamos National Laboratory	feynmancenter@lanl.gov	http://www.lanl.gov/projects/feynman-center/
National Energy Technology Laboratory	techtransfer@netl.doe.gov	http://www.netl.doe.gov/business/tech-transfer
National Renewable Energy Laboratory	Anne.Miller@nrel.gov	http://www.nrel.gov/technologytransfer/
Oak Ridge National Laboratory	reevesme@ornl.gov	https://www.ornl.gov/partnerships
Pacific Northwest National Laboratory	TechComm@pnnl.gov	http://www.pnnl.gov/business/tech_transfer.aspx
Pantex Plant	Pantex_WFO@Pantex.com	http://www.pantex.com/doing-business/pages/our-capabilities.aspx
Princeton Plasma Physics Laboratory	lbagley@pppl.gov	http://www.pppl.gov/organization/technology-transfer

Sandia National Laboratories	partnerships@sandia.gov	http://www.sandia.gov/working_with_sandia/technology_partnerships/index.html/
Savannah River National Laboratory	dale.haas@srnl.doe.gov	http://srnl.doe.gov/tech_transfer/tech_transfer.htm
SLAC National Accelerator Laboratory	iprp@slac.stanford.edu	https://partnerships.slac.stanford.edu/what-we-do
Thomas Jefferson National Accelerator Facility	dowd@jlab.org	https://www.jlab.org/exp_prog/techtransfer/
Y-12 National Security Complex	OTCP@y12.doe.gov	http://www.y12.doe.gov/partnerships

Additional Links

FLC – Technology Transfer Desk Resource

http://globals.federallabs.org/pdf/T2_Desk_Reference.pdf

FLC Federal Technology Transfer Legislation and Policy

https://secure.federallabs.org/pdf/FLC_Legislation_and_Policy.pdf

CRADA Order and Manual

<https://www.directives.doe.gov/directives-documents/400-series/0483.1-BOrder->

ASPP Guide and Manual

<https://www.directives.doe.gov/news/draft-doe-o481.1d>

Office of Technology Transitions

<http://energy.gov/technologytransitions/office-technology-transitions>

