

The Intellectual and Leadership Center of the Air Force



*University Partnerships
with Federal Laboratories*

We make a difference...

one student at a time

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Dean for Research
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University Partnerships with Federal Laboratories



- **Purpose**
- **Federal Laboratory Overview**
- **What's possible in a partnership?**
- **Defining partnership objectives**
- **Partnership examples**
- **References**



Purpose



- *To discuss options and approaches for partnering with federal laboratories for research collaboration beyond the standard proposal funding processes (Broad Agency Announcements) or established user facilities procedures.*



Definitions



- Funding agency: awards research and development funding via grants, cooperative agreements, and/or contracts as announced in Broad Agency Announcements (BAAs)
- Federal laboratory: conducts “in-house” research

There is often organizational overlap between these two functions. Some individuals may have both “program manager” and “researcher” responsibilities.



Federal Laboratory missions



Each federal laboratory has focused areas of expertise in support of the agency mission.

- E.g.: **Oak Ridge National Laboratory's** six major mission roles include neutron science, energy, high-performance computing, systems biology, materials science at the nanoscale, and national security.

In addition to executing specific missions, Congress expects federal laboratories to engage in “technology transfer.”

- This is the opening for many partnership possibilities.**





Selected R&D Funding Data^{1,2}



- Department of Defense
 - FY08 R&D appropriation: \$77.78B
 - FY08 R&D funding to universities: \$3.08B
- Department of Energy
 - FY08 R&D appropriation: \$9.66B
 - FY08 R&D funding to universities: \$1.13B
- National Aeronautics and Space Administration
 - FY08 R&D appropriation: \$12.19B
 - FY08 R&D funding to universities: \$1.06B

Via partnerships, there are substantial research resources available beyond the traditional R&D funding to universities.



Where are the Federal Labs?



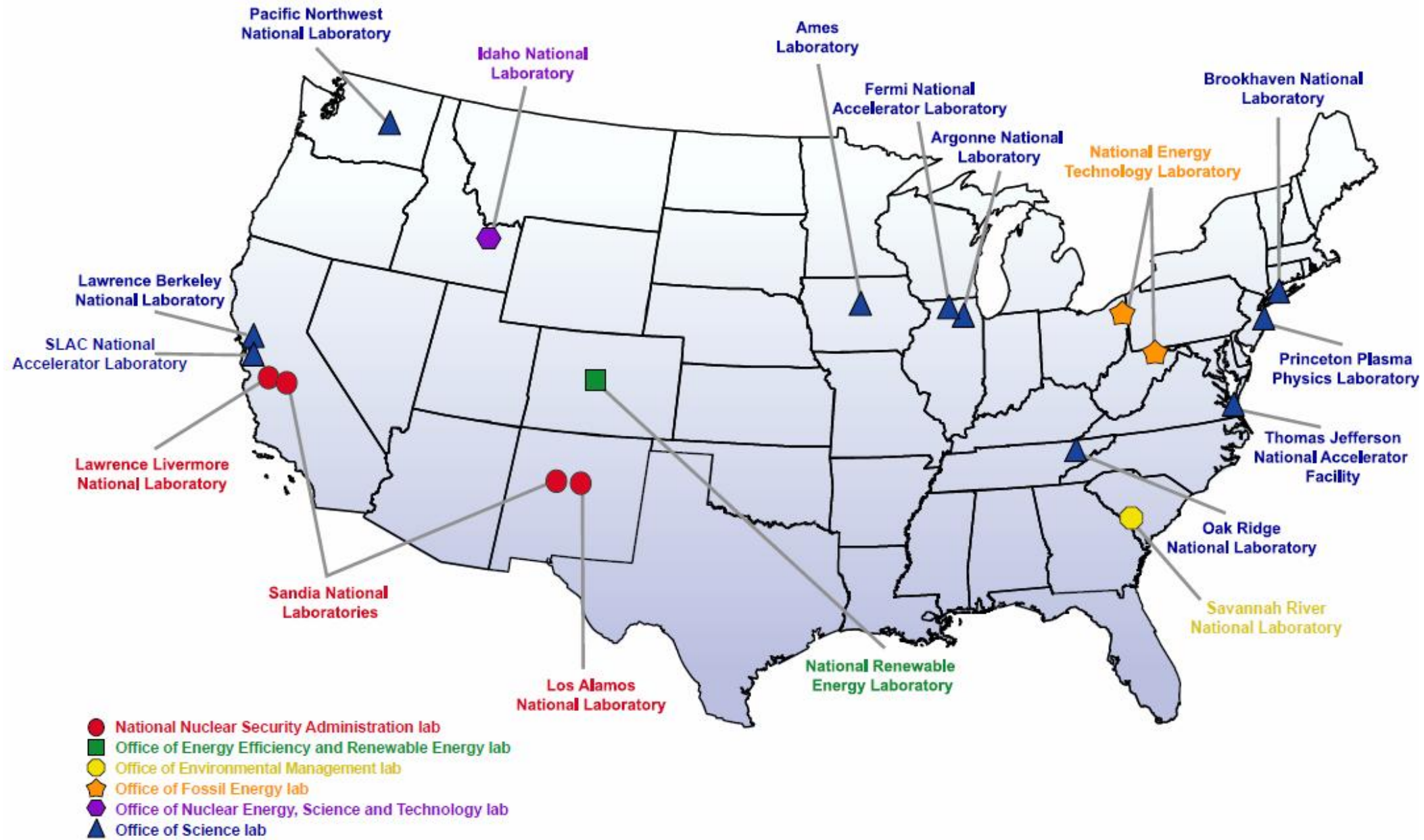
Every state except Delaware and Vermont has at least one (including USGS water science centers)

DOD: Army, Navy and Air Force Research facilities
in AL, AZ, CA, CO, CT, DC, FL, GA, IN, IL, MA,
MD, MS, NC, NE, NH, NJ, NM, NY, OH, OK, PA,
RI, SC, TN, TX, UT, VA, WA

NASA: AL, CA, FL, MD, MS, OH, TX, VA



DEPARTMENT OF ENERGY NATIONAL LABORATORIES





Locating Federal Laboratories



For an extensive listing of federal laboratories, visit the Federal Laboratory Consortium website (under “FLC Laboratories”):

www.federallabs.org

Includes searchable database of laboratories with

- web address and contact information
- facilities list and areas of expertise
- technology transfer mechanisms utilized



Example of detail available at www.federallabs.org



AFRL Materials and Manufacturing Directorate

- Website: <http://www.wpafb.af.mil/afri/rx/>
- Facilities (partial listing)
 - Electronic Failure Analysis Laboratory
 - Electrostatic Discharge Control Laboratory
 - Failure Analysis Laboratory
 - Materials Compatibility & Coatings Research Lab
 - Materials Degradation Test Facility
 - Materials Test and Evaluation Laboratory
- FLC representative: Phone: 937-255-5669
Email: Gregory.McGath@wpafb.af.mil



What's possible in a partnership?



- Equipment donations
- Facilities usage (free or at negotiated rates)
- Personnel exchanges (both directions)
- Data exchanges
- Thesis/dissertation committee participation
- Events to encourage STEM enrollment



What's possible in a partnership?



Joint proposal submissions & project execution

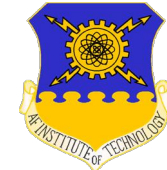
- Depends upon the terms of the Broad Agency Announcement
- May require “parallel” proposal submissions
- Example “eligibility” statement from AFOSR-BAA-2009-1:

“...Proposals from Federal Agencies, including subcontracting/subrecipient efforts will not be evaluated under this BAA. Federal agencies should contact the primary POCs listed under each technical area to discuss funding through the internal Government procedures...”

Your federal research partner needs adequate time to determine the correct process for each opportunity.



How are partnerships developed?



- **Ideas**
- **Contacts (“Champion”)**
- **Preliminary Agreement**
- **Formal Agreement**



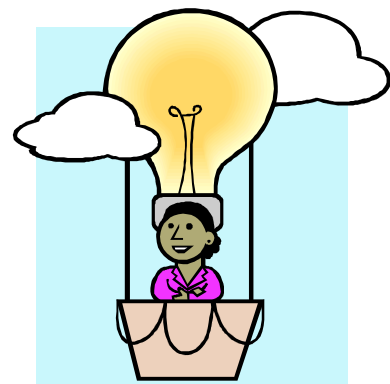
Develop your ideas



What do I have, and what would I like to do with it?

- Evaluate your research strengths (individual, departmental, institutional)
- Identify specific, possible research projects, areas of emphasis for a Center, and/or related educational activities

Ideas can be revised, but you need to start somewhere!





What else is needed?



- Determine what you need to complement your strengths
 - Collaborator with particular skills?
 - Access to equipment with particular measurement capabilities unavailable commercially?
 - Access to samples or data?
- Review the laboratory's website and/or FLC listing to assess possibilities
 - Focus your efforts on potential partners with similar objectives or complementary resources

Do your homework!



How to contact a laboratory



- Become acquainted with a federal researcher at professional society meetings
 - Ask if he/she is interested in discussing collaboration in the areas you have identified
 - Ask if he/she can refer you to others in the federal laboratory with relevant expertise or facilities
- Ask your mentor or Research Office if they have contacts at the laboratory.

Personal contacts yield the best results.



How to contact a laboratory



Other options:

- Ask funding agency program managers to refer you to researchers with complementary expertise.
- Use lab's Federal Laboratory Consortium POC or FLC regional contacts.
- Use public affairs or other contact points listed on laboratory's website.

Specify your needs in a succinct e-mail message so it can be easily forwarded until the right "champion" is identified.



After contact is made, then what?



Reach preliminary agreement among researchers about who, what, where, when, why.

- *These details are necessary to avoid misunderstanding, and may determine the type of formal agreement required.*

Consider :

- which equipment, how much time may be involved.
- intellectual property ownership/exchange.
- decision protocols for items that must be negotiated in the future.
- termination and dispute clauses.
- technical and administrative points of contact.



Agreeing upon details



Insufficient:

- Access to testing equipment as needed.

Better:

- Access to testing equipment controlled by the Materials Division will be provided to University X on a space available basis. Usage requests will be made to Mr. Smith, chief technician, who will determine availability.
- Approximately 50 equipment-hours of usage is expected monthly.
- All University X personnel must complete the Materials Division's standard safety and equipment training prior to operating the equipment.
- Each organization is responsible for repairing its own equipment.



Agreeing upon details



Insufficient:

- Reporting schedule to be determined by mutual agreement.

Better:

- Within three months after the initiation of this project, the technical points of contact will agree upon the format and schedule of required project reports, if any.

Insufficient:

- The agreement can be terminated by either party.

Better:

- The agreement can be terminated by either party upon 30 days written notice to the administrative POC. Termination notices will not cancel scheduled thesis or dissertation work by students.



After preliminary agreement is made, then what?



Identify approval authorities and degree of formality required

- Larger resource commitments typically require more formality and higher levels of approval.
- University: Dean? President? Research Office? Technology Transfer Office?
- Laboratory: Division Director? Legal Office? Technology Transfer Office? Outreach Office?



After preliminary agreement is made, then what?



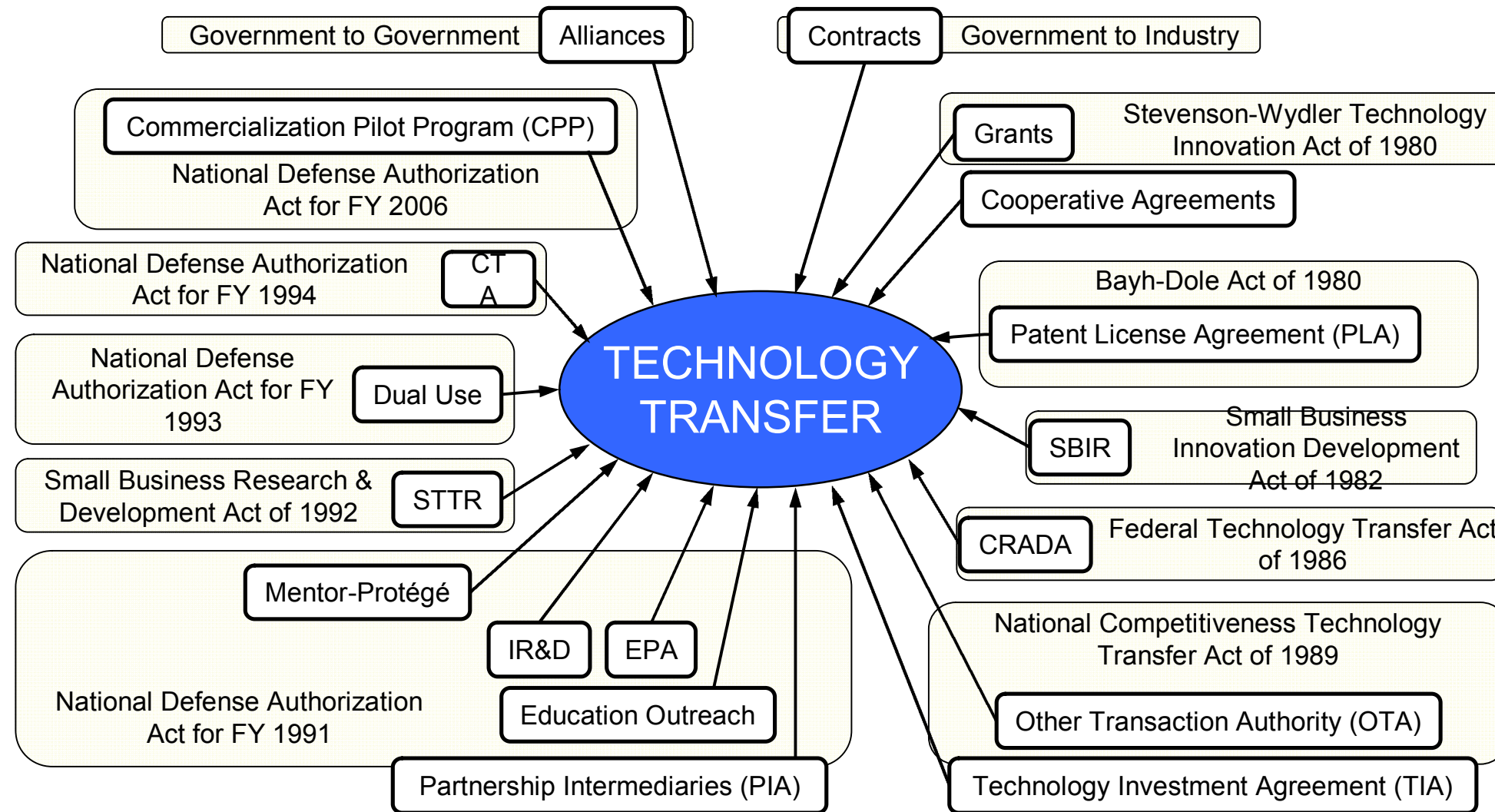
- **Identify who will be responsible for drafting which portions of the agreement, and when.**
 - Researchers typically provide technical details, others address other non-technical requirements.
 - Projected timelines should be established.
 - Don't let your partnership languish due to poor communication! Follow up if necessary!
- **The institutions should be prepared to negotiate, if necessary.**
 - Federal law supercedes state law – but some terms in standard formats may be negotiable



What types of agreements are used, and when?



Technology Transfer Authorizations³





Cooperative Research and Development Agreements (CRADAs)⁴



- A written agreement between one or more Air Force Activities and one or more non-federal parties to conduct specified research
 - Must be consistent with Air Force Mission
- Non-federal party may provide personnel, facilities, equipment and/or funds
- Air Force Activity may provide personnel, facilities, and/or equipment
 - Air Force Activity can not provide any funds
- Authorizes parties to determine rights in inventions, patents and other intellectual property
- Trade secret and commercial and financial information protected from disclosure under the Freedom of Information Act
- Preference for small business and businesses located in the US (15 U.S.C. § 3710a)



Uses of a CRADA⁴



- CRADAs should meet one of the following criteria:
 - Access to Emerging Technology
 - Ex: Thin film coating for airplane wing to decrease drag
 - Provide Mutual Benefit
 - Ex: Transfer hot air balloon and research equipment to a university in return for their data
 - Expand AF Activities Technical Knowledge
 - Ex: Testing of magnets attached to engine fuel line to determine if magnetic field increases combustion efficiency
 - Transfer Technology for Commercialization
 - Ex: Transfer fighter pilot hearing protection and communication technology to motor sport drivers



Education Partnership Agreements (EPAs)⁴



- Focused on promoting the fields of Science, Math, and Engineering
- Vehicle for Specific Collaboration with Academia and Educational Institutions
- Allows for Sharing of People and Expertise
- Allow for Transfer/Donation of Equipment
 - Scientific Equipment
 - Computers





Partnership examples



Consortium of Ohio Universities on Navigation & Timekeeping

- <http://countohio.org/index.html>
- Partners: Air Force Institute of Technology, Miami U of Ohio, Ohio State U, Ohio U
- Partnership mechanism: CRADA
- Funding sources: various

Center for High Power Gas Phase Lasers

- Partners: AFIT, Air Force Research Lab, New Mexico Tech, U New Mexico
- Partnership mechanism: EPA
- Funding source: AFOSR



Partnership example



Wright Brothers Institute “Tec^Edge” Works

- <http://www.wbi-icc.com/works/>
- Partners: AFRL, many organizations in Dayton region
- Mechanisms: various
- Objectives: provide flexible environment for hands-on rapid prototyping and experimentation by government, university and industry collaborators.
- Successes: U Dayton-led proposal to establish a Center for UAV Exploitation via the State of Ohio’s Third Frontier program (\$3M awarded, add’l \$3M in partner matching funds.)⁵



Partnership Example



Colorado Renewable Energy Collaboratory

- <http://www.coloradocollaboratory.org/about.html>
- Partners: Colorado School of Mines, Colorado State U, National Renewable Energy Laboratory, U Colorado (Boulder)
- Mechanisms: ?
- Objectives: create and speed the commercialization of renewable energy technologies, energy management systems, and energy efficiency



References



- ¹ AAAS R&D Budget and Policy Program Guide to R&D Funding Data Historical Table 1 available at <http://www.aaas.org/spp/rd/guihist.shtml>
- ² “Federal Government is Largest Source of University R&D Funding in S&E; Share Drops in FY 2008”, Ronda Britt, NSF 09-318 available at <http://www.nsf.gov/statistics/infbrief/nsf09318/>
- ³ Map of DOE Laboratories from http://www.science.doe.gov/National_Laboratories/print-Map%20of%20National%20Labs-v7.pdf
- ⁴ From Air Force Technology Transfer (“T2”) Overview Briefing available at <http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=6026>



References (con't)



- ⁵<http://www.daytondailynews.com/business/tecedge-collaboration-center-to-relocate-229839.html>



QUESTIONS?



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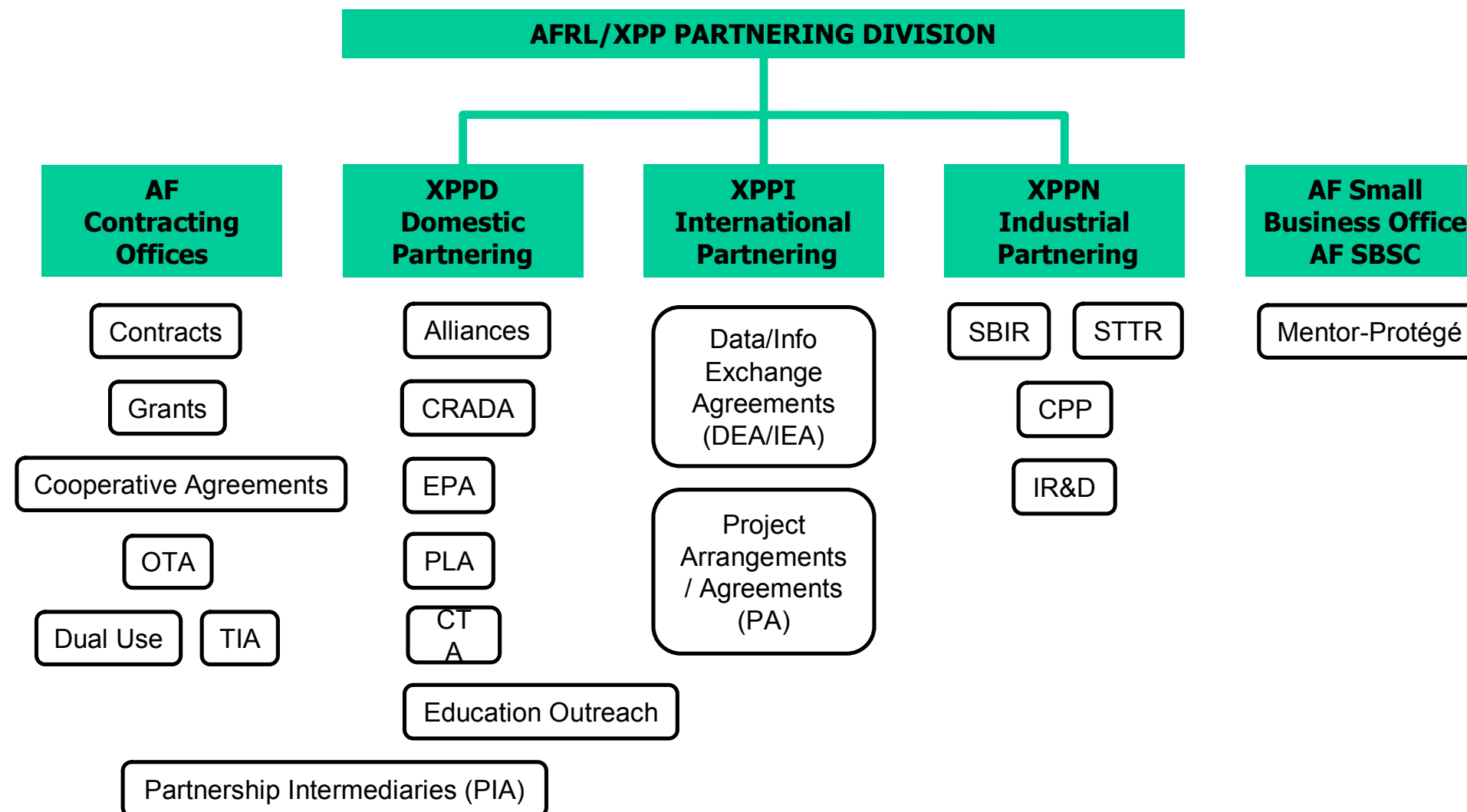


Back up slides





Authorities Organized within Air Force⁴





Office of Research and Technology Applications⁴



Inside the Lab

Scientists and Engineering Staff

Lab Management

Public Affairs

Legal Staff

Equipment Custodians

Procurement Staff

Human Resources

ORTA

- Office of
- Research &
- Technology
- Application

Functions:

- Supports S&Es
- Coordinates transfer activity
- Negotiates All Agreements

Outside the Lab

Private Sector

Academia

State and Local Organizations

National Networks

Professional and Trade Groups

Other Federal Labs