Office of Technology Transitions Department of Energy

Steven T. McMaster, Deputy Director
Office of Technology Transitions

March 26, 2015

Office of Technology Transitions Overview

Mission: To expand the commercial impact of DOE's portfolio of RDD&D activities over the short, medium and long term.

What: OTT is the functional unit that coordinates the Department's multiple paths of RDD&D activities toward technology transfer and commercial development of DOE's research outputs.

How: OTT develops and oversees delivery of the DOE strategic vision and goals for technology commercialization and engagement with the business and industrial sectors across the US.

Why: OTT will help derive the maximum impact for the Department's investments.

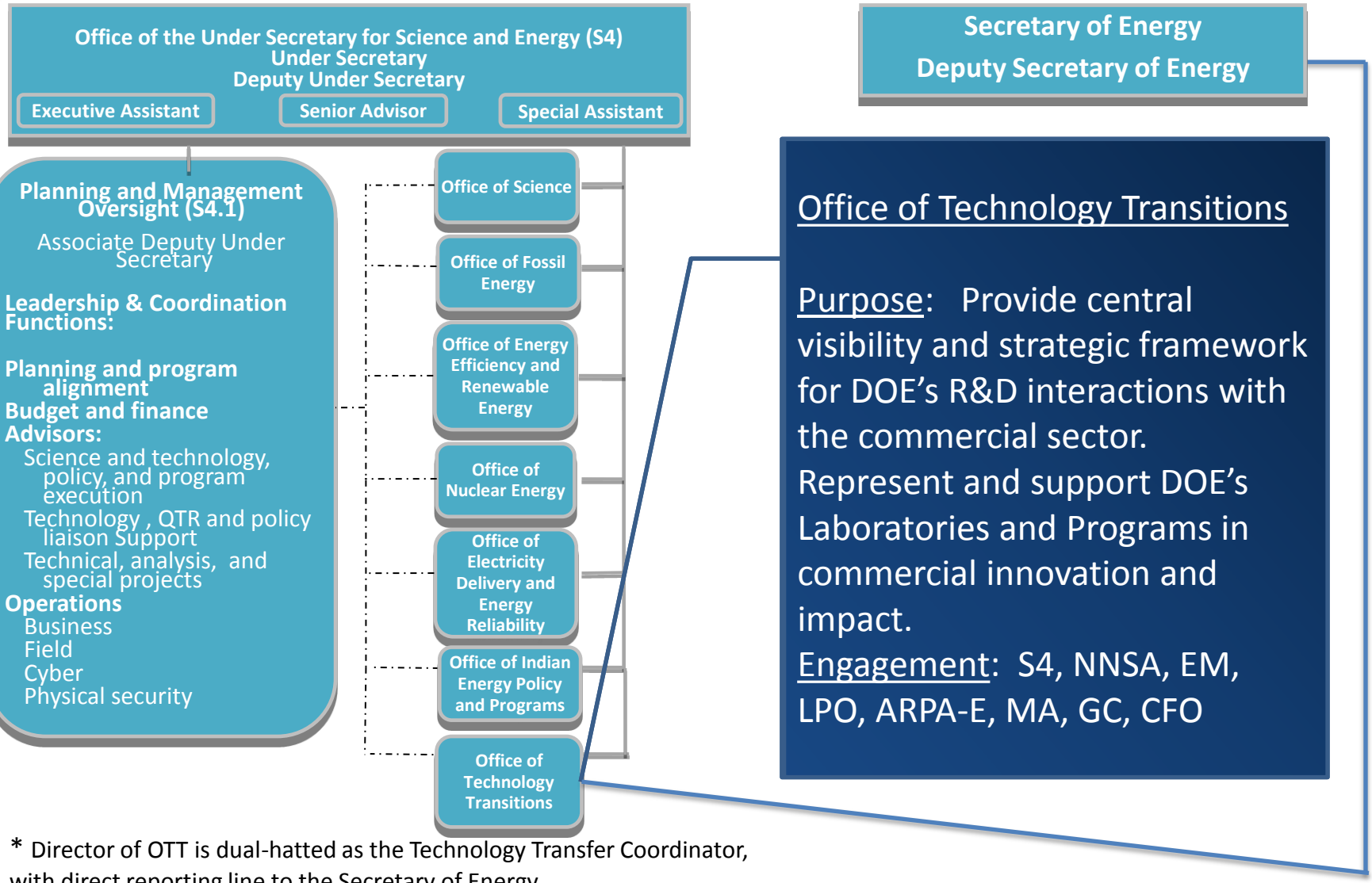
Some of the questions we're hearing…

- How will this office work within the Department and prioritize areas where technology transfer can occur?
- What are the biggest challenges the Department faces when trying to transition its technology into the commercial sphere and how will this new office address them?
- Are there additional organizational or funding changes that should be made?

WHAT DOES THIS MEAN FOR ME?

Commercial deployment of DOE technologies creates globally competitive industries in the United States, enables significant cost-savings for industries and consumers, and creates good jobs for Americans.

Reporting Structure for OTT



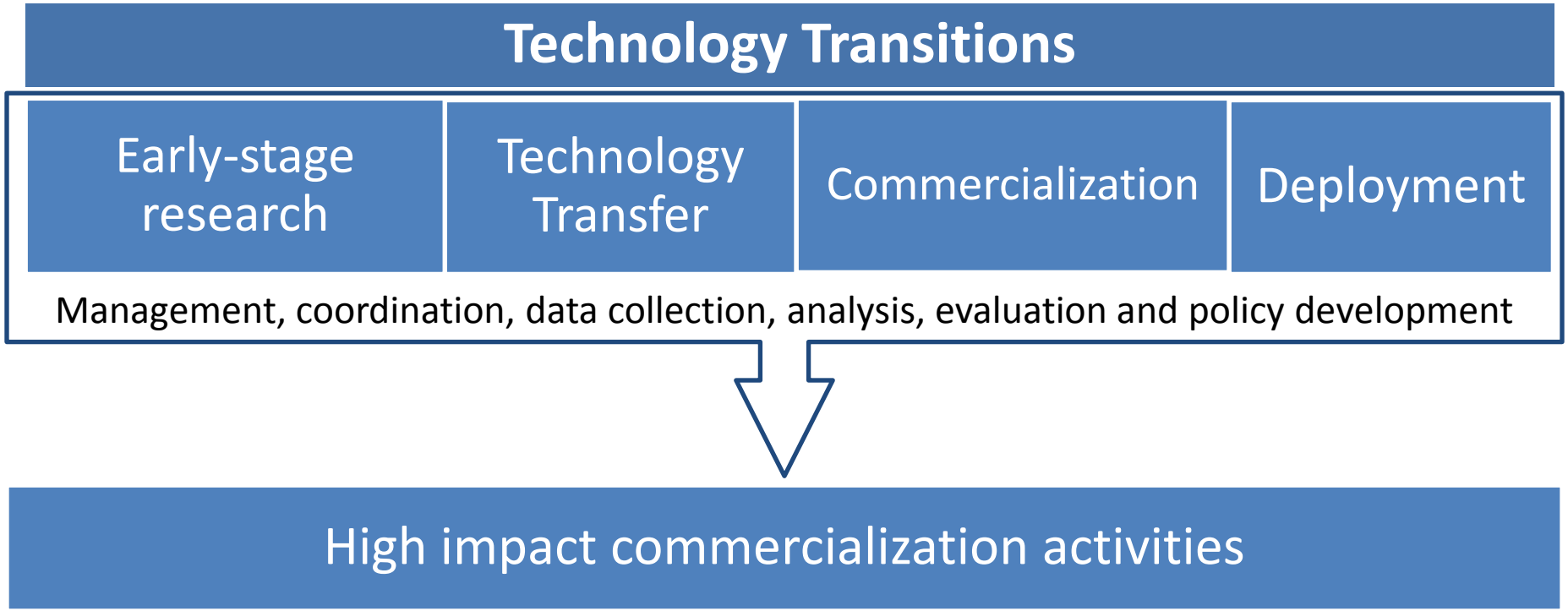
* Director of OTT is dual-hatted as the Technology Transfer Coordinator, with direct reporting line to the Secretary of Energy

Dual-Hatted: Director and Technology Transfer Coordinator

- Technology Transfer Coordinator by EPAct 2005, which includes oversight of:
  - Activities of the Technology Transfer Working Group;
  - Expenditure of funds allocated for technology transfer within the Department;
  - Activities of each technology partnership ombudsman appointed under section 11 of the Technology Transfer Commercialization Act of 2000; and
  - Efforts to engage private sector entities, including venture capital companies.
- The dual reporting lines provide authority to support Department-wide coordination activities.
- The Director of the OTT would be an integral part of the Under Secretary's office and seek efficiencies by providing oversight and coordination (as directed by the Secretary and the Under Secretary) across Departmental programs and be responsible for statutorily mandated programs and reports regarding technology transfer.

Technology Transitions includes Technology Transfer

DOE is committed to strengthening its technology transfer capabilities and recognizes that **technology transfer is just one component** of its overall mission to promote scientific and technological innovation that advances the economic, energy, and national security interests of the United States.



OTT Responsibilities

Oversight and Management

Coordination

Communications

Statutorily mandated programs and reports regarding technology transfer

Data Collection, Analysis and Policy Development

Budget

OTT Budget

Operational Resources

Staff, analysis, statutorily required reports development, data collection, travel, training, and public workshops.

Technology Commercialization Fund

Provide matching funds with private partners to promote promising energy technologies for commercial purposes!

Technology Commercialization Fund

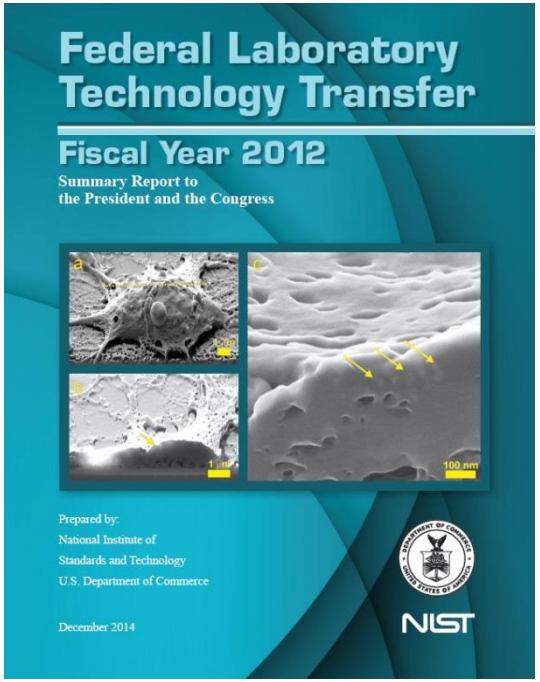
- EPAct 05 Energy Technology Commercialization Fund:
  - "The Secretary shall establish an Energy Technology Commercialization Fund, using 0.9 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application for each fiscal year, to be used to provide matching funds with private partners to promote promising energy technologies for commercial purposes."
- FY15 NDAA amendment: focus on "**future planned activities**."

FY15: Continue current approach to TCF and set up the infrastructure and processes for new approach to the TCF in FY16.

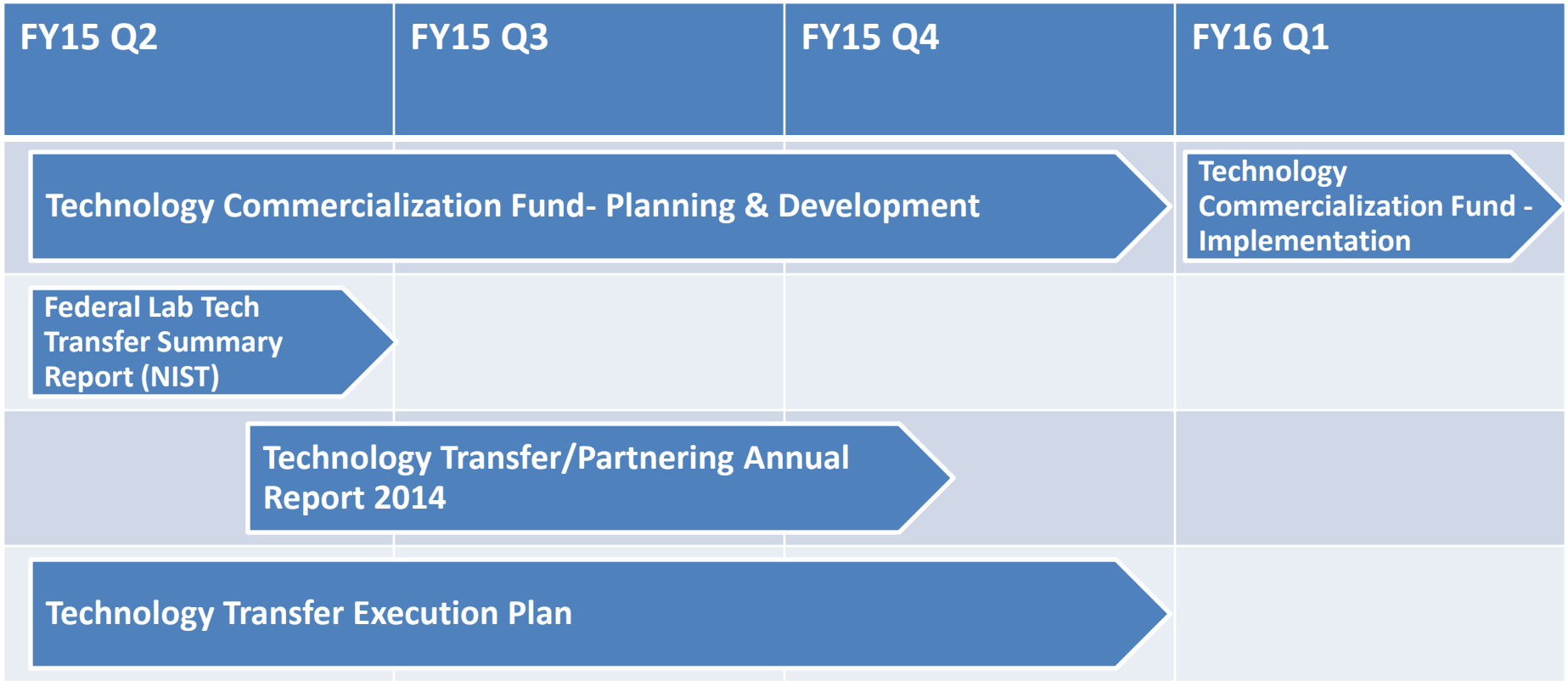
FY16: Implement a future-looking TCF that will leverage 0.9% of the R&D funding in the applied energy programs to pursue high impact commercialization activities.

Statutory Reports

- **Federal Laboratory Technology Transfer Annual Summary Report (NIST):** Technology Transfer and Commercialization Act of 2000 (15 USC 3710 (g))
- **Technology Transfer and Partnering Annual Report (DOE)**: Technology Transfer and Commercialization Act of 2000 (15 USC 3710 (f))
- **Technology Transfer Execution Plan**: EPAct 05: Planning and Reporting Requirements



FY15 Major Statutory Deliverables Tentative Calendar



Examples of DOE Technology Transitions Activities

Cross-Program

- Small Business Innovation Research/Small Business Technology Transfer
- Industrial engagements through User Facilities and Shared R&D Facilities
- Technology Transitions Web Page
- Developing reporting process: QTR, SEP, Annual Congressional Report, Data Calls
- "Essential Practices" workshops on "Industrial Consortia" and "Managing Laboratory Tech Transfer Programs"

Office of Science Use-Inspired R&D

- Energy Frontier Research Centers
- Bio-energy Research Centers
- Advanced Batteries and Artificial Photosynthesis Hubs

Applied Energy Offices

- Consortium for Advanced Simulation of Light Water Reactors and Critical Minerals Hubs
- Patent Innovation Portal
- Lab-Corps

Lab Initiated

- Center for Advanced Energy Studies(CAES)
- Wells Fargo ACT at NREL

Lab-to-Market Initiative is a Cross-Agency Priority Goal focused on accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace

(Part of the President's Management Agenda)

Agreements for Commercializing Technology extension

- ACT pilot established: February of 2012
  - Provides an alternative contract mechanism in which the labs can offer less restrictive contract terms to industry by privately assuming some of the risks and liabilities normally born by the industrial partners.
  - Limited number of ACTs (as of 2015) because it is a new mechanism
  - More time is needed to accumulate a more solid information base for the ultimate decision on whether to formalize, modify and formalize, or discontinue the ACT contracting mechanism.

- Extended the pilot: New expiration date October of 2017
- ACT Management and Execution Lab Workshop in April 2015

Success Stories

- Provides highlights of important technology breakthroughs
- Communicates to Congress about progress being made
- Supports budget

{Title}

Insert HD Picture

1st Paragraph (Intro) – Briefly describe what the technology is and its significance to consumers or the energy market. Include when the technology was developed. Describe how the technology has changed what is currently practiced or in the marketplace. Explain the partners/collaborators that developed and sponsored the technology. Include federal partners (i.e. Office of Science, EERE). Describe where (city/state location) the technology was developed. (up to 8 sentences)

2nd and 3rd Paragraphs (Main Discussion) – Describe the technology in more detail. Explain in more detail what makes the technology different from conventional method/technology. Explain how the technology solves current technical issue(s)/barrier(s). Include the energy impact of the technology. Include how the technology is being used or will be used and for what purposes. Explain the barriers to make the technology. Include government funding use to develop the technology. (up to 8 sentences each paragraph)

4th Paragraph (Closing) – Provide background information as to how the technology was first discovered. Provide the duration to create the technology. Talk about how partnerships were developed. If applicable, include if a business was created because of the technology and if so, how many jobs were created. If applicable, state the next step/phase for technology deployment. (up to 8 sentences)

Data Calls for Labs

- The 2014 TTWG data call is complete.
  - The content is valuable
  - The content is legislatively mandated
- 2014 Pilot data calls – Inputs received Jan. – Feb 2015. Data calls are complete; analysis us underway.
  - Develop High-impact early reporting
  - Input for OTT central web presence
  - Provide practical guidance for development of future data calls, best practices and policy development
- TTWG subcommittees and CROs to evaluate utility and burden of Pilot data calls and support development of 2015 data call
- Direct engagement with Office of Science Pilot on improved reporting of Facilities use; ensure coordination and minimize reporting burdens

Questions?

For more information:

Steven T. McMaster
Deputy Director, Office of Technology Transitions
Department of Energy
Email: steven.mcmaster@hq.doe.gov

Back-up Slides

Why it matters…

- The Department of Energy plays a key role in moving innovative energy technologies developed in DOE research across the country into the commercial marketplace, fueling the innovation engine that powers the U.S. economy.
- Bridging the gap between research and development (R&D) and commercial deployment is crucial to the Department's mission, because it creates globally competitive industries in the United States, enables significant cost-savings for industries and consumers, and creates good jobs for Americans.

ACT Management & Evaluation

(DRAFT / PRELIMINARY PLANNING APPROACH)

Phase	Timeline (Anticipated)
Phase 1: Develop Updated Management and Evaluation Plan • Review existing management and reporting system • Transition management authority to OTT • Define updated guidelines on reporting and compliance • Develop evaluation plan and finalize evaluation metrics	Q2 – Q3 FY2015
Phase 2: Implement Management and Evaluation Plan • Initiate updated management and reporting processes • Select and award independent evaluator • Independent evaluation performed	Q3 FY2015 – Q2 FY2017
Phase 3: Evaluation Review and Recommendation • Evaluation report delivered • Internal and external review • OTT recommendation to S1 • S1 decision on ACT	Q2 – Q4 FY2017

Partnering Activities at DOE National Laboratories and Facilities ('09-'14)

Technology Transfer Data Element	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY2014
Transactions and Activities						
CRADAs, total active in the FY	744	697	720	732	742	709
New inventions disclosed	1,439	1,616	1,820	1,658	1,796	1,580
▪ Patent applications filed	919	1,051	1,060	932	944	1126
▪ Patents issued	520	657	603	676	713	792
Licenses, total active in the FY	5,742	6,224	5,310	5,328	5,217	5,839
▪ Invention Licenses	1,452	1,453	1,432	1,229	1,353	1,560
▪ Other IP (copyright, material transfer, other Licenses)	4,429	4,771	3,878	3,900	3,864	4,301
▪ Licenses that are income-bearing, total in FY	3,339	3,489	3,510	3,340	3,709	4,212
▪ New Licenses that are income-bearing in FY	333	357	365	341	330	312
Work-for-Others Agreements – NFEs, total active in the FY	2,695	2,222	2,273	2,436	2,733	3,142
User Facility Agreements, total active in FY	1,417	4,391	11,981	9,119	7,396	6,713
Reported Income (Thousands of Dollars)						
Total Licensing Income Received	$43,496	$40,642	$44,728	$40,849	$39,573	$37,884
▪ Invention Licenses	$40,238	$37,066	$40,600	$36,103	$36,068	$36,531
▪ Other Licenses	$3,258	$3,576	$4,128	$4,746	$3,505	$1,353
Total Royalty Income Earned	$28,901	$25,220	$27,107	$28,735	$27,670	$23,321
R&D Budget Authority, Basic, Applied and Development (base, millions of dollars)	$9,227	$,9898	$9,915	$10,328	$10,148	$10,196

2014 Pilot Data Calls - Labs

Pilot Documentation of Laboratory TTO activities

Purpose: Document and celebrate the scope of Lab TTO activities

Use: Internal Planning, best practices, content for QTR and OTT Website

Approach: Executive Summary reports from Laboratory TTOs presenting

- Mission and goals
- Summary of key metrics
- Practices
  - Customer Development Activities
  - Staff Development Activities
  - Technology Maturation
  - Regional Economic Engagement and Technical Assistance

Pilot Expanded reporting of Commercial-Sector interactions

Purpose: Portfolio assessment and external communication

Use: 2014 Report to Congress on Technology Transfer, determination of follow-on data collection beginning 2015

Approach: Spreadsheet data on CRADA and non-federal WFO and ACT agreements:

- technology type
- zip code of sponsor
- facilities use

Example Mission & Goal Statement

Brookhaven National Laboratory

Laboratory Mission for Commercialization of Technology and the TTO

The mission of the Office of Technology Commercialization and Partnerships is to promote the transfer of BNL's technologies into the marketplace to benefit society while building strong, mutually beneficial and enduring relationships with universities, research institutions and industry. With this mission in mind, the Office is guided by the following goals:

To identify and capture Laboratory inventions ;

To protect inventions having commercial value and strategic importance to the Laboratory and to the DOE mission in an efficient and cost effective manner;

To promote economic development, partnerships and entrepreneurship through both in-reach and outreach to local and regional groups;

To assist in building a vibrant ecosystem that works in consort with the DOE mission of ensuring America's security and prosperity.

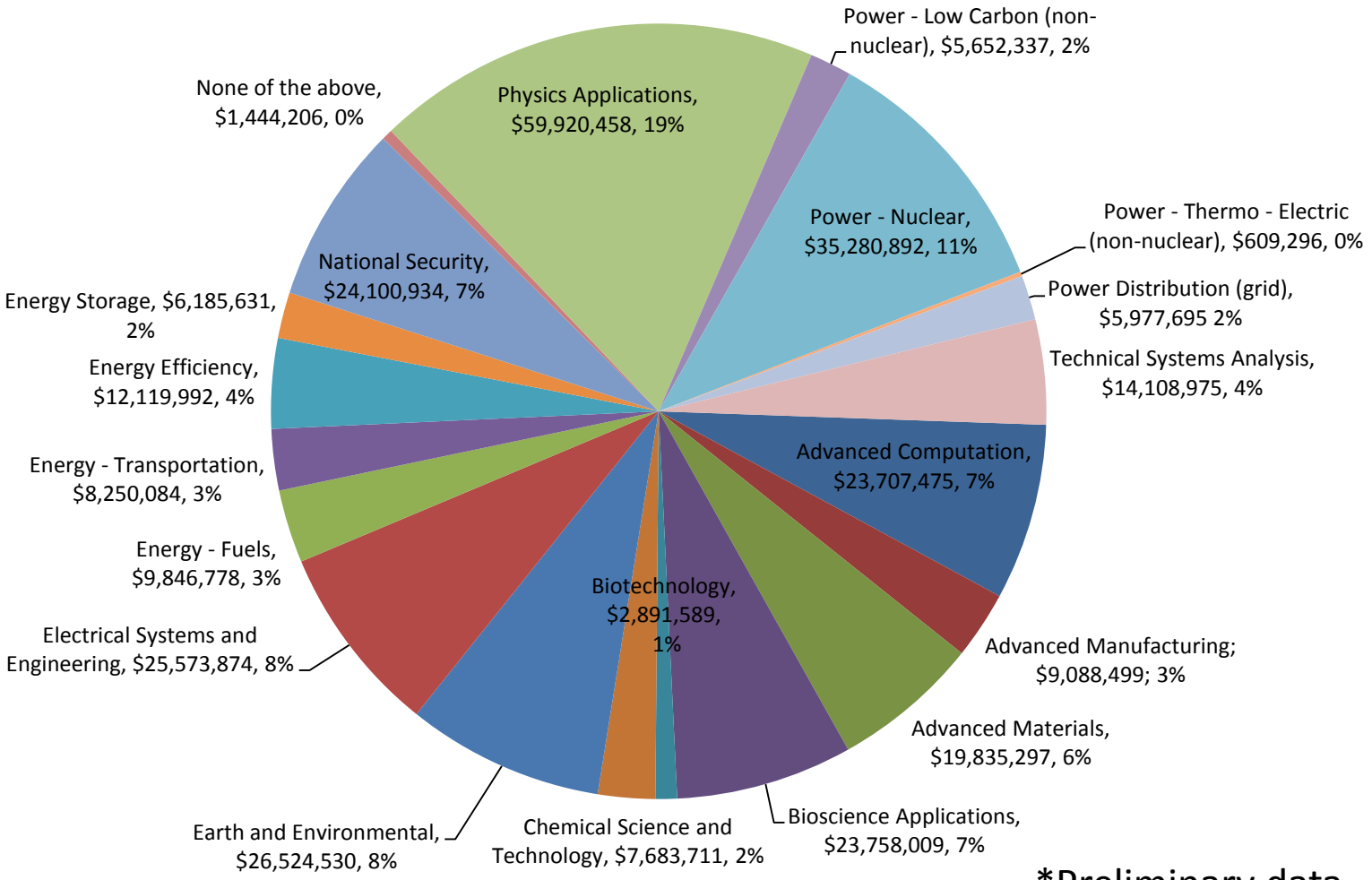
Categorized CRADA, WFO, ACT reporting

Pilot data collection 2014

DOE Program Office	List the Program Office responsible for DOE Contribution, or most closely related to the technology topic of the contract,
National Laboratory	National Laboratory Name
Partner Zip Code	**Zip code of the industry partner, should be that of technical POC, NOT the zip code of billing office (unless that is the same as POC)**
Partner Type	CFO categories: College/University, **Small Business, Large Business**, Not-for-Profit, etc.
DOE taxonomy category	**From Standard List of technology topics**
Secondary category describing technical area	**From standard list of secondary topics, additional categories may be defined as needed**
FY 2014 DOE $ contribution	
FY 2014 Partner Funds in $	
Status	Identify either “Active FY14” or “Proposed FY15”

CRADAs, ACT, Non-Federal WFO

(Sample only*- breakdown by funding, all labs)



*Preliminary data