

# National Lab Impact Initiative: Industry Lab Engagement



U.S. DEPARTMENT OF  
**ENERGY**

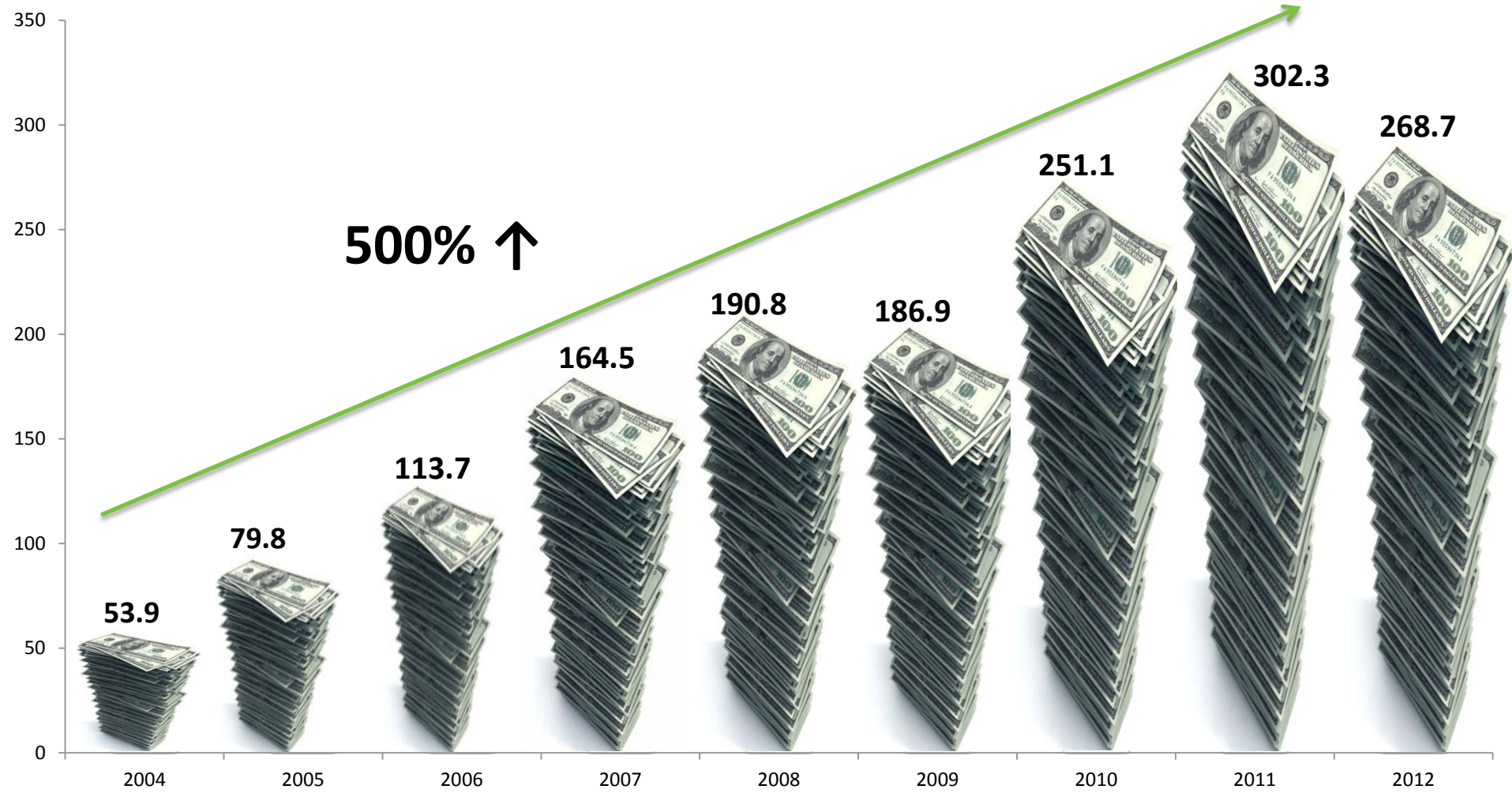
Energy Efficiency &  
Renewable Energy

Jetta Wong  
Director Lab Impact, EERE  
May 9, 2014

## Create American leadership in the global transition to a clean energy economy

- 1) High-impact research, development, and demonstration to **make clean energy as affordable and convenient** as traditional forms of energy
- 2) **Breaking down barriers** to market entry

# Why It Matters: Global Race



**Global Clean Energy Investment, 2004–2012** (Billions of \$)

# Department of Energy National Laboratories

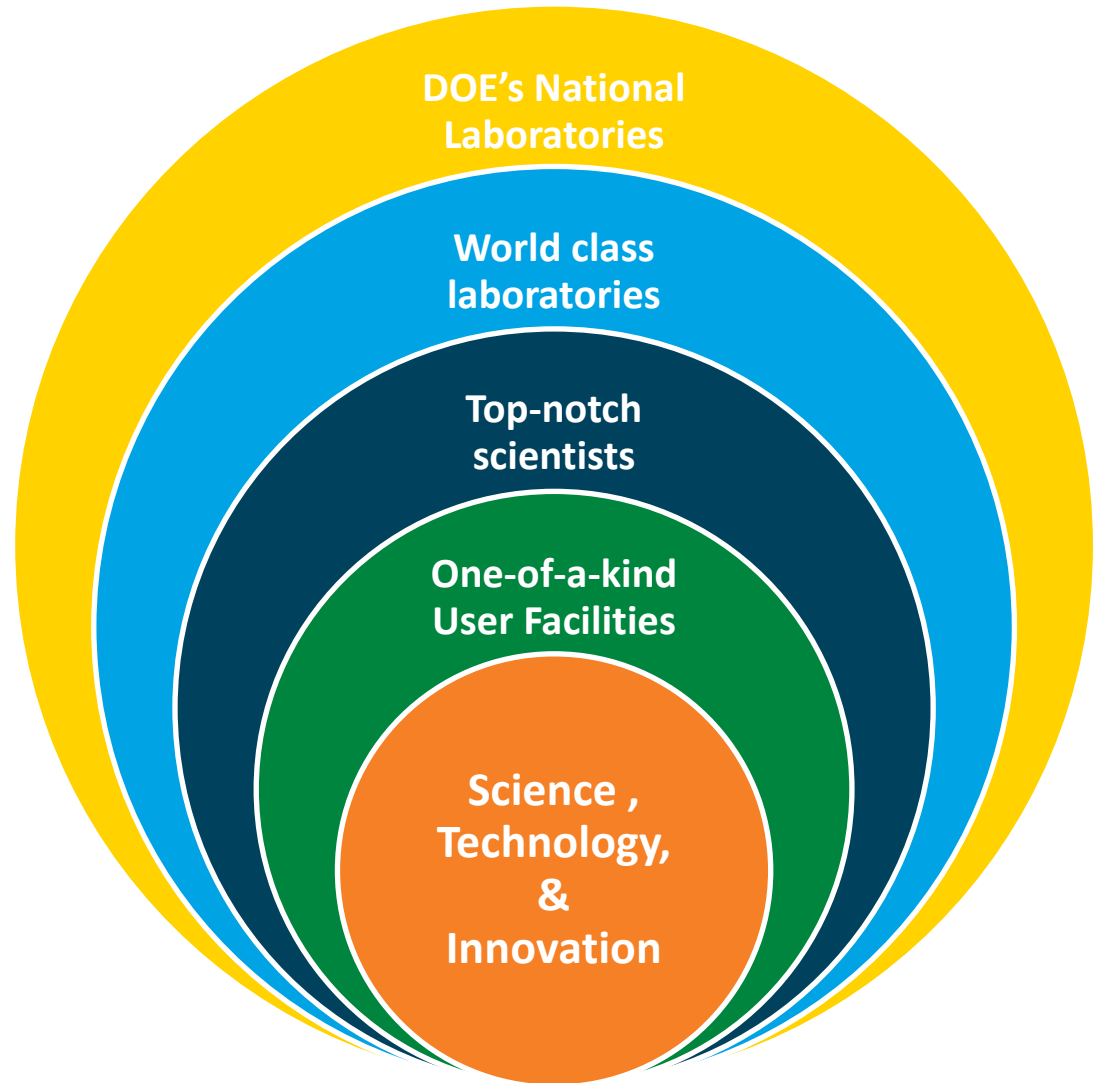


**Connect with a DOE National Lab today!**

# DOE's 17 National Labs Important to Industry

## Labs:

- help translate research results into practical products
- give taxpayers a return on their investment in research
- promote economic competitiveness and job creation through science, technology, and innovation!



# Public Law and Presidential Authority

- **Stevenson-Wydler Technology Innovation Act of 1980** -- Purpose: “stimulating improved utilization of federally funded technology developments ... by State and local governments and the private sector.”
- **Federal Technology Transfer Act 1986** -- Technology transfer is a responsibility for all federal lab scientists and technology transfer activities are to be considered in employee performance evaluations.
- **Executive Order 12591, 1987** -- All agencies are required to “assist in the transfer of technology to the marketplace”
- **EPA Act 2005** -- “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.” (Section 1001)
- **Presidential Memorandum 2011** -- Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses. “each executive department and agency (agency) that conducts R&D [will] improve the results from its technology transfer and commercialization activities”

---

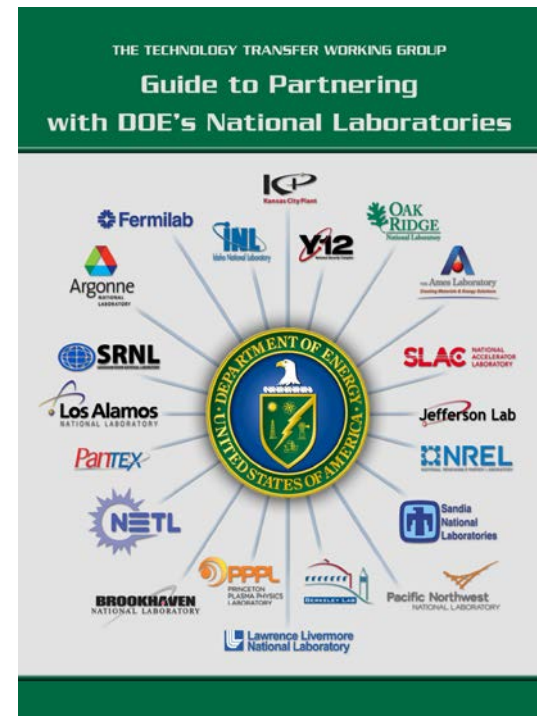
How many people here have worked  
with a DOE National Laboratory?

# Connecting with the National Laboratories

DOE National Labs have a wealth of resources to help industry develop new products and services that will contribute to energy independence, enhance our national security, protect our environment, and increase our economic prosperity.

- ***Guide to Doing Business with DOE National Laboratories***

- Cooperative Research and Development Agreement (CRADA)
- Work for Others (WFO) Agreement
- Agreements for Commercializing Technology<sup>1</sup> (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)





# Hubs, Centers, Industry Consortia, and Other Concepts

- Reduce commercialization risk (helps established and startup companies retain and create jobs)
- Provide access to Lab technical expertise and know how
- Nurtures entrepreneurial environment
- Networking, education, market intelligence, coaching, linking community contacts
- Labs provides basic infrastructure to start-up and creates jobs!



National laboratories and facilities seek licensees who are most able to bring a technology to market. The terms of each license agreement vary commensurately with the market value of each technology and the common licensing practices of the relevant industrial sector.

- Businesses, entrepreneurs, and others locate licensable technologies via Lab websites, DOE sites, referrals, etc.
- Contact laboratories for more information; NDA; negotiate terms
- Programs at each lab are similar, but are not exactly alike

# Technology Assistance Programs

These programs leverage Lab's expertise in a variety of scientific disciplines to help members of the tech-based business community solve important challenges free of charge!

- Business requests assistance
- Labs provide several days of technology assistance at no charge (a business is eligible once per fiscal year)
- Cannot compete with private sector offerings
- Provides support that is otherwise unattainable for most small businesses



- EERE Innovation Portal  
(techportal.eere.energy.gov)



- DOE Patent Site (osti.gov/doepatents)



- DOE Tech Transfer Site  
(techtransfer.energy.gov)



---

How many people here knew about  
these programs and opportunities  
with DOE's National Labs?

# Room for Improvement

## Select Reports on DOE Labs

- **1995** - Greater alliances with the industrial users of lab generated technology will be critical in the future (DOE Galvin Report)
- **2002** - DOE labs have substantially reduced CRADA partnerships and technical assistance to small businesses. (GAO)
- **2009** - It is difficult to assess tech transfer efforts at the labs because policies defining tech transfer are unclear. DOE and the national labs do not always agree on what constitutes tech transfer/commercialization. (GAO)
- **2011** - Most lab ORTA personnel can not provide a definition of what their success means to the lab or how to measure it. (Science and Technology Policy Institute)
- **2013** - Institutional biases against transferring market-relevant technology out of the labs and into the private sector reduce incentives for tech transfer (ITIF, CAP, Heritage)
- **2014** - DOE has room to improve the management of its tech transfer and commercialization (IG)

# Stakeholder Engagement for Input

## Clean Energy Manufacturing Initiative

- **CEMI Regional Summits**
  - Midwest Regional Summit – June 2013 in Toledo, OH with ~250 Business leaders, technologists, state and municipal policymakers, economic development organizations, and university leaders
- **“CEMI Day” Presentations**
  - 9 total with Applied Materials, Phillips Lighting, GE, Dow Corning, Dow, PPG, Corning, Alcoa
- **American Energy & Manufacturing Competitiveness (AEMC) Partnership**
  - **Regional Dialogues:** 4 Dialogues in 2013: Washington, DC; Toledo, OH; Niskayuna, NY; Santa Clara, CA with ~70 stakeholder participants from OEMs, SMEs, National Labs, Finance, Academia, Government
  - **National Summits:** December 2013 (with S-1 participation): 550+ CEOs, University Presidents, National Laboratory Directors, MOCs
  - **Subset of Recent 1:1 Discussions:** EERE and Council on Competitiveness with core AEMC partners: Lockheed Martin, GE, Alcoa, RPI, Deere, Applied Materials, several national labs

## Technology-to-Market

- **Request for Information: Lab Tech Transfer**
  - (Sept 2013) received input from 9 labs and dozens of incubators, universities, and private sector stakeholders.
- **Interviews with Tech Transfer Offices**
  - (June-Sept 2013): interviews with Laboratory Tech Transfer Offices, including NREL, LBNL, Argonne, LANL, Sandia, ORNL, and others.
- **OSTP Lab-to-Market (L2M) Summit**
  - (FY13-14): supported planning and collected input from a wide array of private sector stakeholders and federal agencies.
- **Early-Stage Venture Workshop**
  - (July 2013): received input on how to improve support for early-stage clean energy companies, including VCs, accelerators, labs,, and other commercialization experts.

## National Laboratory Conversations

- **National Lab Roundtable**
  - July 2013, 1 day roundtable with senior leaders from seven national labs and private sector companies.

# National Laboratory Impact Initiative

## Goal

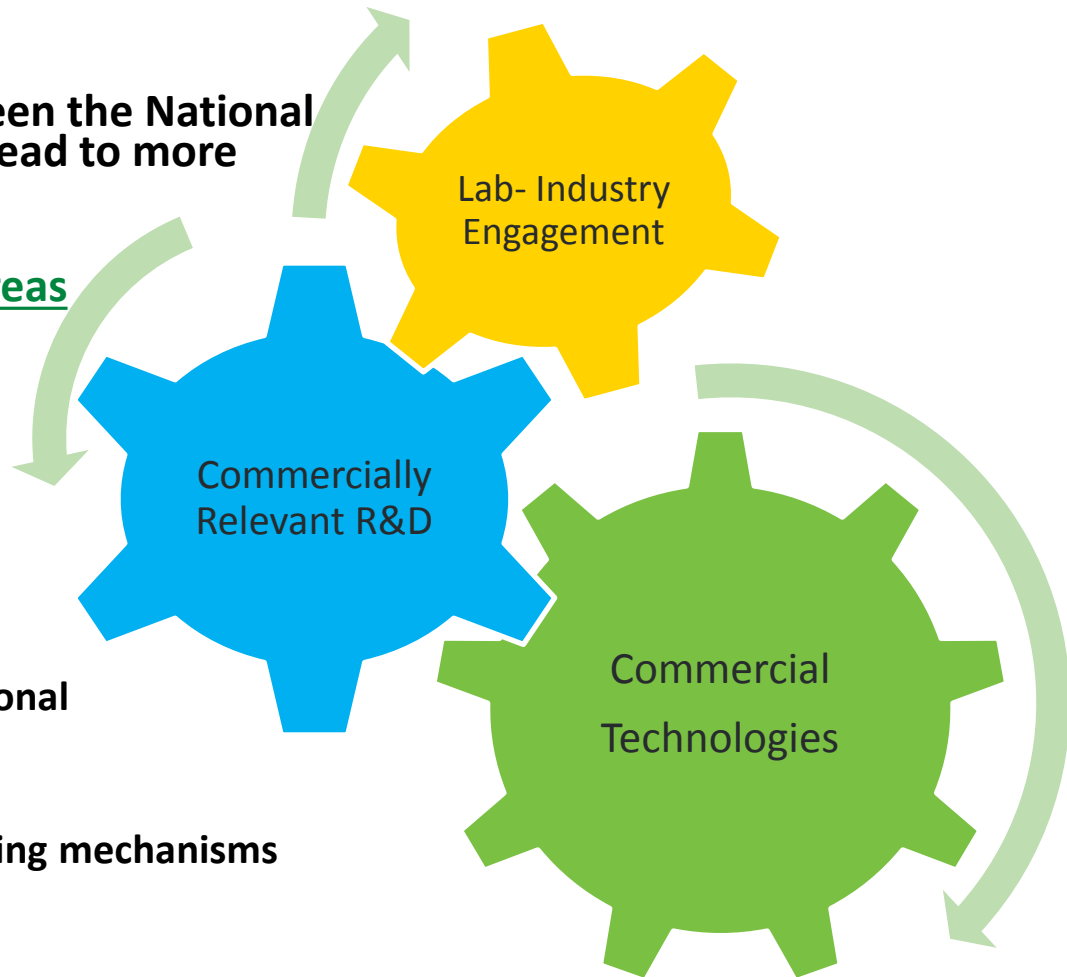
Increase intensity of industrially impactful research & engagement at the National Laboratories in the EERE mission space.

## Assumption

Increased meaningful interactions between the National Laboratories and the private sector will lead to more Commercially Relevant R&D!

## Pilot Fiscal Years 2014 & 2015 Priority Areas

1. Identify and track success metrics
2. Identify barriers and potential solutions
3. Pilot new programs under discussion with labs and DOE offices to strengthen industry partnerships between the National Laboratories and the private sector
4. Re-orient existing EERE Laboratory funding mechanisms for success (AOP Impact Guidance)
5. Effectively communicate Lab-Industry successes





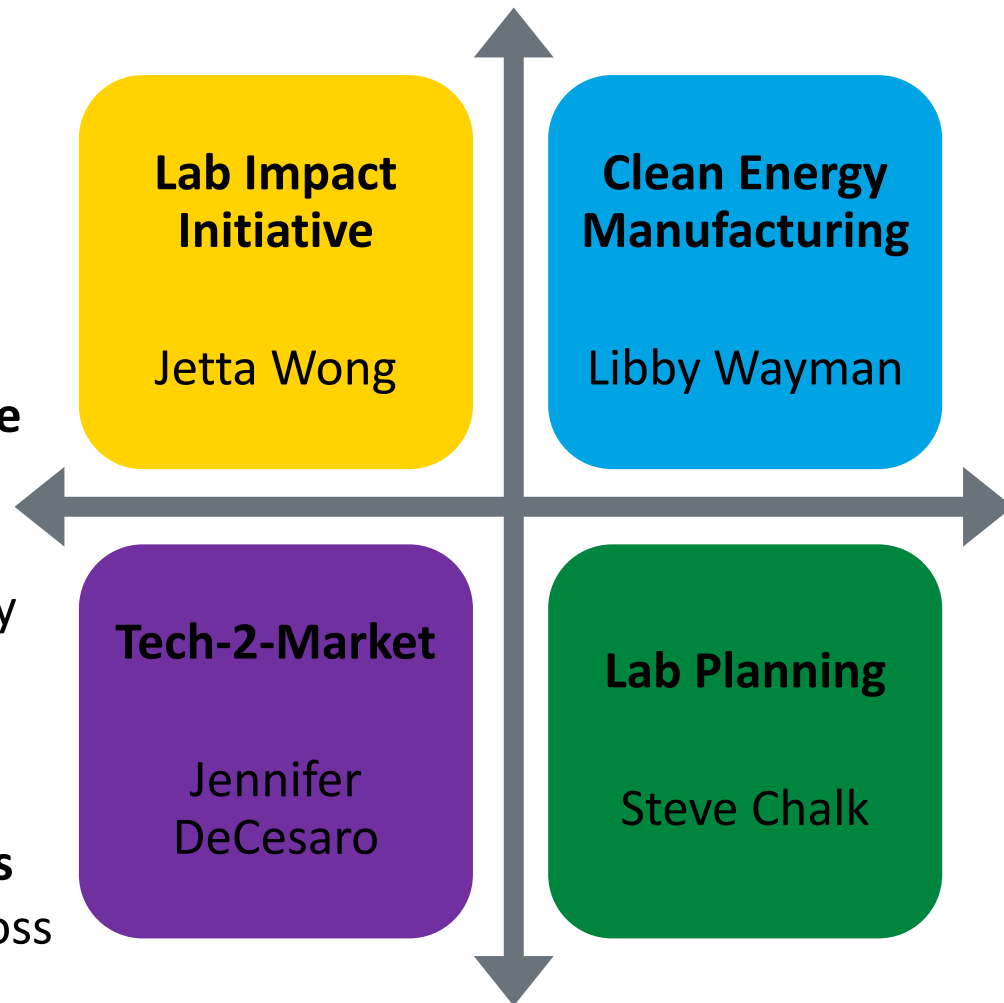
# Lab Impact Initiative Approach

## Approach

Develop and implement a coordinated strategy of uniform policies and programs aimed at accelerating the commercial impact of our National Labs.

## Coordination

- Build off of EERE **Technology-to-Market** expertise.
- Enhance opportunities for **Clean Energy Manufacturing Initiative** Partners to engage with Labs.
- Leverage work and tools developed by the **Lab Planning** team to identify priorities and areas of opportunity.
- Identify **Best Practices of EERE Offices** and elevate and coordinate them across EERE.



# Coordination of Multiple Components

DOE  
Wide

Coordination  
on Policy  
(Examples)

- Entrepreneur Leave Policy
- PEMP Incentives
- User Facilities
- Work for Others

EERE Activity

EERE Lab  
Approach/Model  
(Tentative)

- AOP Impact Guidance
  - Technology-to-Market Plans
  - Industrial agreements

Programs  
(Possible)

- Vouchers
- Manufacturing Partners
- Lab-Corps

Commercially Relevant  
R&D

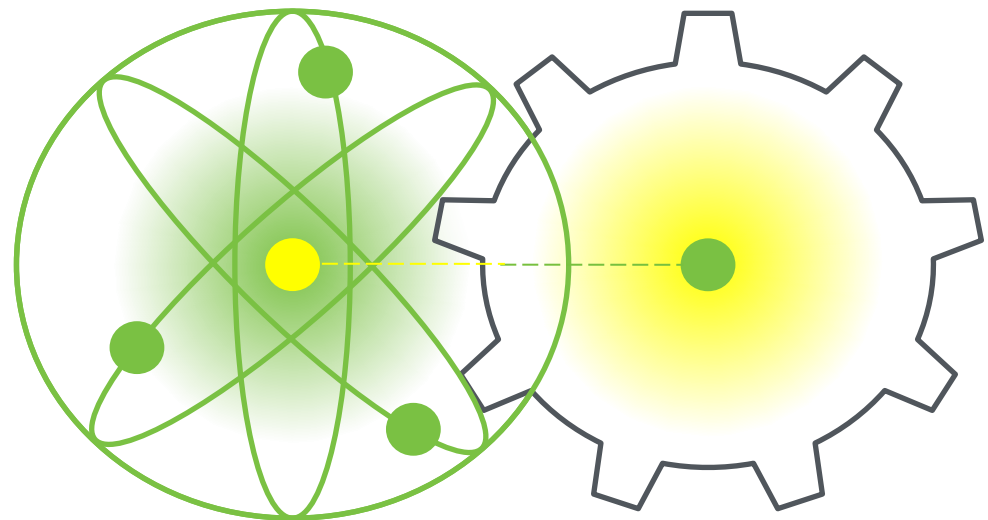
# “National Lab Manufacturing Partners” Program” (fellows)

**Pilot:** The “Lab-Manufacturing Partners” program will build on and extend existing National Lab “industry fellows” effort. EERE will support exchanges of “embedded” researchers from Labs to industry and vice-versa. Focus around specific problem/oppty.

**Motivation:** Two of EERE top priorities

- Increasing U.S. clean energy manufacturing competitiveness
- Increase commercially relevant research at the National Laboratories in the EERE mission space

**Goals:** Catalyze strong Lab-Industry relationships that result in significant growth in high-impact Lab-Industry research agreements



# Lab-Corps: Adapting the i-Corps Model to DOE Labs

**Lab-Corps Summary:** A new pilot program to empower National Lab teams to identify market applications and create business models for commercializing high-impact technologies, building on the validated NSF I-Corps model.

**Pilot:** ~\$2M for 10-15 teams and node development

## Program Structure & Process:



### 1. Lab Team Selection

- Includes a PI, Entrepreneurial Lead, and Industry Mentor
- Teams receive \$100k over six months

### 2. Experiential Training

- Full-contact, experiential training based on customized curriculum and direct market exposure
- Training provided by new, customized Lab-Corps Node

### 3. Commercialization Plan

- Teams develop a business model and/or commercialization plan, presenting at a final session
- Teams reach Go/No-Go decision: startup, license, CRADA, or other

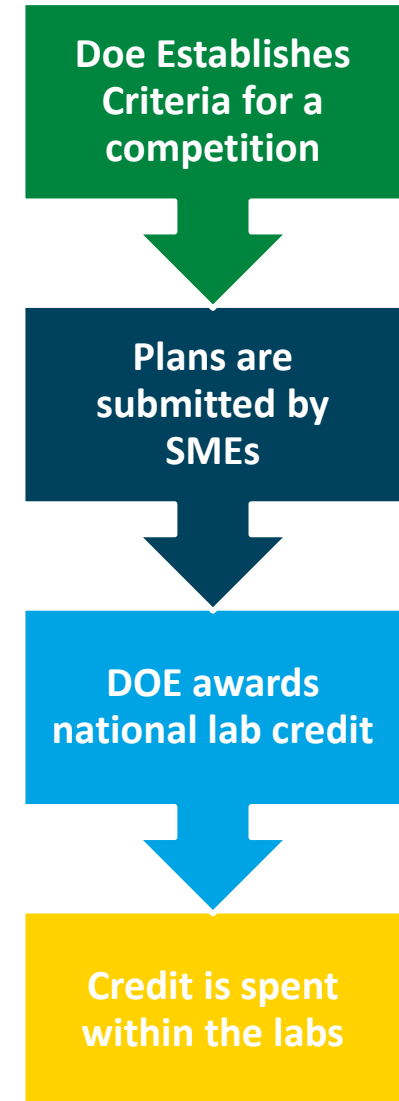
## EERE Pilot for DOE-Wide Scalability

- Utilizing and Learning from i-Corps: Lab-Corps will begin as a pilot in FY 2014 by utilizing the existing I-Corps infrastructure, allowing DOE and labs to learn from the existing I-Corps model.
- Building Custom Infrastructure: During the pilot, EERE will develop a Lab-Corps node and curriculum customized for National Labs, with the node located at one lab but serving all labs.
- Designing for Scalability: The pilot program will be funded and managed by EERE; the model itself will be designed with the potential to scale across DOE in future years.

# Possible Voucher Program for Small Business

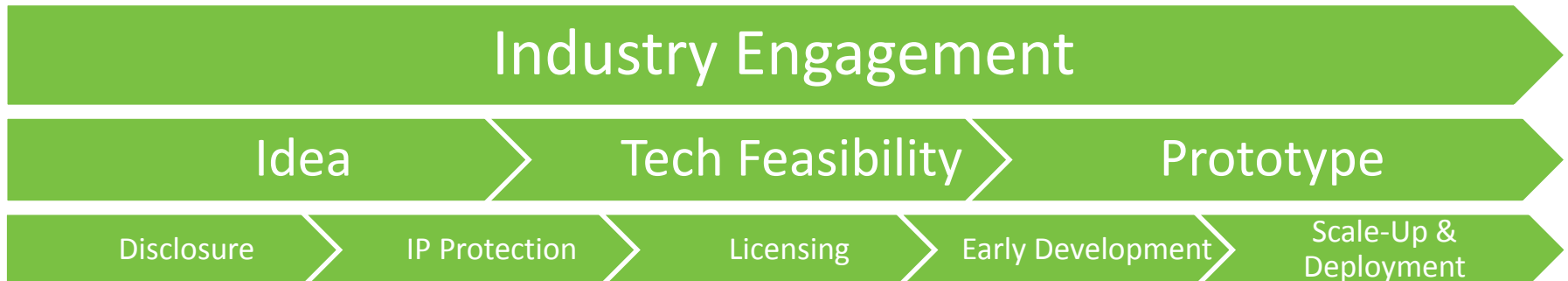
Leverage national laboratory capabilities for economic development by establishing a laboratory voucher program for small business

- Provides access to expertise, competencies, and equipment at all DOE national laboratories
- Selection through business plan competition
- Would not replace existing industrial or small business assistance programs



National laboratories and facilities seek licensees who are most able to bring a technology to market. The terms of each license agreement vary commensurately with the market value of each technology and the common licensing practices of the relevant industrial sector.

- Businesses, entrepreneurs, and others locate licensable technologies via Lab websites, DOE sites, referrals, etc.
- Contact laboratories for more information; NDA; negotiate terms
- Programs at each lab are similar, but are not exactly alike



# Draft Annual Operating Plan Impact Guidance Framework

EERE Laboratory Funding ~\$800 Million Annually

**Impact Guidance:** A tool kit to increase commercially relevant R&D and industry agreements

## Uniform EERE Policies to Engage Industry

Merit/Peer Review

Technology to Market Activity Plans

Impact Assessment and Activity Plans

Support for EERE Best Practices focused on Stronger Connections to Industry and R&D Serving EERE Stakeholder Needs

1. Technology Evolution Resources
2. Mechanisms for Market Context
3. Ease and Cost of Business Assistance
4. Awareness of Lab Capabilities Activities: Human Capital & Facilities
5. Entrepreneurship and Human Capital Development Strategies



# Department of Energy National Laboratories



**Connect with a DOE National Lab today!**



# National Lab Impact Initiative: Thank You!

## Contact Information

Jetta Wong

Director, National Lab Impact Initiative  
Energy Efficiency & Renewable Energy

U.S. Department of Energy

jetta.wong@ee.doe.gov

Office: 202-586-8109

## DOE National Labs

- Ames Laboratory, Ames, Iowa
- Argonne National Laboratory, Argonne, Illinois
- Brookhaven National Laboratory, Upton, New York
- Fermi National Accelerator Laboratory, Batavia, Illinois
- Lawrence Berkeley National Laboratory, California
- Oak Ridge National Laboratory, Tennessee

## DOE National Labs (cont.)

- Pacific Northwest National Laboratory, Washington
- Princeton Plasma Physics Laboratory, New Jersey
- SLAC National Accelerator Laboratory, California
- Thomas Jefferson National Accelerator Facility, Virginia
- Sandia National Laboratory, California and New Mexico
- Los Alamos National Laboratory, New Mexico
- Lawrence Livermore National Laboratory, California
- National Renewable Energy Laboratory, Colorado
- Idaho National Laboratory, Idaho
- National Energy Technology Laboratory, Pennsylvania
- Savannah River National Laboratory, Georgia

## Questions for Discussion

1. How can EERE and the Labs become more transparent to industry about their capabilities?
2. How can EERE and the Labs better identify market needs?
3. How can EERE and the labs better match existing laboratory IP and assets with entrepreneurs, small businesses, and industry?
4. How can EERE and the Labs further develop and mature lab-developed technologies for transfer into the private sector?