

ARPA-E Overview

Advanced Dry Power Plant Cooling Workshop

Eric Rohlfing, Deputy Director for Technology

May 12, 2014

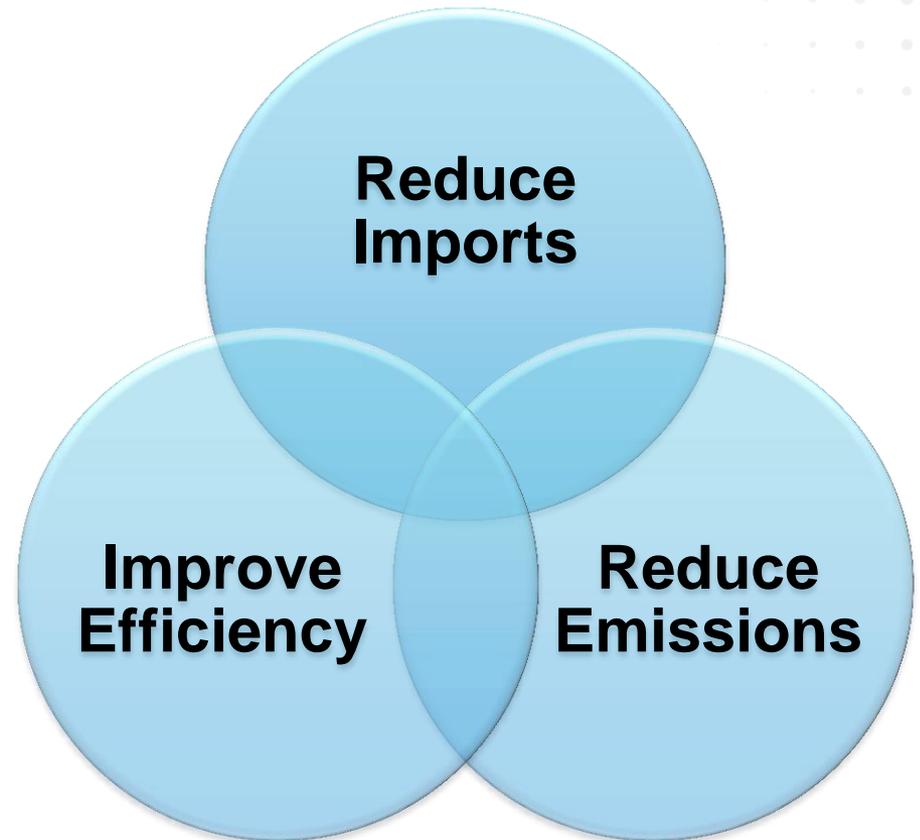


The ARPA-E Mission

Catalyze and support the development of transformational, high-impact energy technologies

Ensure America's

- National Security
- Economic Security
- Energy Security
- Technological Competitiveness

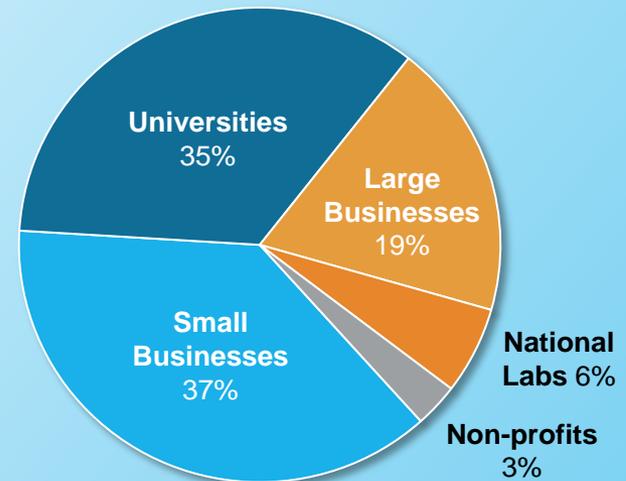


A Brief History of ARPA-E

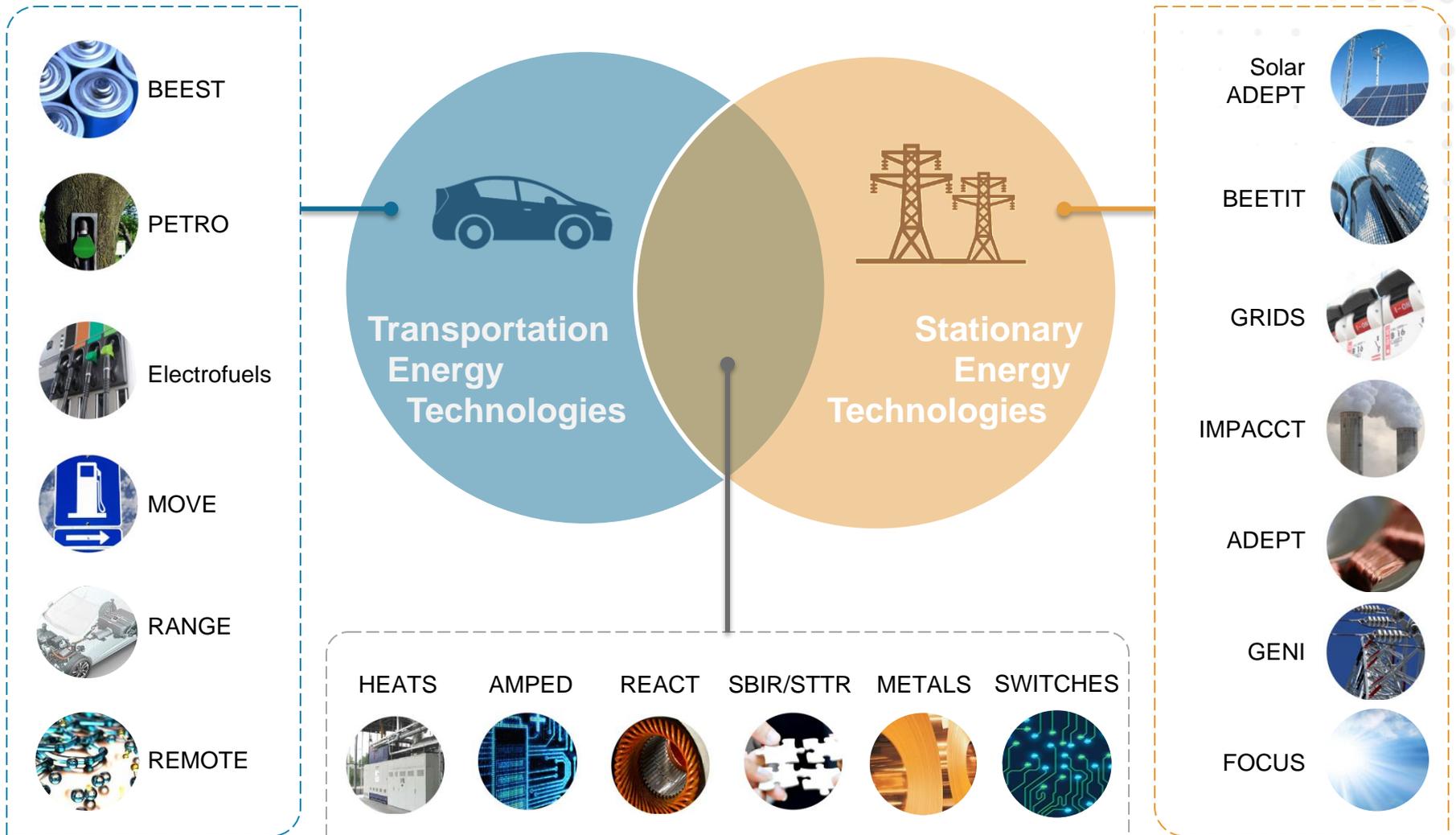
- **2007**
 - *America COMPETES Act signed, authorizing ARPA-E*
- **2009**
 - *American Recovery & Reinvestment Act signed, providing \$400M to establish ARPA-E*
- **2014**
 - *Over \$900M invested in 362 projects funded*
 - *22 projects have attracted >\$625M in private-sector funding*
 - *24 new companies formed*
 - *>16 projects partnered with other agencies for further development*

Investing in America's Best and Brightest

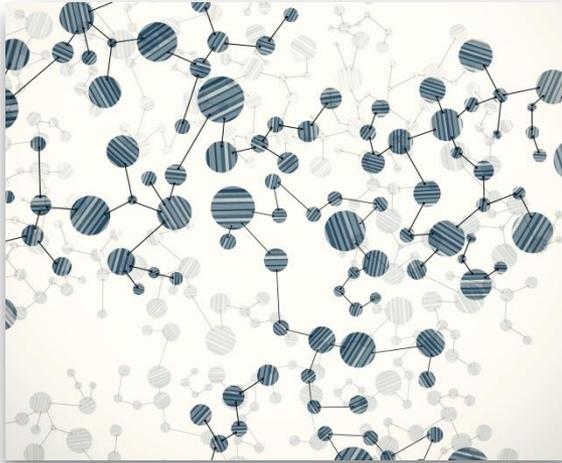
Funding Distribution (Lead Institution)



Focused Programs



FY14 Focused Solicitations



REBELS

**Reliable Electricity Based
on EElectrochemical Systems**

To develop fuel cell technology for distributed power generation to improve grid stability, increase energy security, and balance intermittent renewable technologies while reducing CO2 emissions associated with current distributed generation systems.

FOA released 11/25/13



MONITOR

**Methane Observation Networks
with Innovative Technology to
Obtain Reductions**

To develop low-cost, highly-sensitive systems that detect and measure methane associated with the production and transportation of oil and natural gas.

FOA released 4/29/14



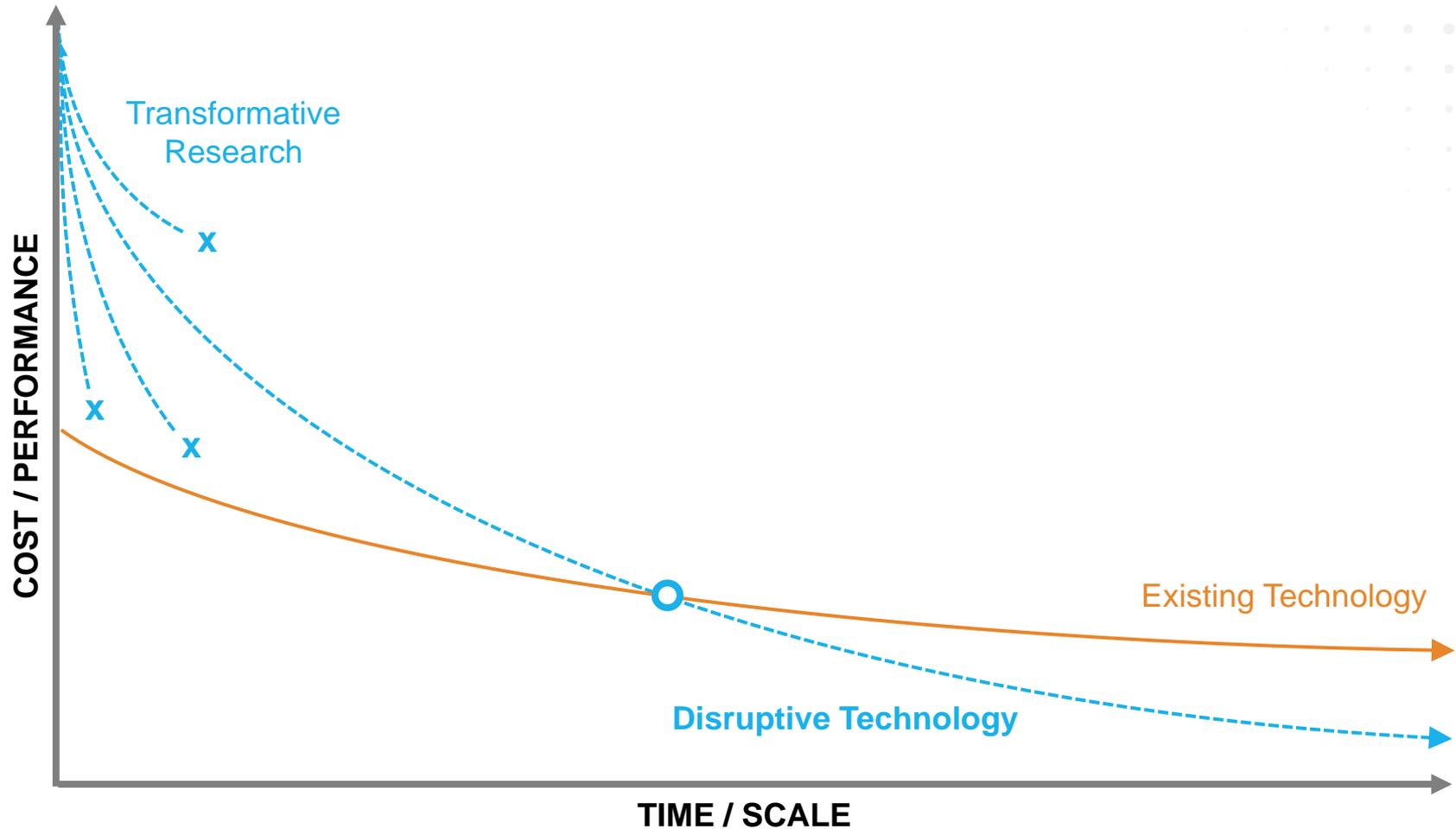
DELTA

**Delivering Efficient Local
Thermal Amenities**

To develop innovative localized heating and cooling devices to expand temperature ranges within buildings – enhancing personal comfort while saving energy.

FOA Released 4/29/14

Funding Disruptive Approaches to Innovation



Developing ARPA-E Programs



ARPA-E Program Directors → Transition Toward Market Adoption

Ongoing Technical Review

EXECUTE



2014

Program Conception (Idea/Vision)

ENVISION

Workshop

ENGAGE

Program Approval

FOA Development & Issuance

EVALUATE

Merit Review of Proposals

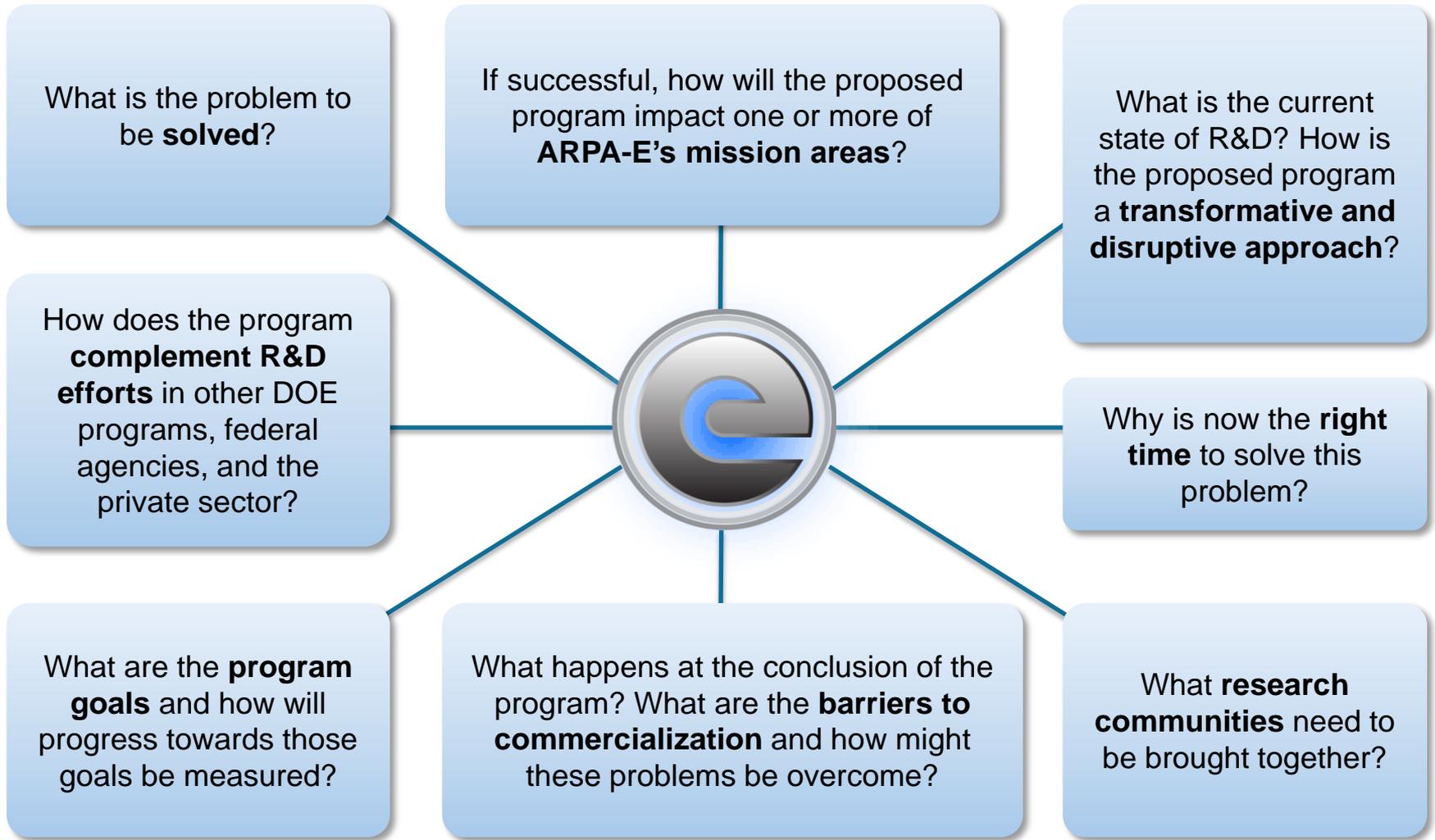
Proposal Rebuttal

Project Selection

ESTABLISH

Contract Negotiations & Awards

ARPA-E Program Framing Questions





If it works...

will it matter?

What Makes an ARPA-E Project?



IMPACT

- ▶ High impact on ARPA-E mission areas
- ▶ Credible path to market
- ▶ Large commercial application



TRANSFORM

- ▶ Challenges what is possible
- ▶ Disrupts existing learning curves
- ▶ Leaps beyond today's technologies



BRIDGE

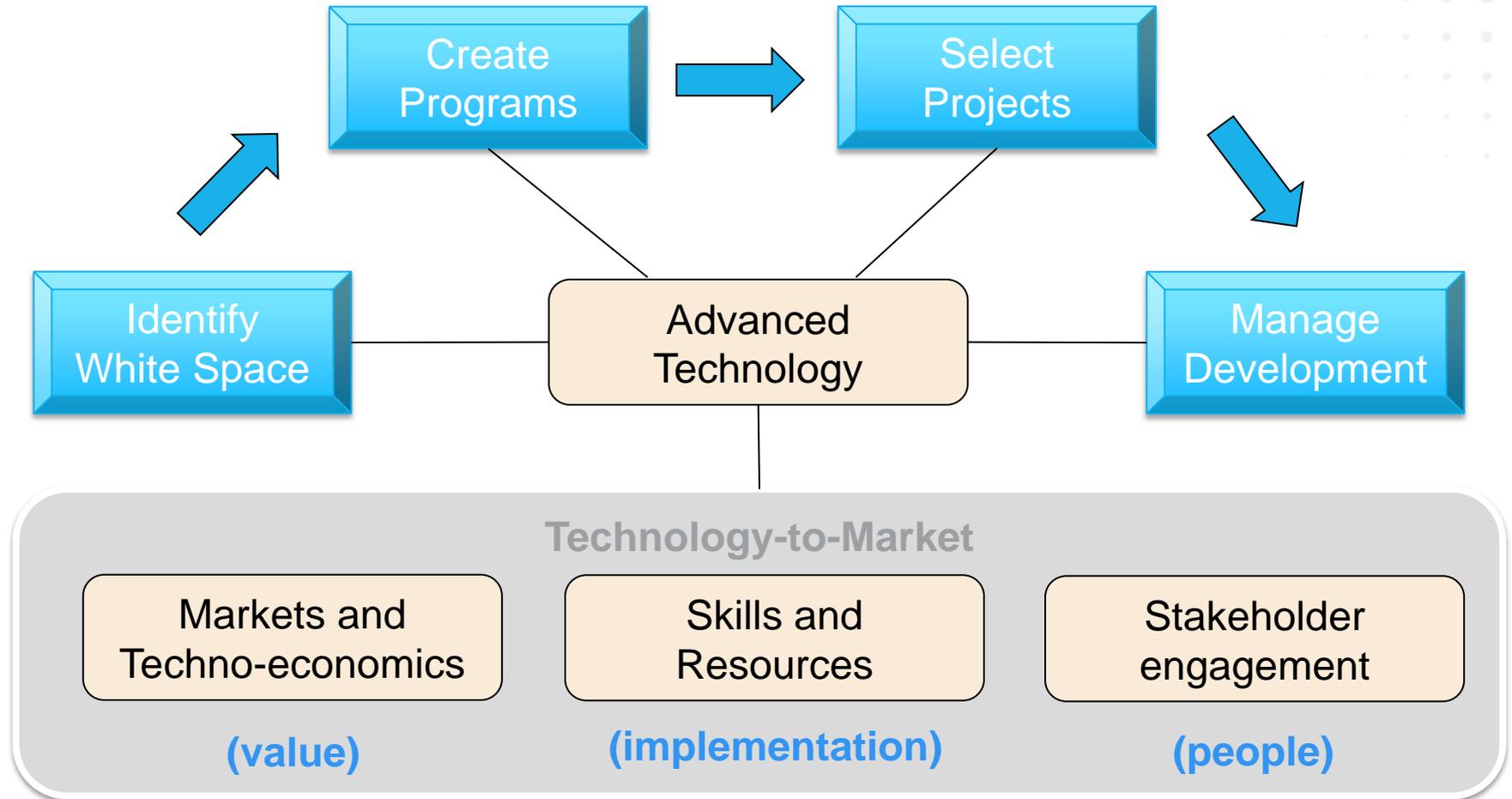
- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere
- ▶ Catalyzes new interest and investment



TEAM

- ▶ Comprised of best-in-class people
- ▶ Cross-disciplinary skill sets
- ▶ Translation oriented

Moving Technology to Market



Program Directors

ARPA-E is continually recruiting new Program Directors, who serve 3-year terms

ROLES & RESPONSIBILITIES

Program development

- ▶ Perform technical deep dive soliciting input from multiple stakeholders in the R&D community
- ▶ Present & defend program concept in climate of constructive criticism

Active project management

- ▶ Actively manage portfolio projects from merit reviews through project completion
- ▶ Extensive “hands-on” work with awardees

Thought leadership

- ▶ Represent ARPA-E as a thought leader in the program area

ATTRIBUTES

- ▶ R&D experience; intellectual integrity, flexibility, and courage; technical breadth; commitment to energy; communication skills; leadership; and team management
- ▶ ***A passion to change our energy future***



U.S. DEPARTMENT OF
ENERGY

www.arpa-e.energy.gov