

ARPA-E Overview

GRID OPTIMIZATION WORKSHOP

November 13, 2014

Eric Rohlfig, Deputy Director for Technology

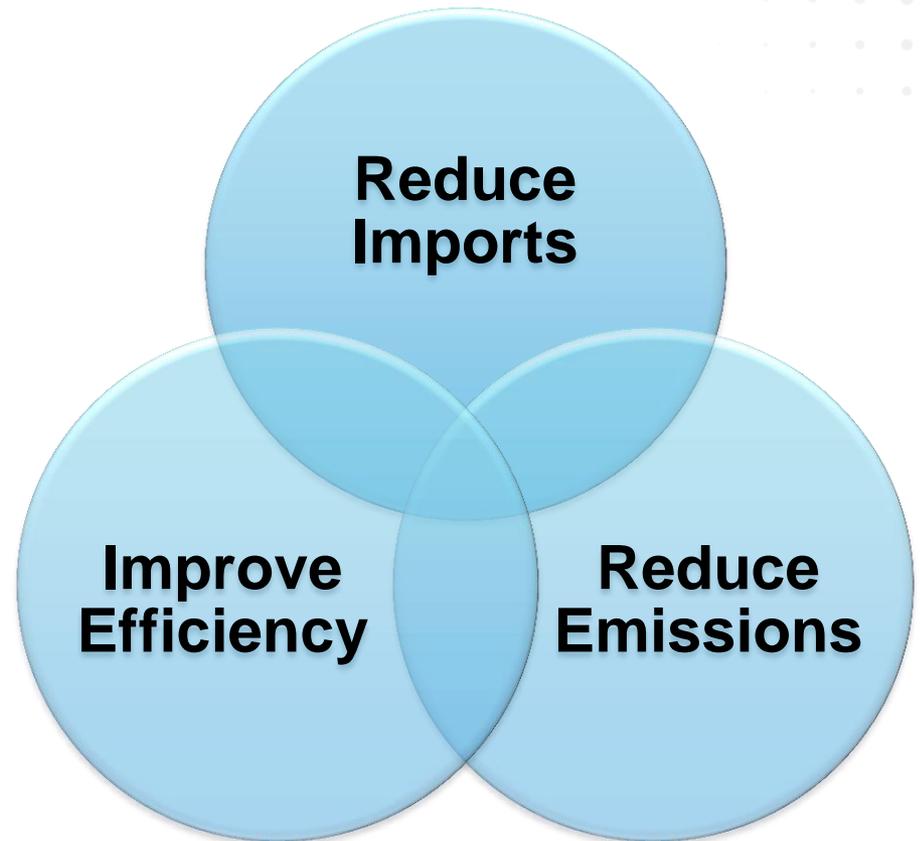


The ARPA-E Mission

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

Ensure America's

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

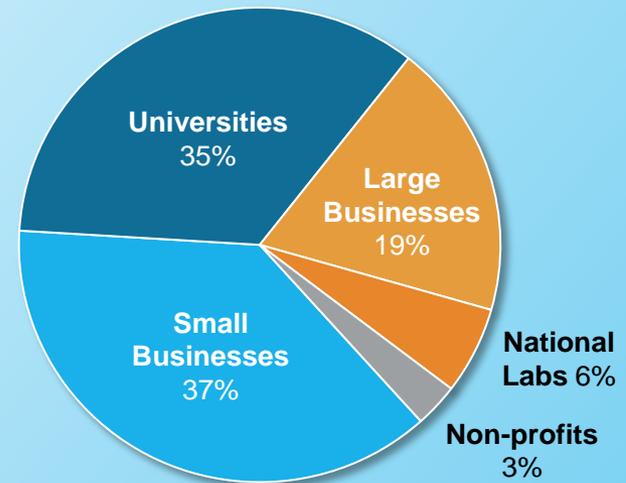


A Brief History of ARPA-E

- **2007**
 - *America COMPETES Act signed, authorizing ARPA-E*
- **2009**
 - *American Recovery & Reinvestment Act signed, providing \$400M to establish ARPA-E*
- **March 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)



ARPA-E Programs

ARPA-E has invested in over 375 energy technology projects across 19 focused program areas and 2 OPEN solicitations



Transportation Energy Technologies



BEEST



Electrofuels



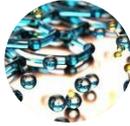
RANGE



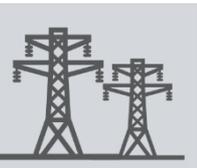
PETRO



MOVE



REMOTE



Stationary Energy Technologies



Solar
ADEPT



GRIDS



IMPACCT



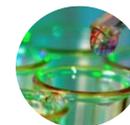
FOCUS



BEETIT



GENI



REBELS

Transportation and Stationary Energy Technologies

HEATS



AMPED



REACT



ADEPT



METALS



SWITCHES



FY14 Focused Solicitations



DELTA

Delivering Efficient Local Thermal Amenities

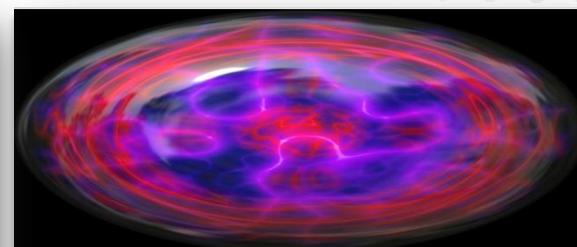
FOA released 4/29/14;
Concept Papers submitted 6/13/14



MONITOR

Methane Observation Networks with Innovative Technology to Obtain Reductions

FOA released 4/29/14;
Concept Papers submitted 6/13/14



ALPHA

Accelerating Low-Cost Plasma Heating and Assembly

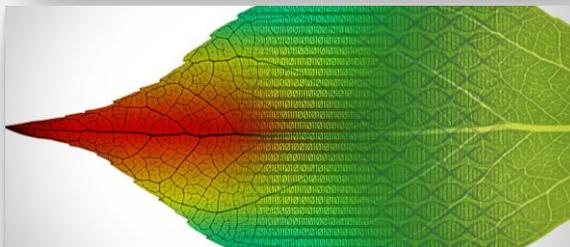
FOA released 8/28/14
Concept Papers Due 10/14/2014



ARID

Advanced Research in Dry-Cooling

FOA released 9/26/14
Concept Papers Due 11/10/14



TERRA

Transportation Energy Resources from Renewable Agriculture

FOA released 9/26/14
Concept Papers Due 11/17/14

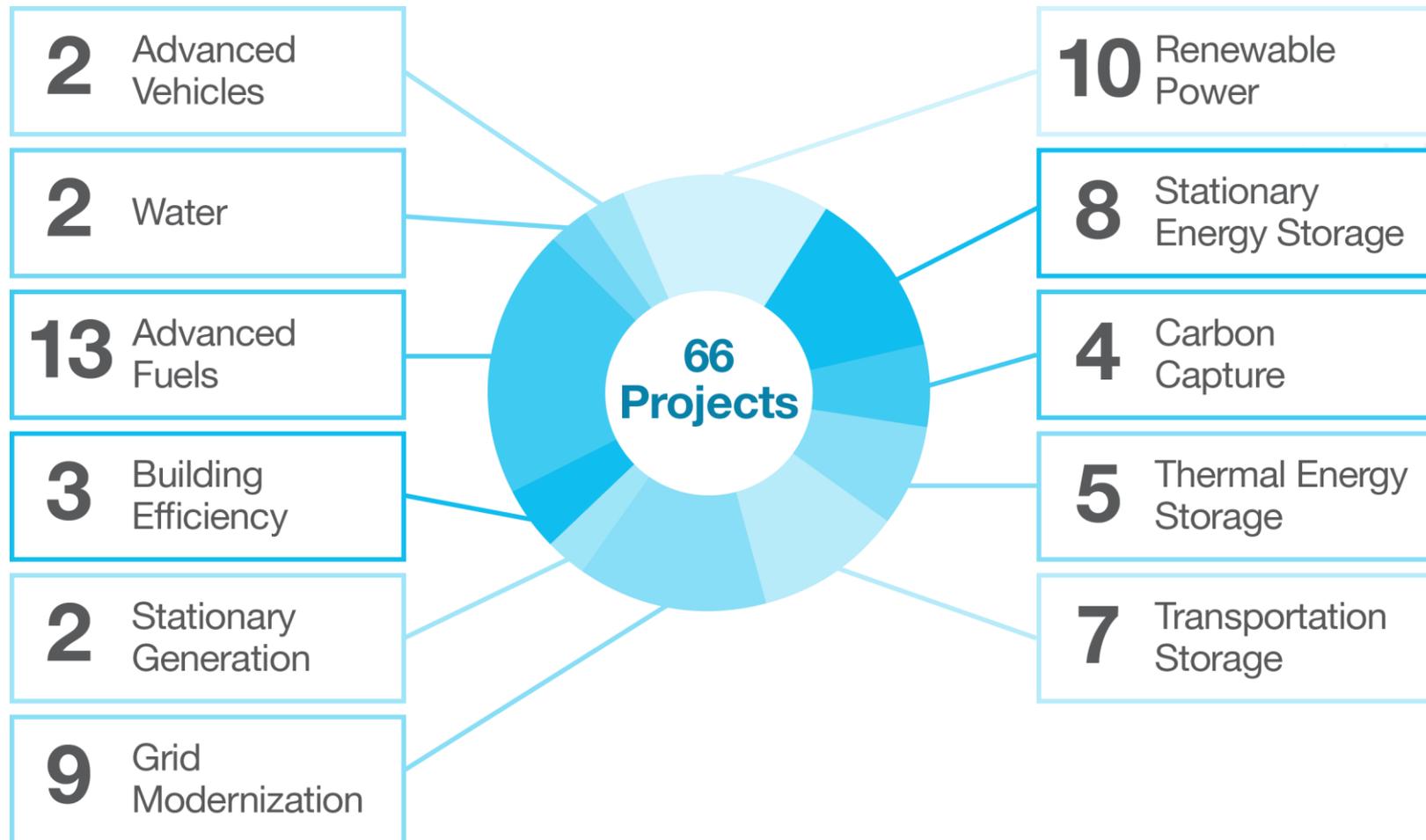
Image TBD

GENSETS

GENERators for Small Electrical and Thermal Systems

FOA released 10/16/14
Concept Papers Due 12/01/14

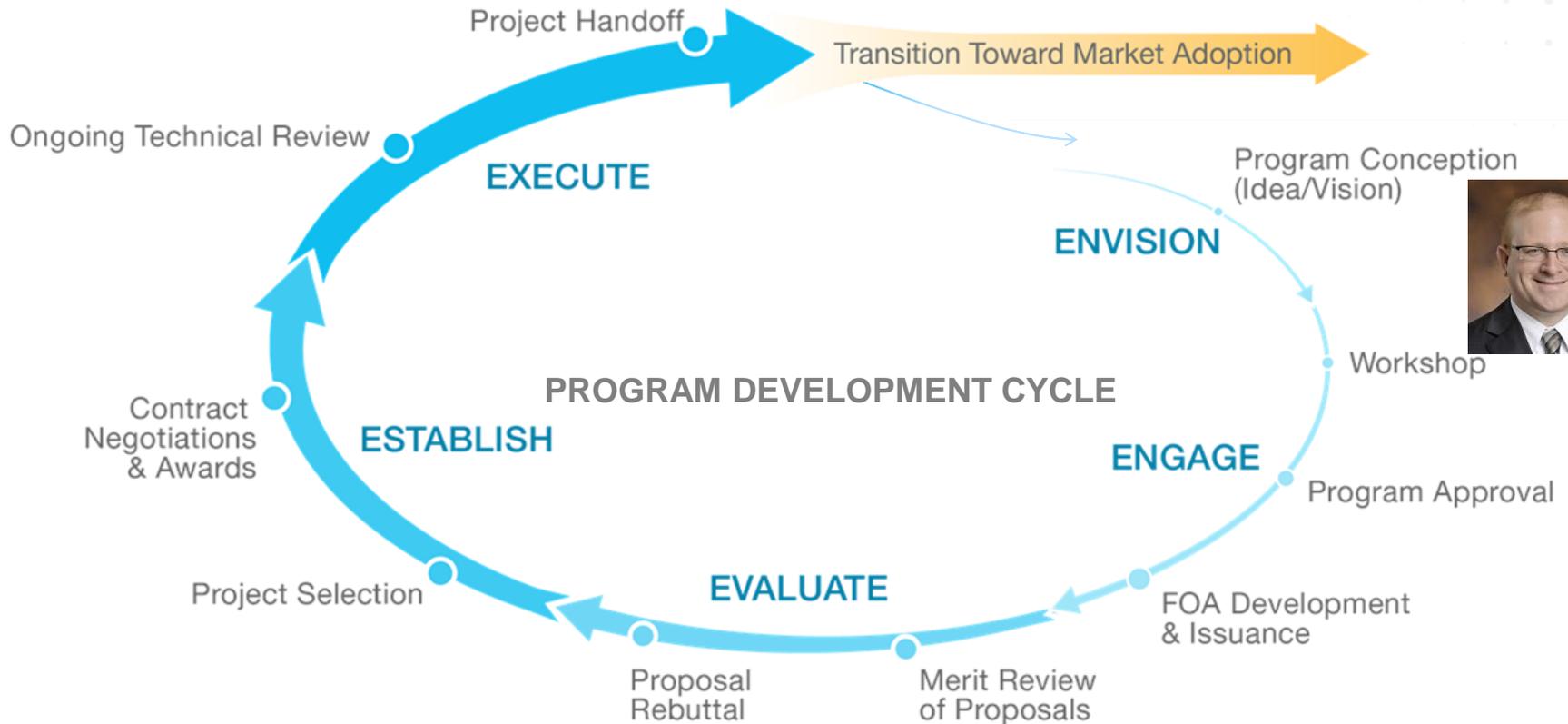
OPEN 2012: 66 Projects, 24 States, 11 Areas



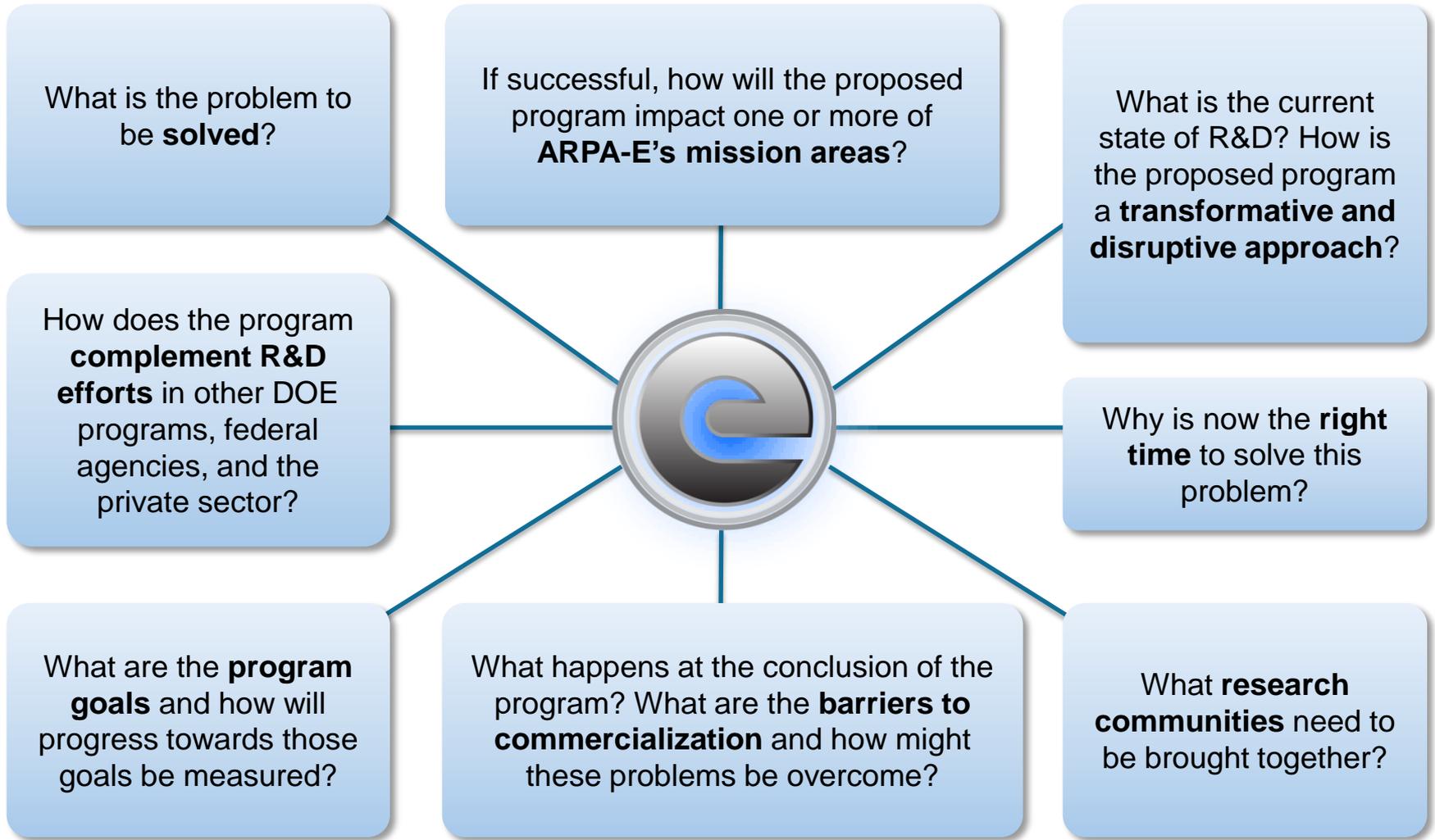
Developing ARPA-E Programs



ARPA-E Program Directors



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

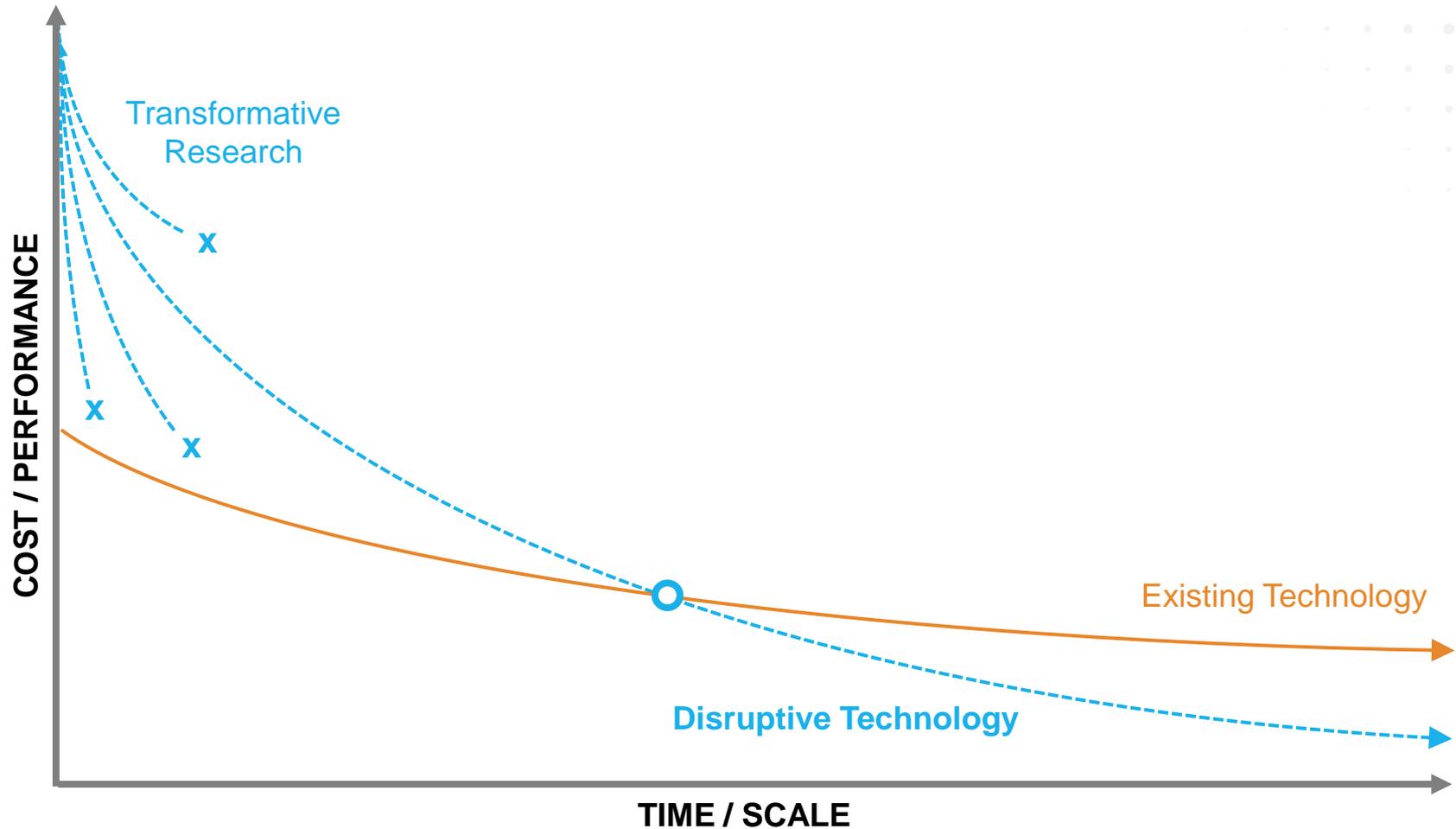
- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere
- ▶ Catalyzes new interest and investment



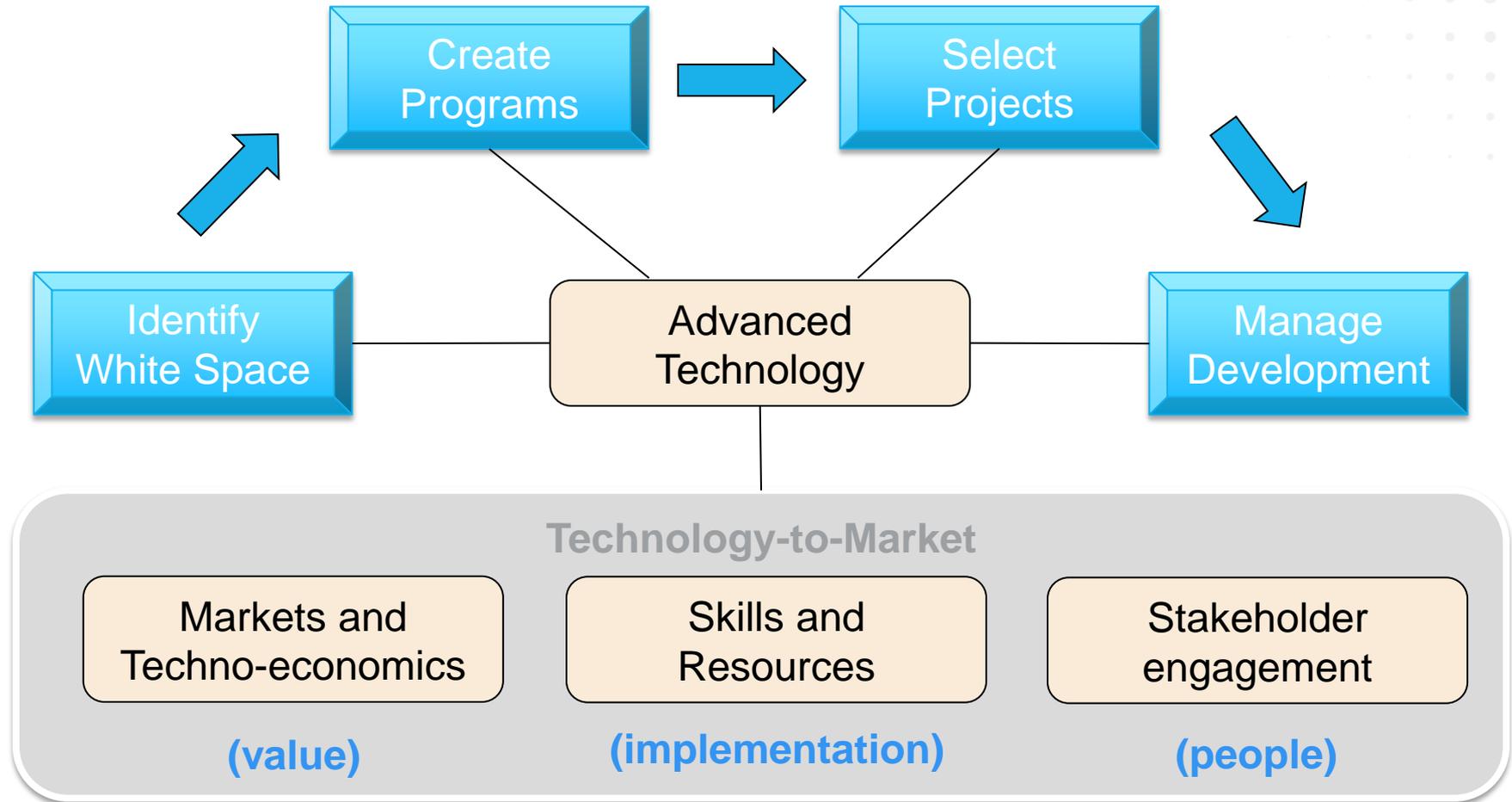
TEAM

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

Funding Disruptive Approaches to Innovation



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***

Fellows

ARPA-E also hires Fellows, who serve 2-year terms

ROLES & RESPONSIBILITIES

Identification of high-impact energy technologies

- ▶ Perform technical and economic analyses to identify high-impact energy technologies.
- ▶ Publish original research papers and reviews.

Program director support

- ▶ Help develop future programs through technical analysis, discussions, and workshops.
- ▶ Assist with management of current projects, including site visits.

Organizational support

- ▶ Review proposals for funding opportunities.
- ▶ Contribute to the strategic direction and vision of the agency.

ATTRIBUTES

- ▶ Ph.D. in science or engineering; strong analytical and communication skills; ability to work independently and across disciplines; leadership.
- ▶ ***A passion to change our energy future***



**SAVE THE
DATE!**

arpa·e

energy innovation summit

February 9–11, 2015

Gaylord National Convention Center | Washington, D.C.