CHANGING WHAT'S POSSIBLE

ARPA-E Overview
Grid of the Future Workshop
July 31, 2014

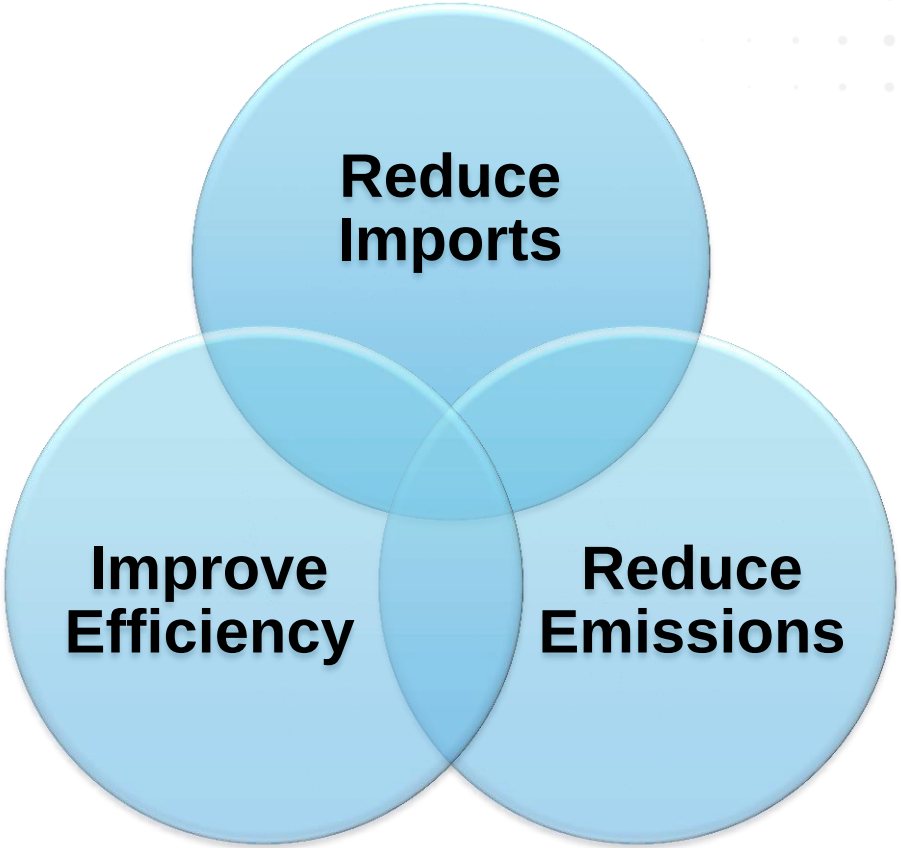
Eric Rohlfing, Deputy Director for Technology

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 Competiveness

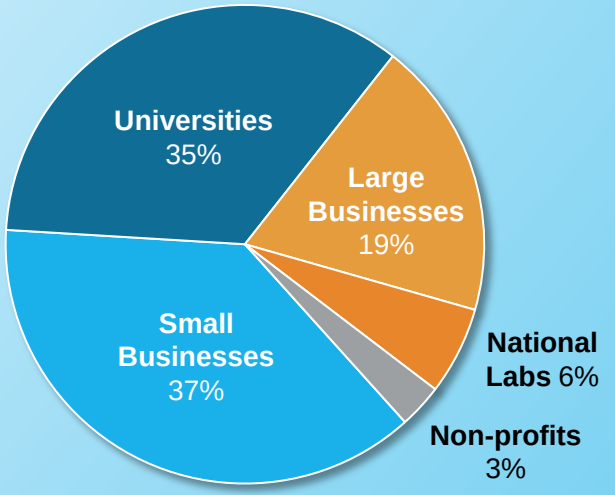


A Brief History of ARPA-E

- **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

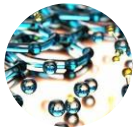
BEEST

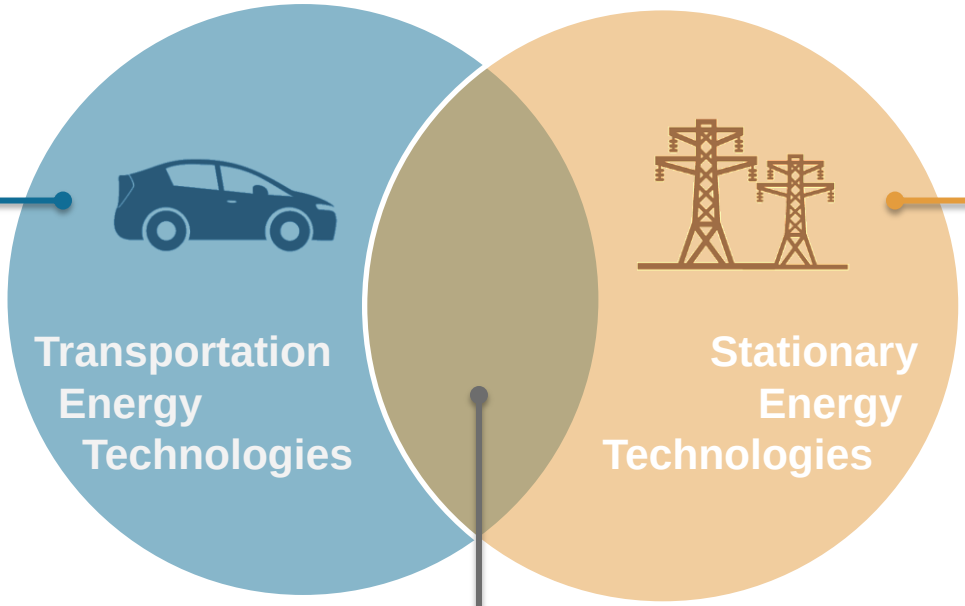
PETRO

Electrofuels

MOVE

RANGE


REMOTE



HEATS

AMPED

REACT

SBIR/STTR

METALS

SWITCHES

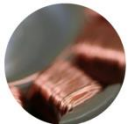
Solar ADEPT

BEETIT

GRIDS

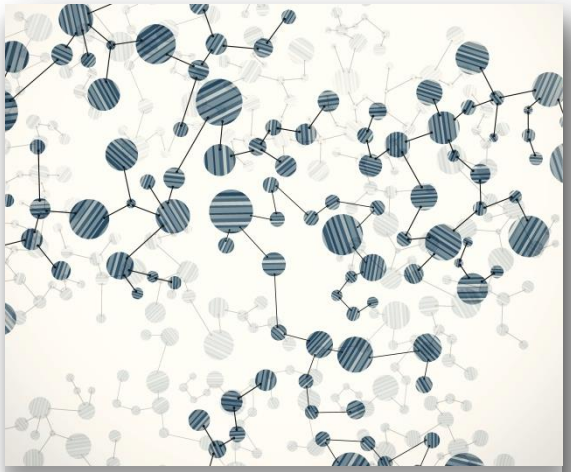
IMPACCT

ADEPT


GENI

FOCUS

FY14 Focused Solicitations



REBELS

Reliable Electricity Based on ELectrochemical 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

Developing ARPA-E Programs

ARPA-E Program Directors

Transition Toward Market Adoption

ENVISION

Program Conception (Idea/Vision)

ENGAGE

Workshop

Program Approval

FOA Development & Issuance

EVALUATE

Merit Review of Proposals

Proposal Rebuttal

ESTABLISH

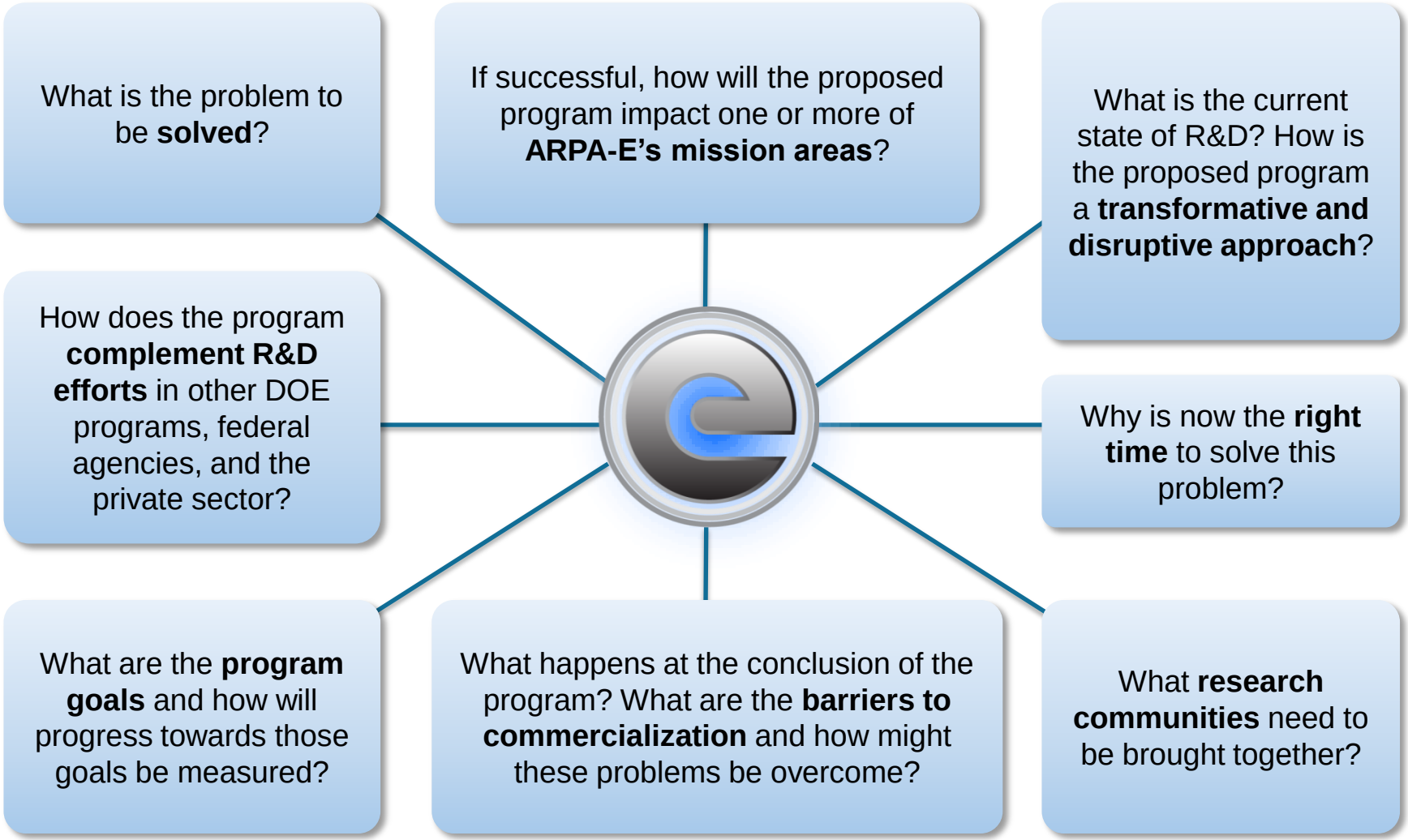
Project Selection

Contract Negotiations & Awards

EXECUTE

Ongoing Technical Review

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

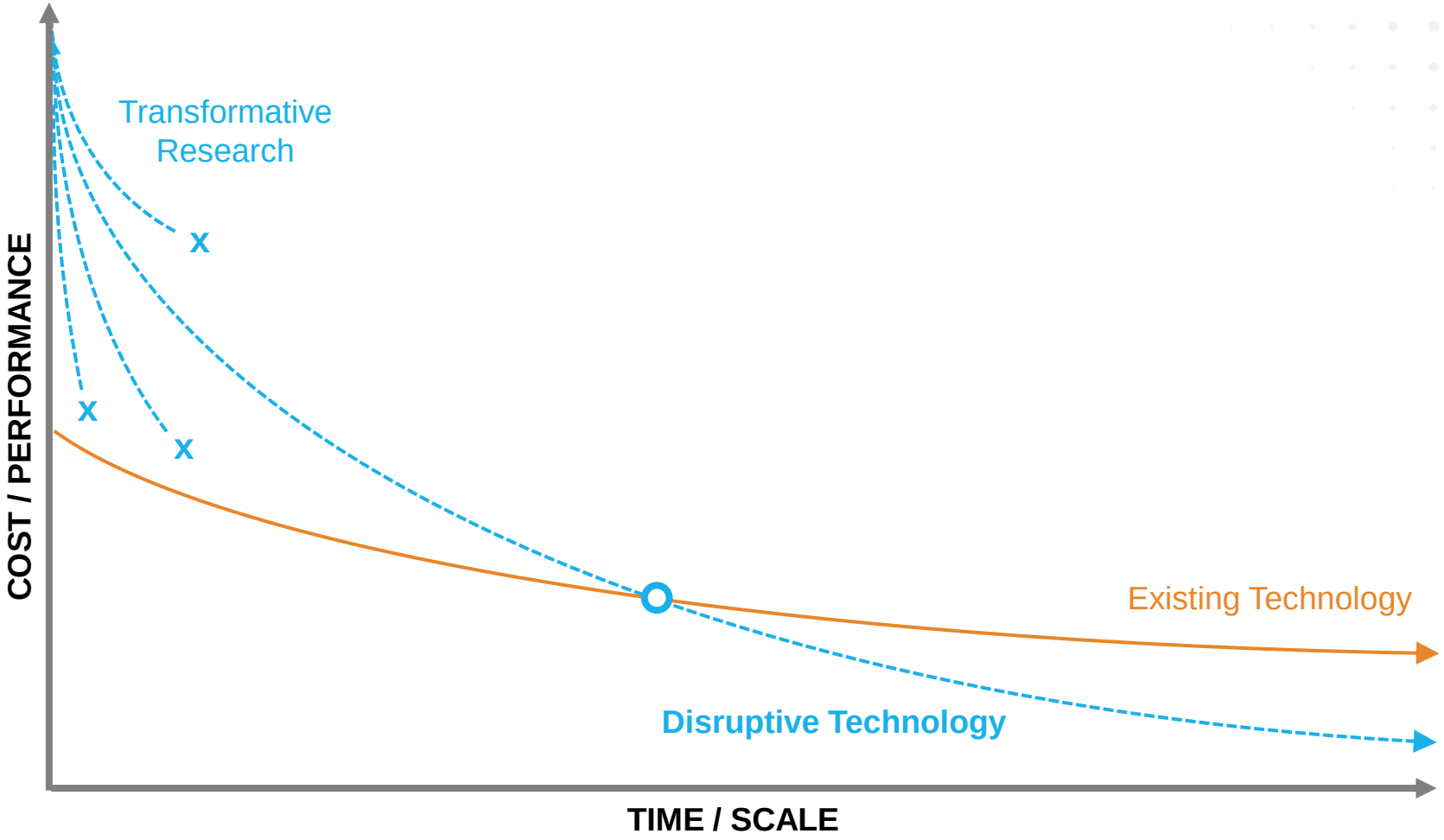
BRIDGE

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

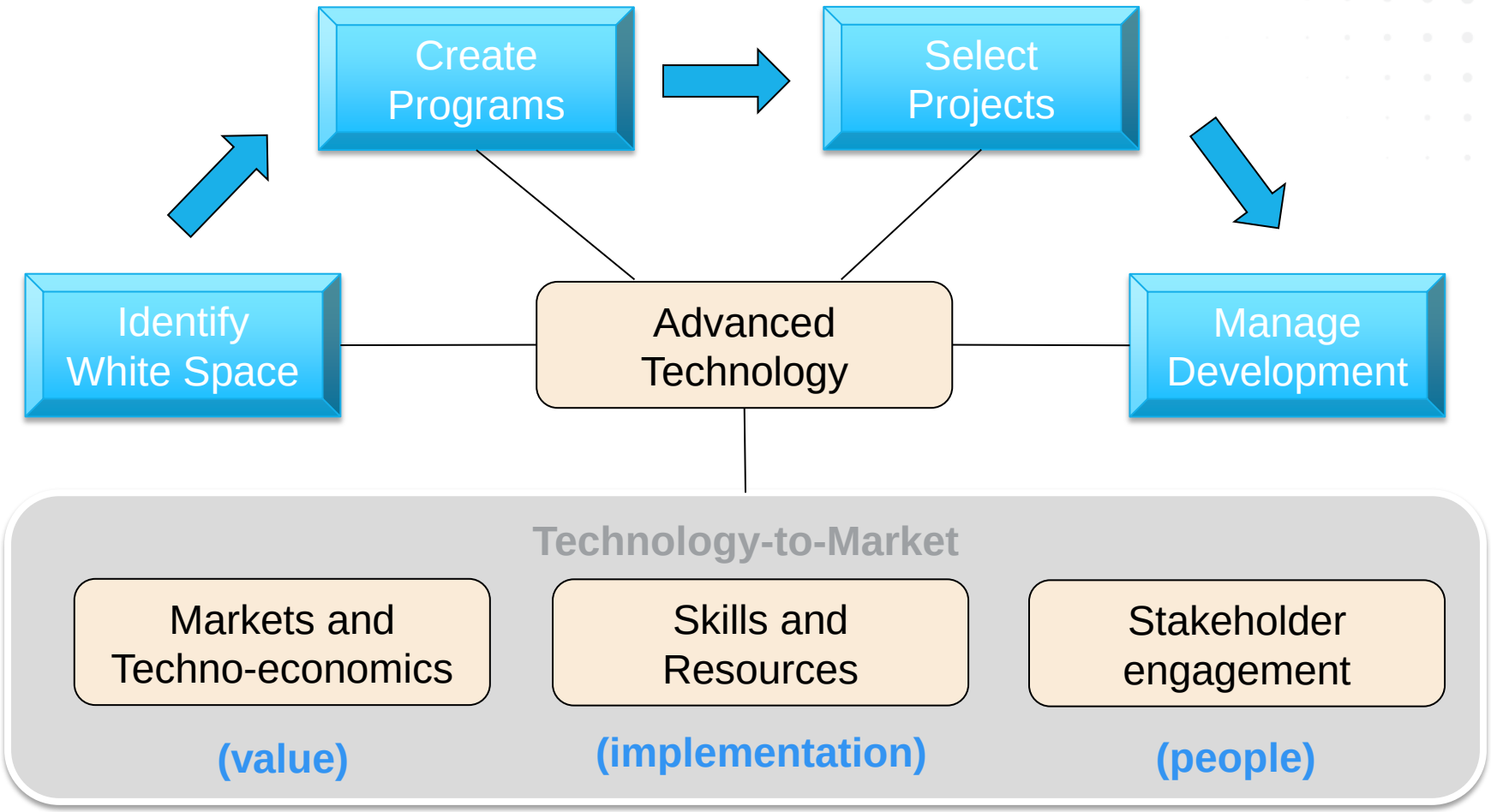
TEAM

- 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***

arpa·e
CHANGING WHAT'S POSSIBLE

If you are interested please contact me or any ARPA-E program director

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***

If you or one of your students are interested please contact me, an ARPA-E program director, or a Fellow

U.S. DEPARTMENT OF
ENERGY

www.arpa-e.energy.gov