

An Introduction to ARPA-E

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Acting Deputy Director for Technology

Workshop on “Personal Thermal Management to Reduce
Building Energy Consumption”
November 12, 2013

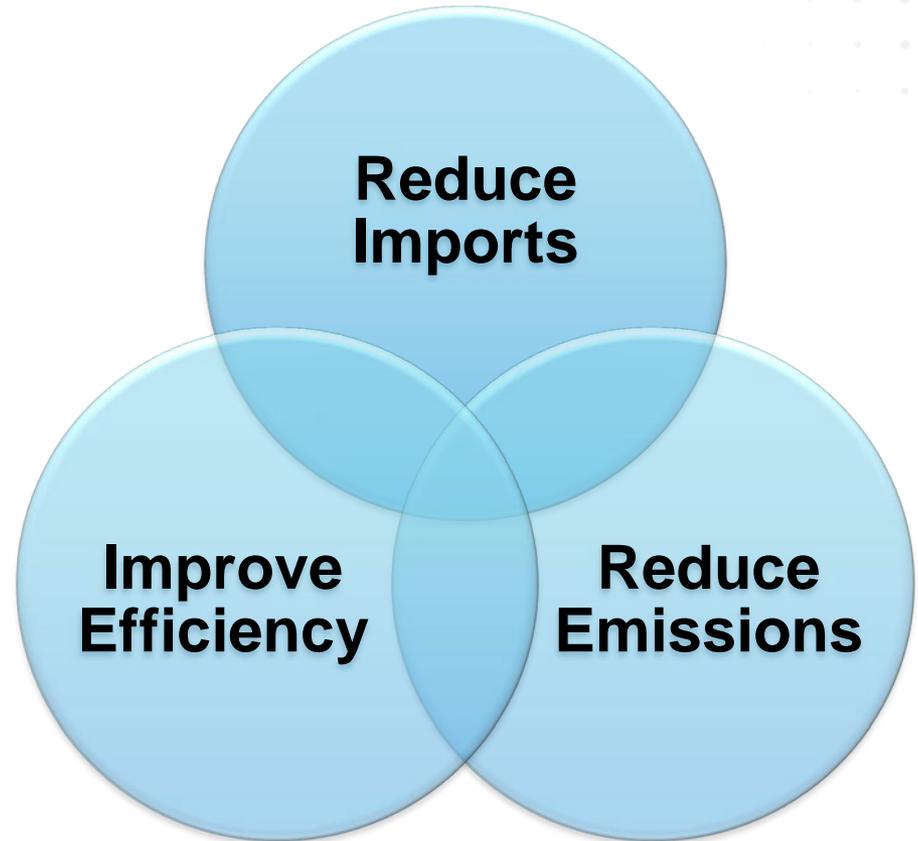


The Mission

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

Ensure America's

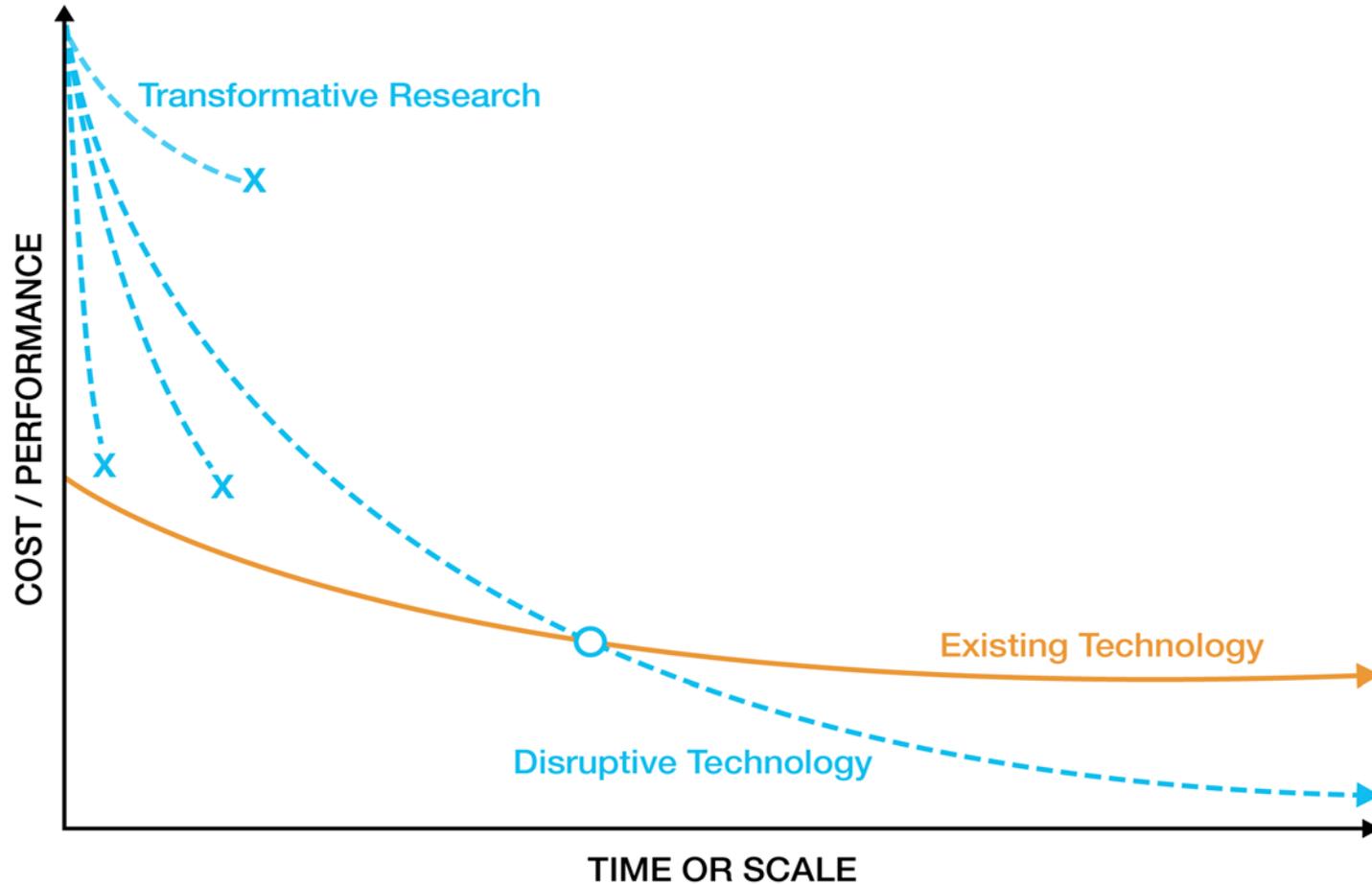
- National Security
- Economic Security
- Energy Security
- Technological Lead



Agency History

- ▶ In 2007, the creation of ARPA-E was authorized by the American COMPETES Act based on a recommendations from the National Academies in *Rising Above the Gathering Storm*.
- ▶ In 2009, the first funding for the new agency was provided via American Recovery and Reinvestment Act (ARRA). Annual appropriations have followed in 2011-2013.
- ▶ As of March 2013, ARPA-E had funded 285 projects, across 33 states, with \$770 million in funding.
- ▶ Funding distribution
 - 38% small businesses
 - 35% universities
 - 19% large businesses
 - 6% national labs
 - 3% non-profits

Creating New Learning Curves



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

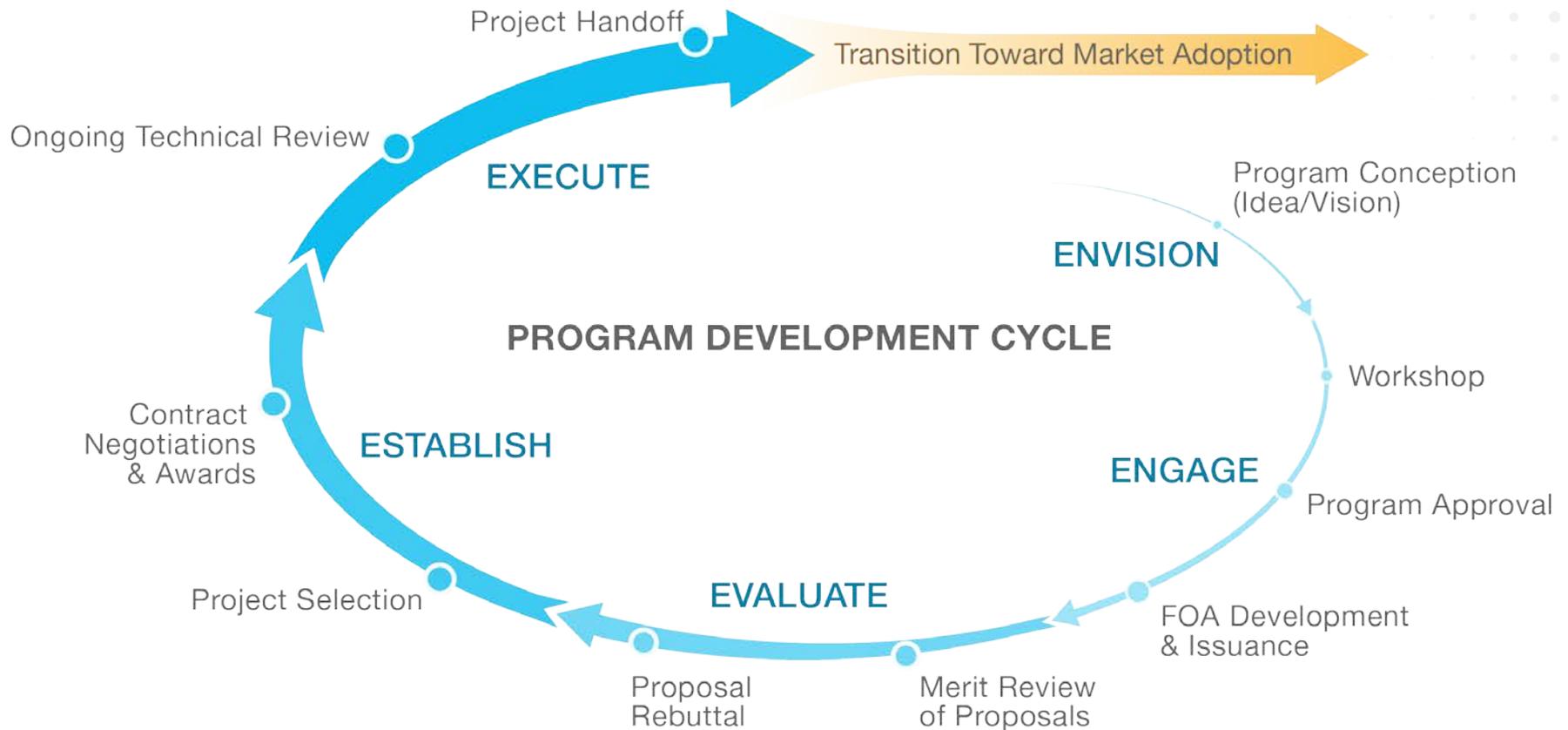
- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere
- ▶ Catalyzes new interest and investment



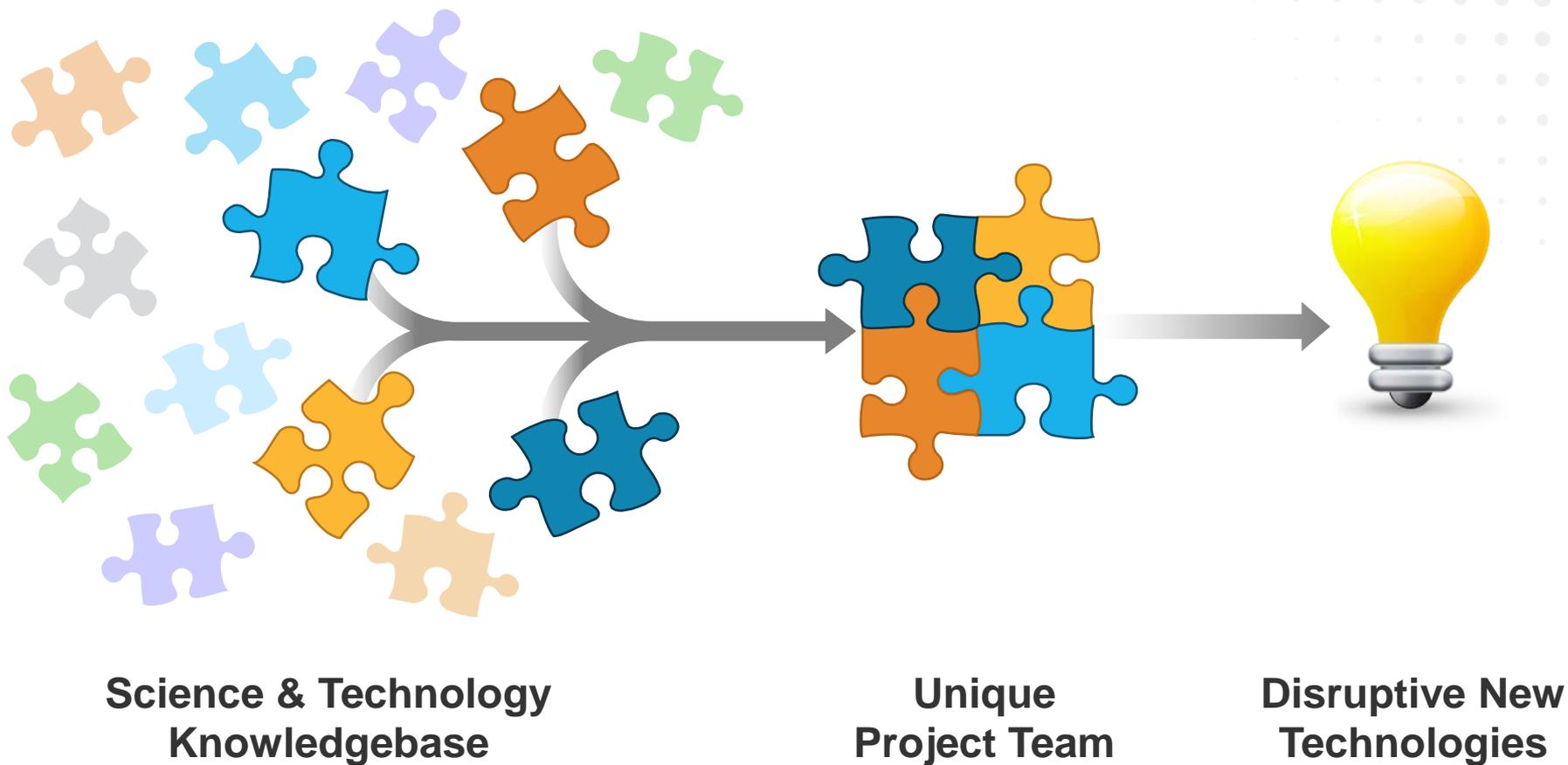
TEAM

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

Program Development

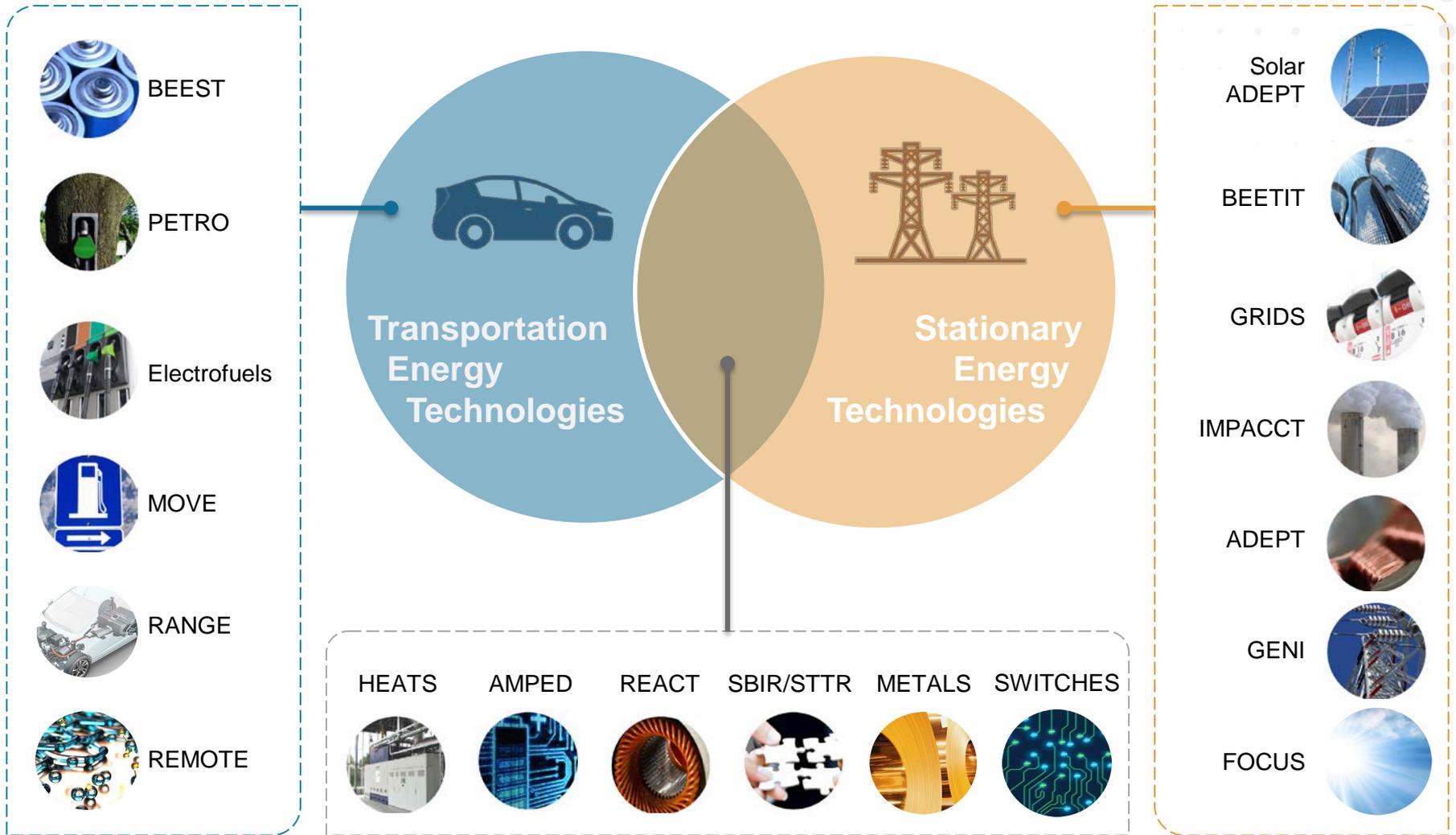


How does ARPA-E Enable Transformations?



ARPA-E teams come from a multiple segments of the S&T base to attack problems in entirely new ways

Focused Programs



FY13 Focused Solicitations



RANGE

Robust Affordable Next Generation EV-storage

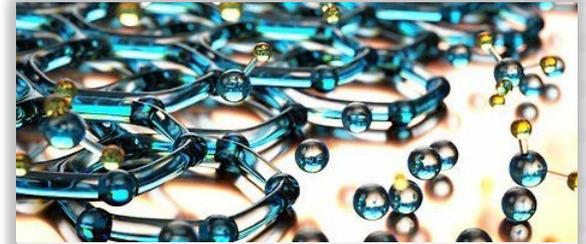
Awards Announced 8/21/13



METALS

Modern Electro/Thermochemical Advances in Light-metal Systems

Awards Announced 9/19/13



REMOTE

Reducing Emissions Using Methanotrophic Organisms for Transportation Energy

Awards Announced 9/19/13



SWITCHES

Strategies for Wide-bandgap, Inexpensive Transistors for Controlling High Efficiency Systems

Awards Announced 10/21/13



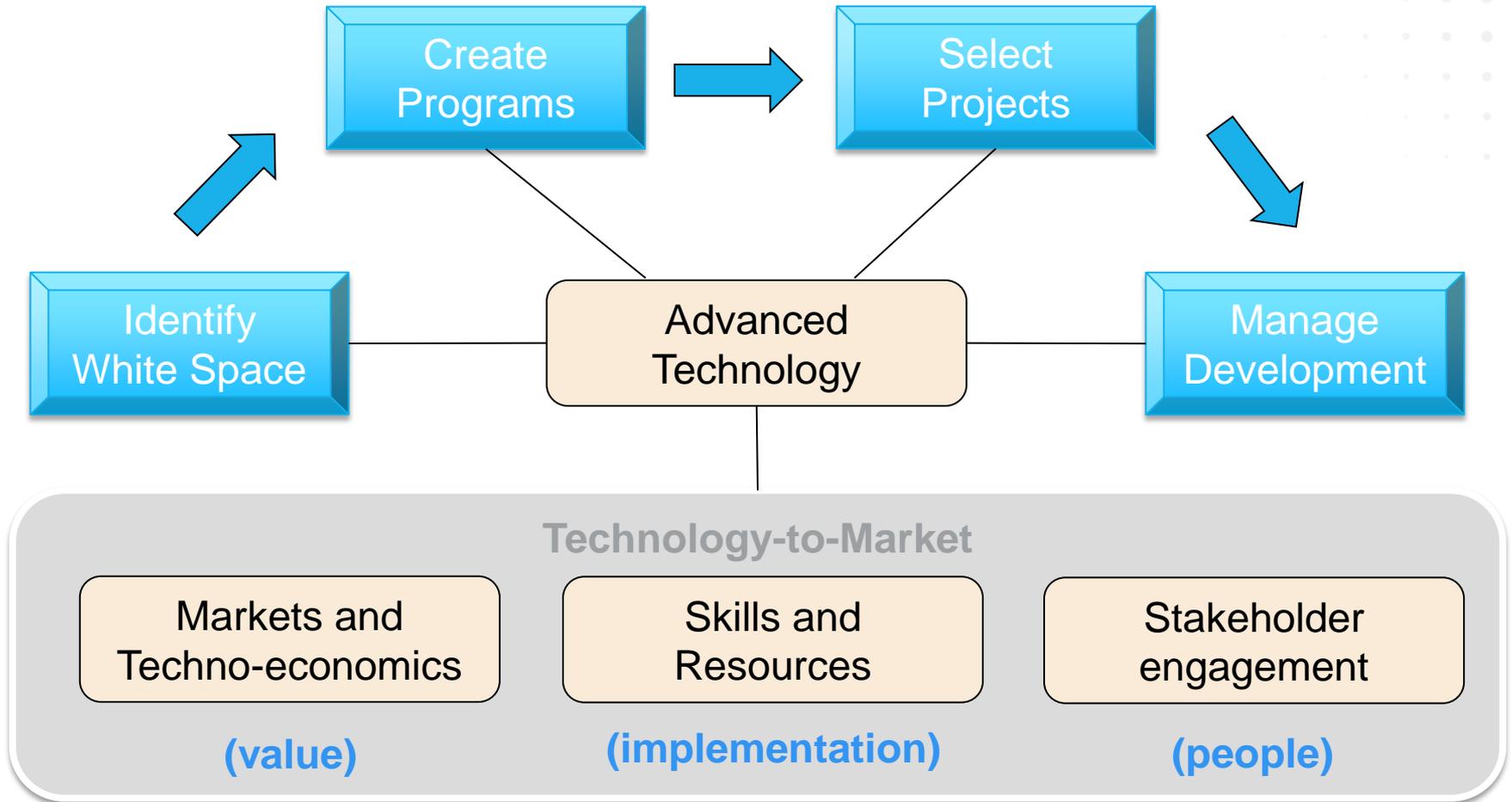
FOCUS

Full-spectrum Optimized Conversion and Utilization of Sunlight

FOA Release Date: 7/16/2013

Learn more at
www.arpa-e.energy.gov

The ARPA-E Approach



Measuring Success



MOVING TECHNOLOGY TOWARD MARKET

- ▶ Partnerships with Other Government Agencies
- ▶ New Company Formation
- ▶ Established Company Partnerships
- ▶ New Communities



BREAKTHROUGH ACHIEVEMENTS

- ▶ Technology breakthroughs
- ▶ Patents
- ▶ Publications



OPERATIONAL EXCELLENCE

- ▶ Expedited program development and project selection
- ▶ Aggressive performance metrics

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 the world of energy technology combined with the ability to do so***



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