



CHANGING WHAT'S POSSIBLE

ARPA-E Overview

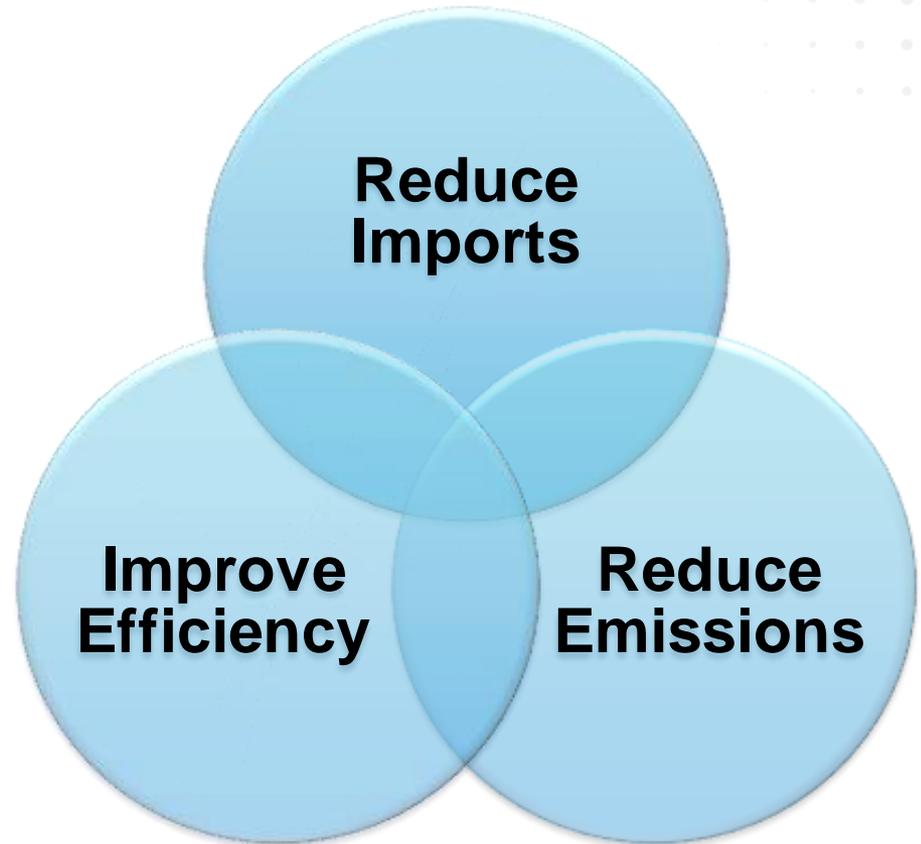
Ping Liu, Program Director
February 19, 2015

The ARPA-E Mission

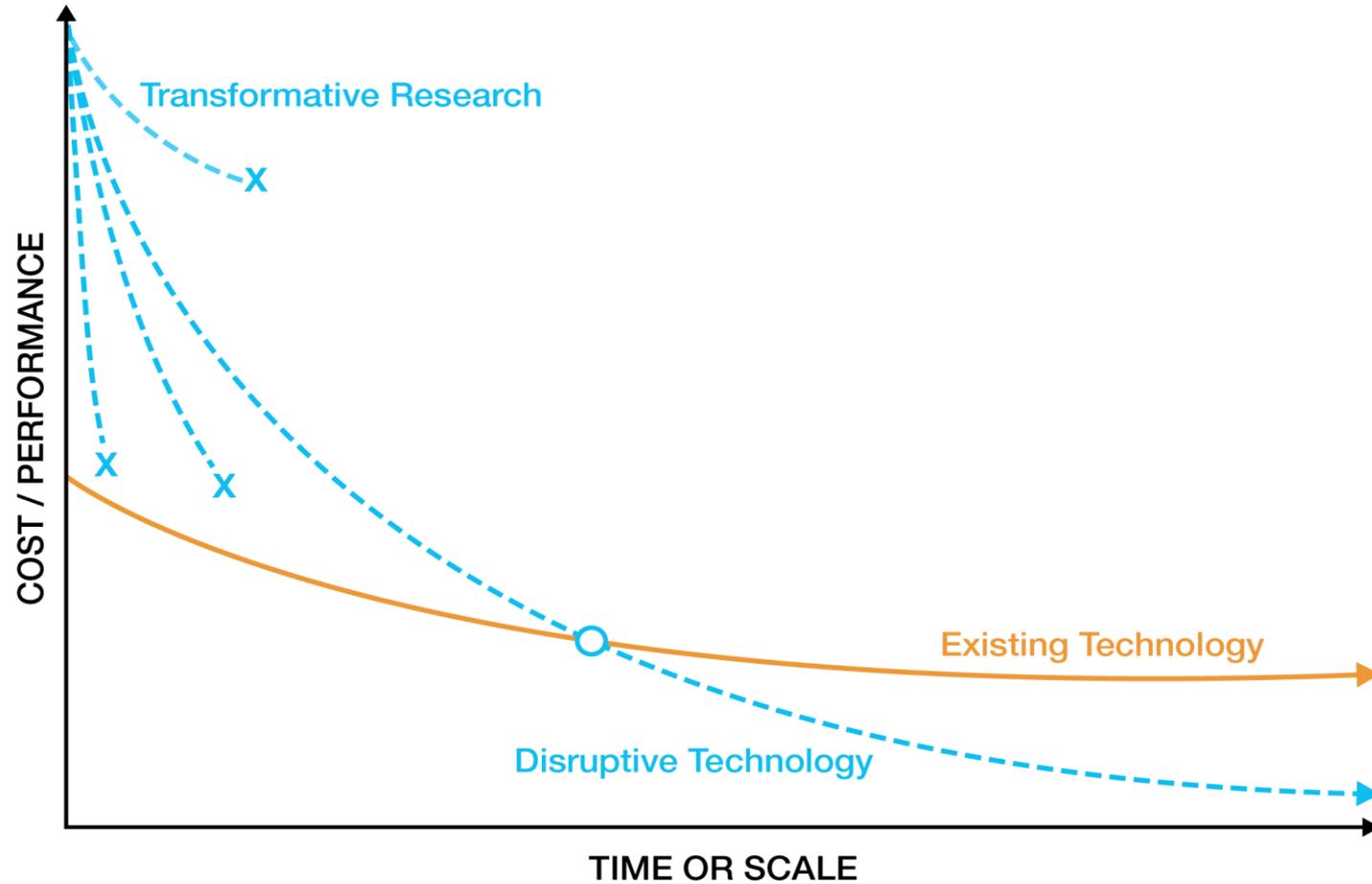
Catalyze and support the development of transformational, high-impact energy technologies

Ensure America's

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



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

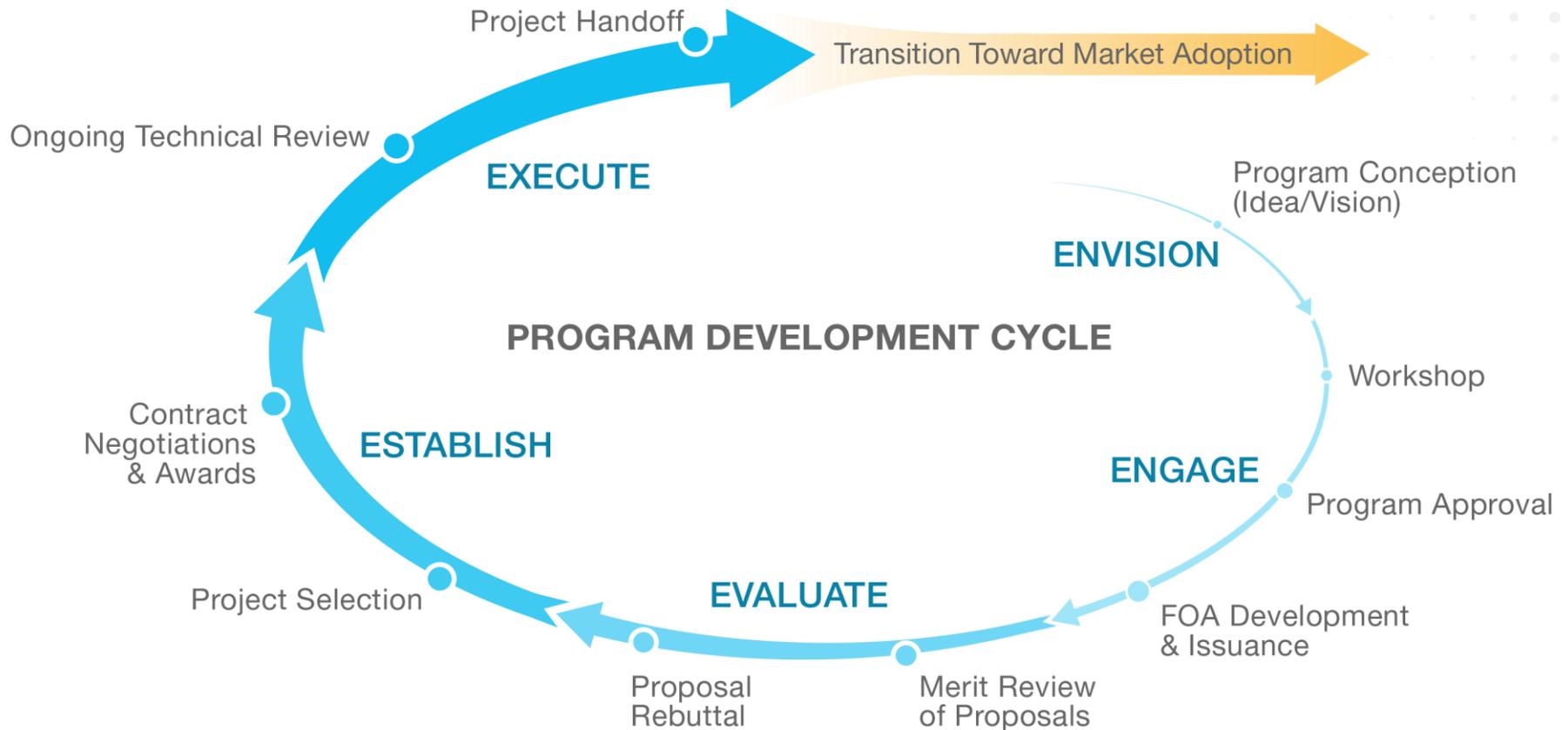
- ▶ Translates science into breakthrough technology
- ▶ Not researched or funded elsewhere
- ▶ Catalyzes new interest and investment



TEAM

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

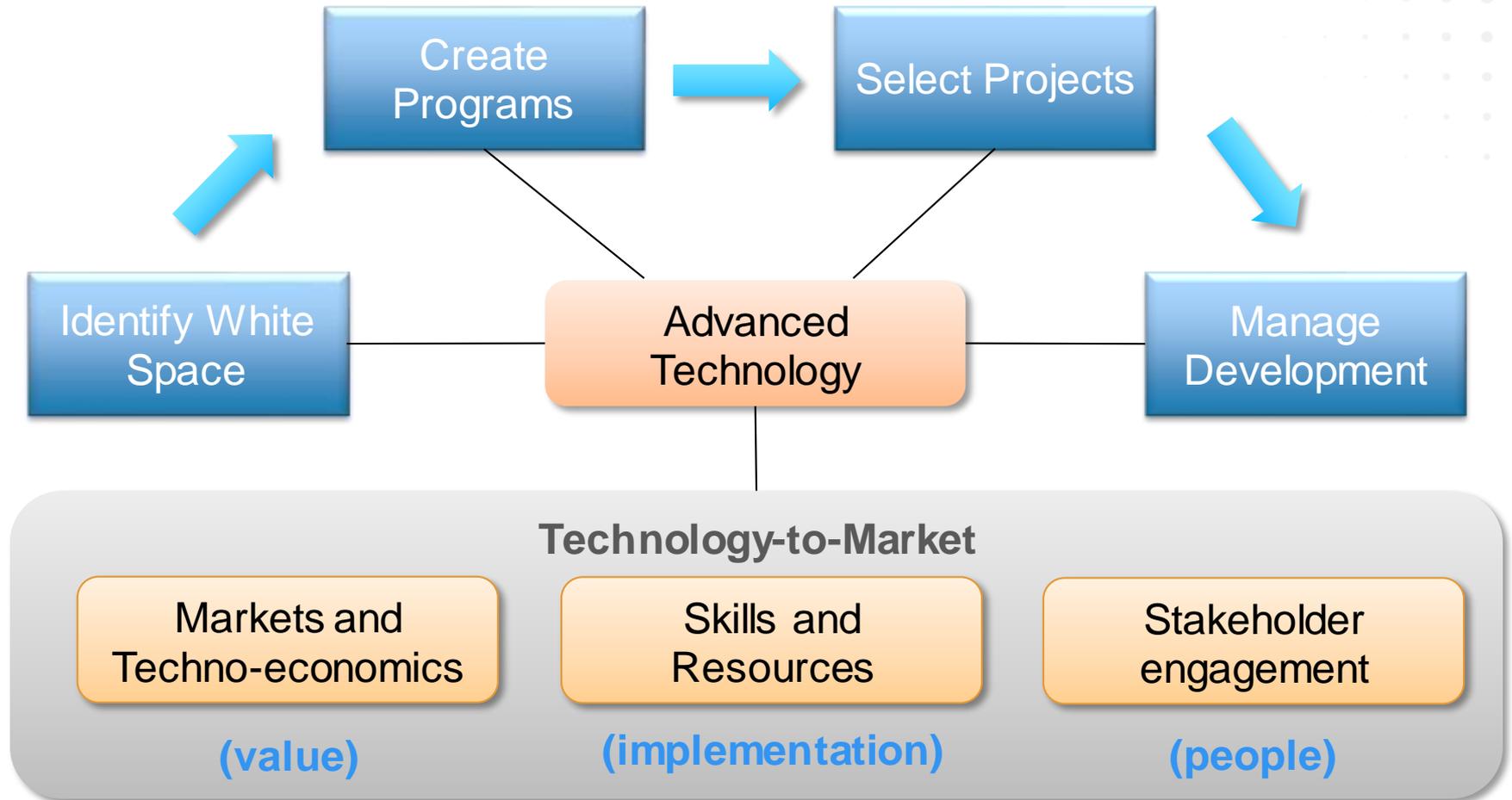
Technology Acceleration Model



ARPA-E Fellow-Led Workshops

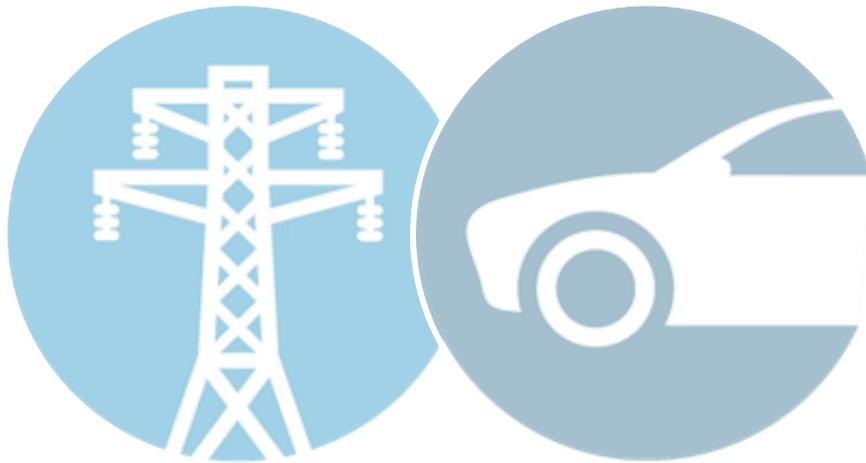
- ▶ Are an important part of helping the agency explore new areas for potential investment.
- ▶ Fit well with the Fellow's role of performing forward-looking technology assessments.
- ▶ Are NOT on a direct path to a focused technology program, e.g., there is no planned Funding Opportunity Announcement in this topical area.

Changing the Model



ARPA-E Programs

As of January 2015, ARPA-E has funded over 400 projects across 25 focused programs and open funding solicitations



Stationary Energy Technologies

| | | |
|-------------|---------|--------|
| Solar ADEPT | MONITOR | FOCUS |
| GRIDS | BEETIT | REBELS |
| IMPACCT | GENI | DELTA |

Transportation Energy Technologies

| | |
|------------------|-------------------|
| BEEST | Electrofuels |
| RANGE | REMOTE |

Stationary & Transportation Energy Technologies

| | | |
|-----------|--------|----------|
| ADEPT | AMPED | SWITCHES |
| HEATS | REACT | |
| SBIR/STTR | METALS | |

Open

| | | |
|-----------|-----------|-------|
| OPEN 2009 | OPEN 2012 | IDEAS |
|-----------|-----------|-------|

Current funding opportunities

- ▶ IDEAS program
 - Seedling projects, limited to \$500k and 1 year.
 - May be extended.
 - Talk to ARPA-E Program Director or Fellow before submitting!

- ▶ OPEN 2015
 - ~\$125M available. 4-5k concept papers expected.
 - Notice of Intent due TOMORROW.
 - Concept papers due on February 27.
 - Projects are 18-36 months, \$1-10M.
 - No discussion of proposals with ARPA-E allowed.

Active Focused Funding Opportunities

- ▶ Advance Research in Dry-cooling (ARID)
- ▶ Micro-scale Optimized Solar-cell Arrays with Integrated Concentration (MOSAIC)
- ▶ Transportation Energy Resources from Renewable Agriculture (TERRA)
- ▶ Accelerating Low-Cost Plasma Heating and Assembly (ALPHA)
- ▶ Traveler Response Architecture using Novel Signaling for Network Efficiency in Transportation (TRANSNET)
- ▶ GENerators for Small Electrical and Thermal Systems (GENSETS)
- ▶ Network Optimized Distributed Energy Systems (NODES)

Measuring ARPA-E's Success

MOVING TECHNOLOGY TOWARD MARKET



- ▶ Partnerships with other government agencies
 - 16 government projects
- ▶ New company formation
 - 24 new companies formed
- ▶ Established company relationships
- ▶ New communities
- ▶ Products in the marketplace
 - 4 products with commercial sales
- ▶ Follow-on Funding
 - 22 projects have attracted more than \$625 million from the private sector after ARPA-E's investment of approximately \$95 million



BREAKTHROUGH ACHIEVEMENTS

- ▶ Technology breakthroughs
- ▶ Patents
- ▶ Publications



OPERATIONAL EXCELLENCE

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



U.S. DEPARTMENT OF
ENERGY

www.arpa-e.energy.gov