Introduction to ARPA-E

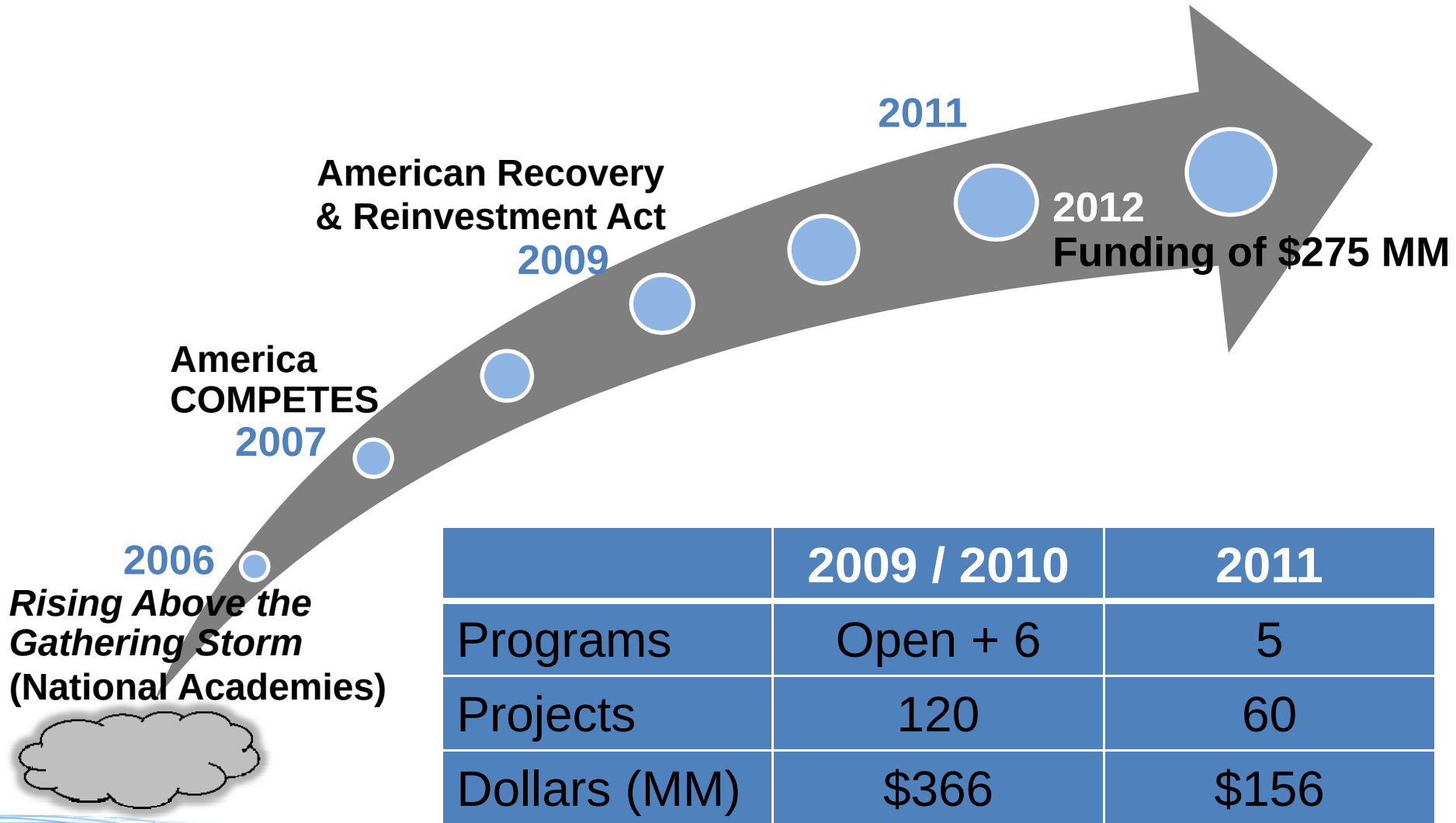
Transportation Behavior and
New Technology Workshop

March 14, 2012

Outline

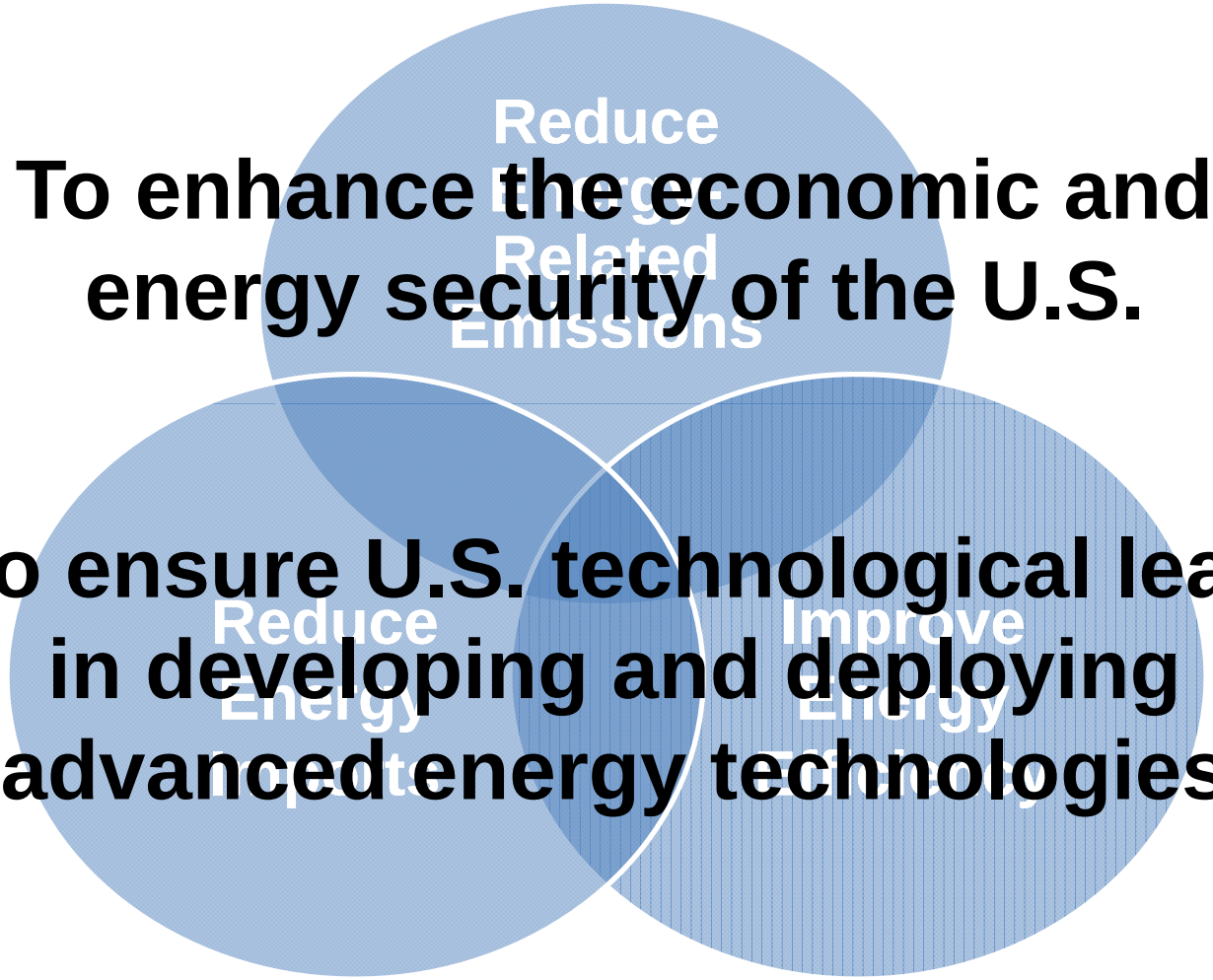
- What is ARPA-E?
- What defines an ARPA-E project?
- How is our process unique?

Evolution of ARPA-E



	2009 / 2010	2011
Programs	Open + 6	5
Projects	120	60
Dollars (MM)	$366	$156

Mission

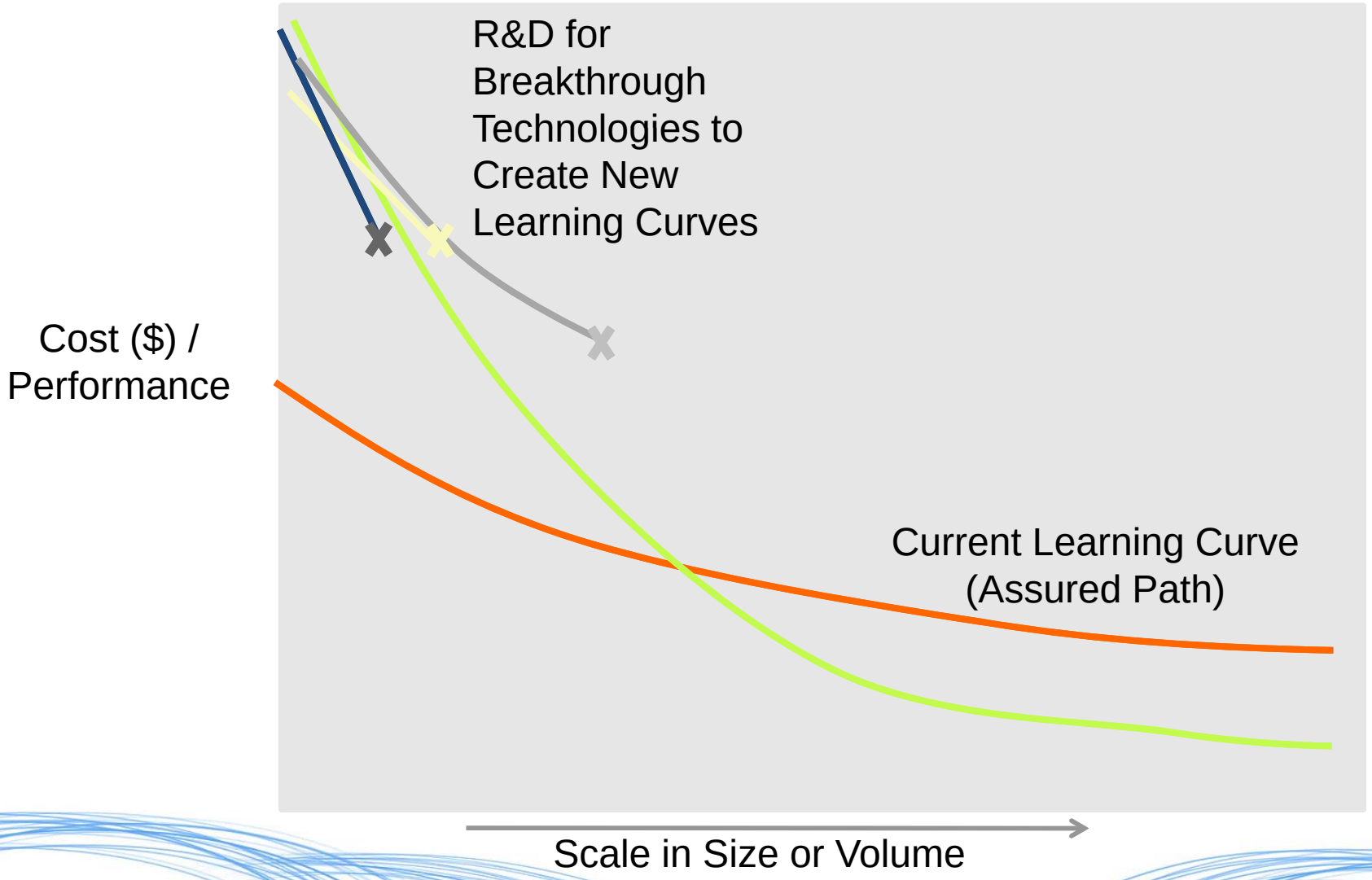


To enhance the economic and energy security of the U.S.

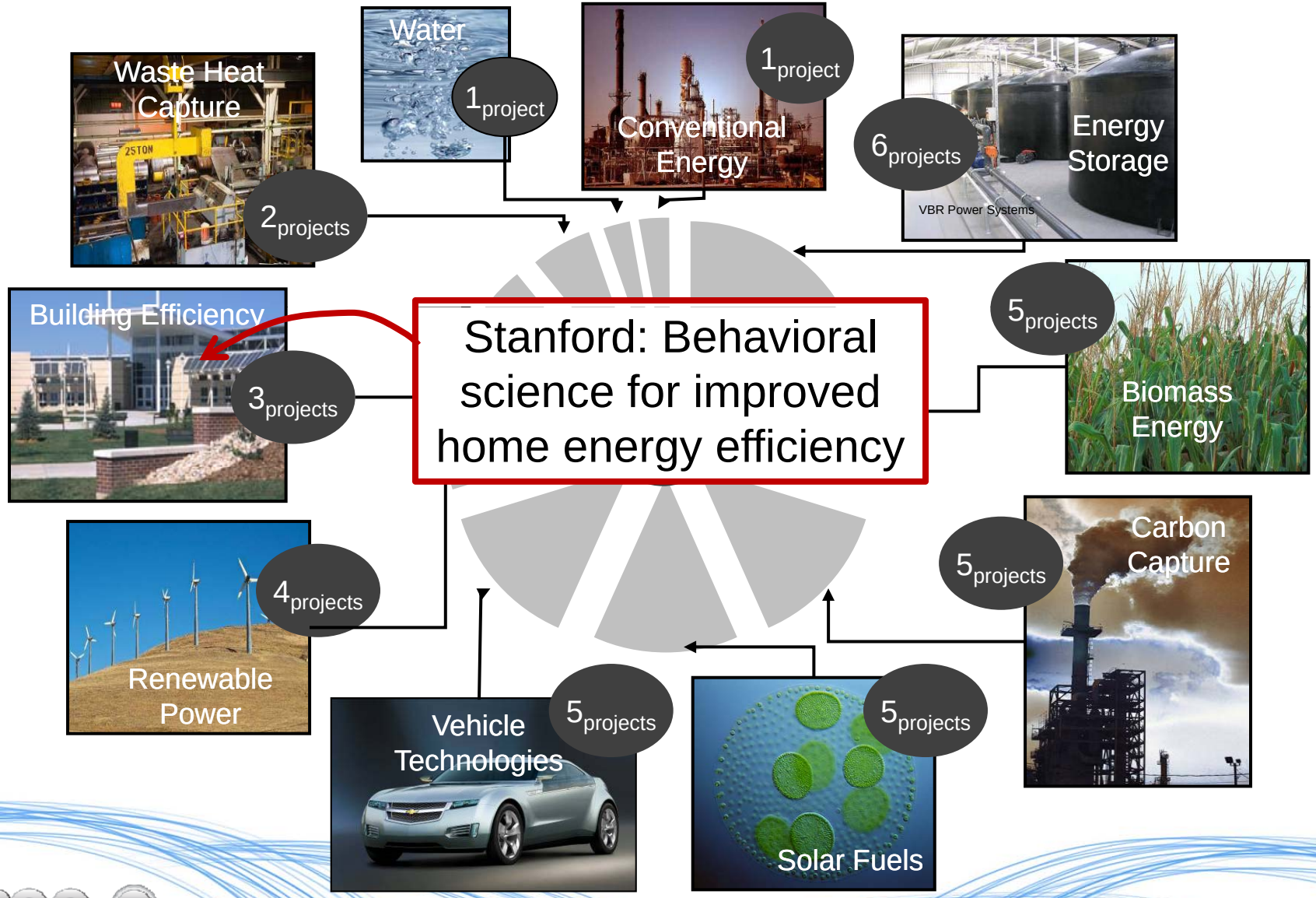
To ensure U.S. technological lead in developing and deploying advanced energy technologies

Advanced Transformative Technologies

Creating New Learning Curves



10 Technology Areas within First Open FOA



11 Focused Programs

Transportation

Electrofuels

BEEST

PETRO

End-Use Efficiency

HEATS

BEETIT

Stationary Power

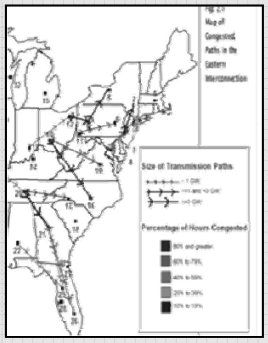
IMPACCT

ADEPT

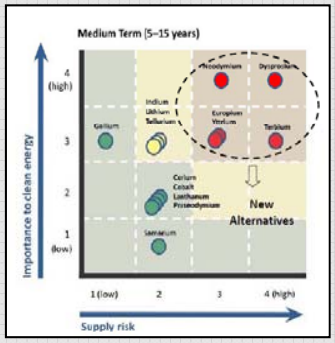
GRIDS

Solar ADEPT

GENI



REACT



Active FOA: MOVE

Methane Opportunities for Vehicular Energy

Objectives

- 5-yr payback for light duty natural gas vehicles
- Conformable tanks with energy density = CNG
- Convenient, low-cost at-home refueling

Vehicle Storage + Home Refueling < $2000

Motivation

- Price of NG $1.50/gge, gasoline $3.50/gallon
- No natural gas infrastructure
- Natural gas in 60M homes
- Current heavy duty vehicle payback ~ 3 years
- Oil consumption for light duty ~60%, heavy ~20%

Release date:	Feb 2012
Award date:	Sep 2012
No. projects:	7-10
Investment:	$30M
Program director:	Dane Boysen

Approach 1: Low pressure storage (< 500 psi)

- Sorbent materials with energy density = CNG

Approach 2: High pressure storage (3,600 psi)

- High strength, conformable tanks + low cost compression

Other 2012 FOAs & RFIs

Funding Opportunity Announcement (FOA)

- Open FOA
  - Letter of Intent Deadline: 3/30/12, 5pm ET
  - Concept Paper Deadline: 4/12/12, 5pm ET

Requests for Information (RFIs)

- Electrofuels Phase II
- Advanced Technologies for Robust Control of Energy Storage

What makes an ARPA-E project?

1. Impact

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

2. Transform

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

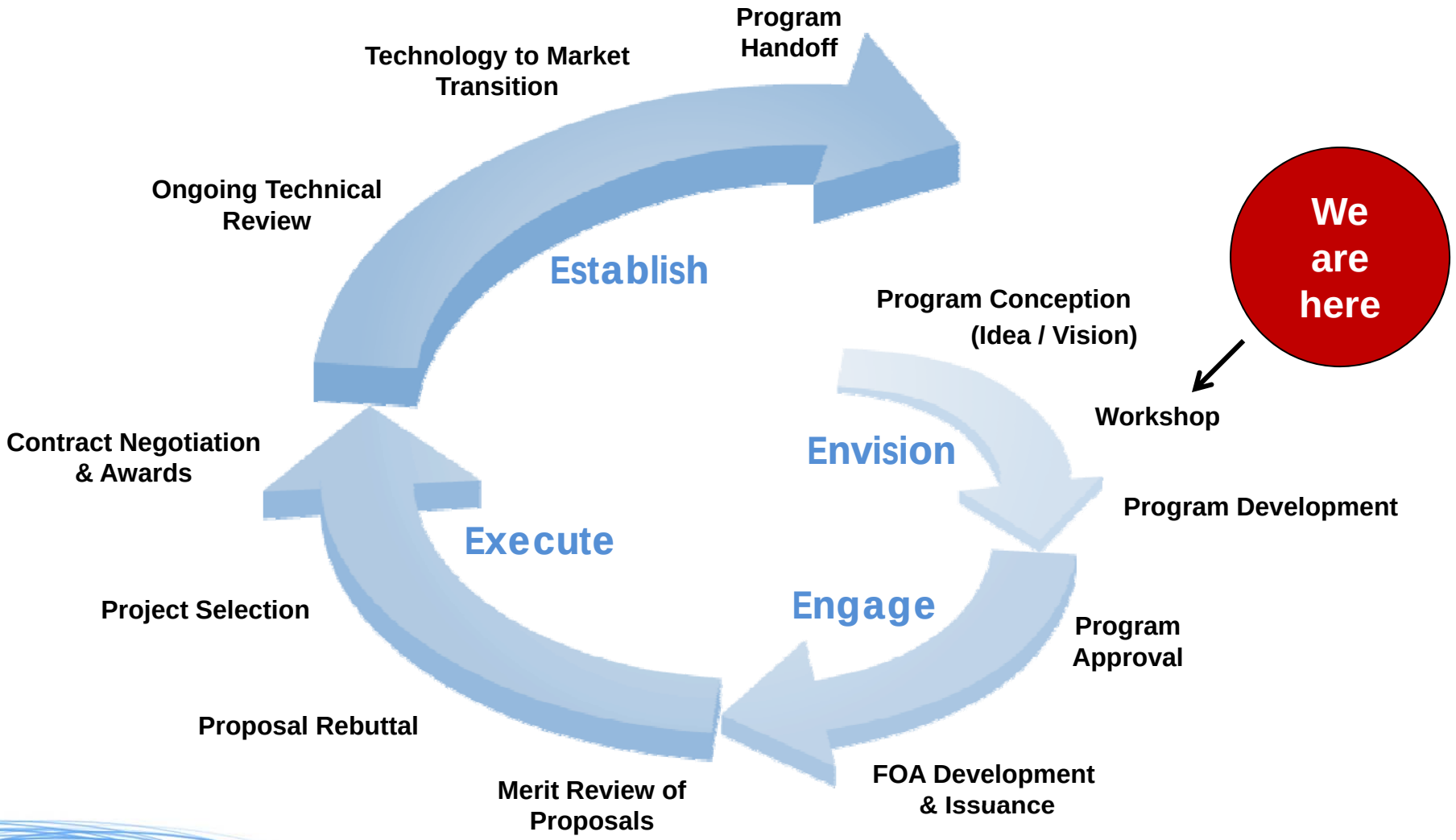
3. Bridge

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

4. Team

- Best-in-class people
- Cross-disciplinary skill sets
- Translation oriented

Program Development Cycle



Questions?