



ARPA-E Overview

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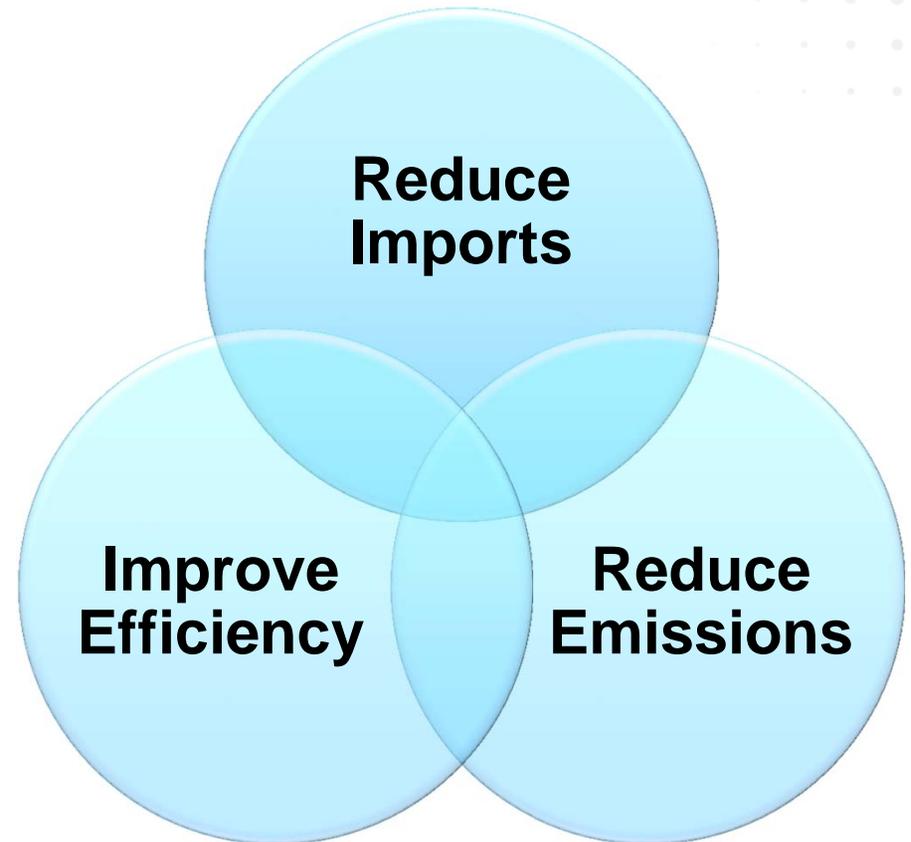


The ARPA-E Mission

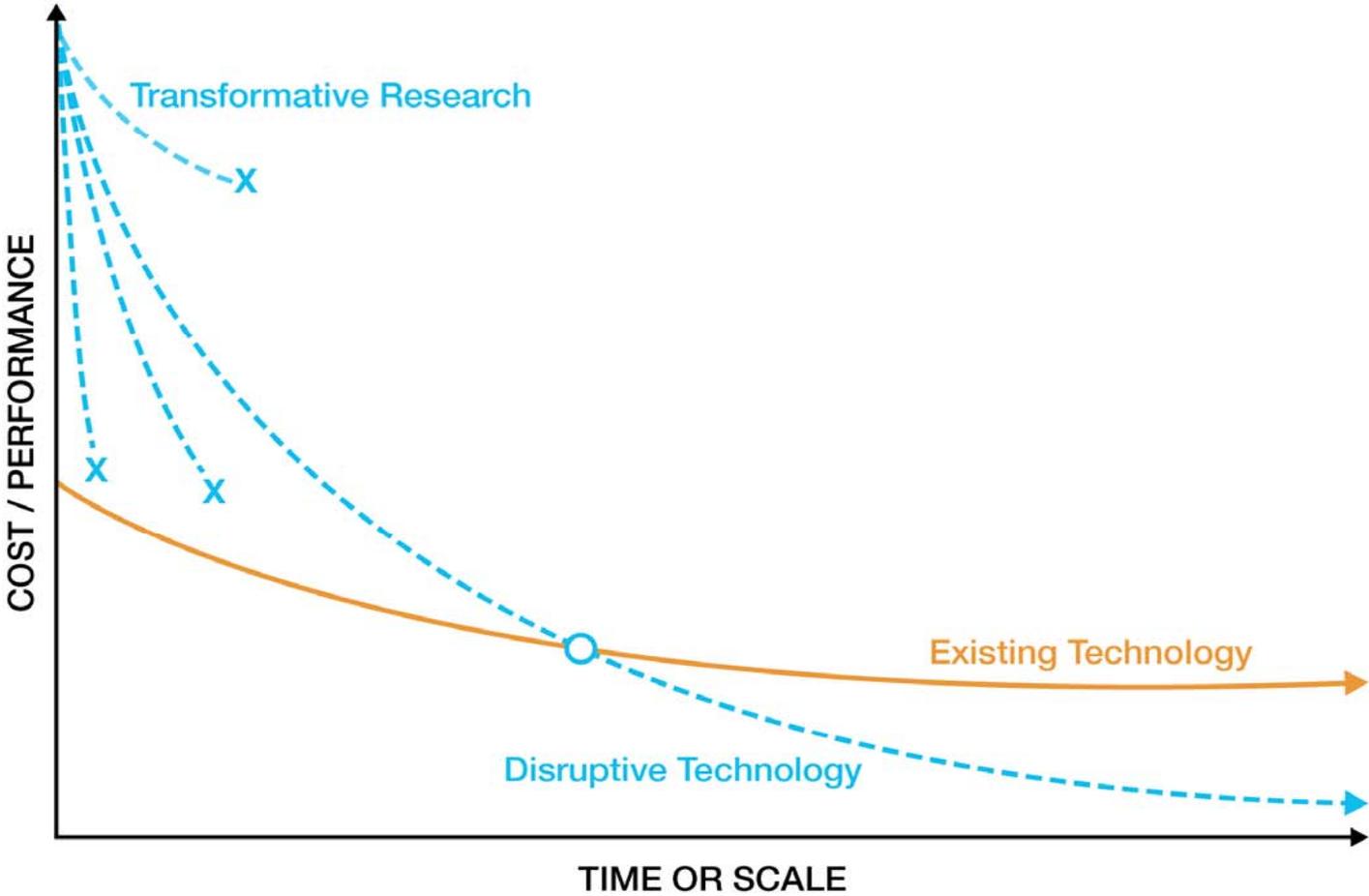
Catalyze and support the development of transformational, high-impact energy technologies

Ensure America's

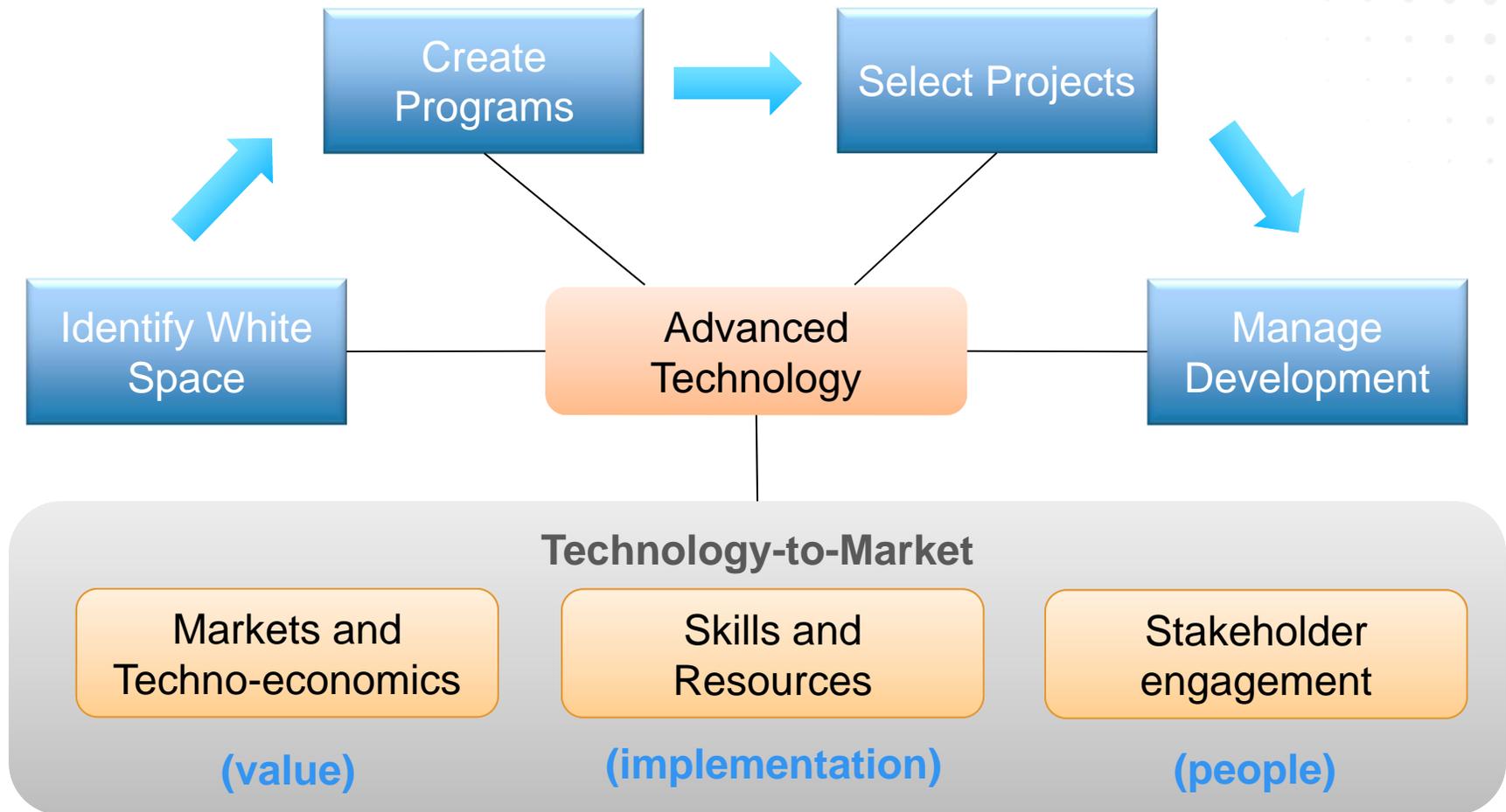
- National Security
- Economic Security
- Energy Security
- Technological Competitiveness



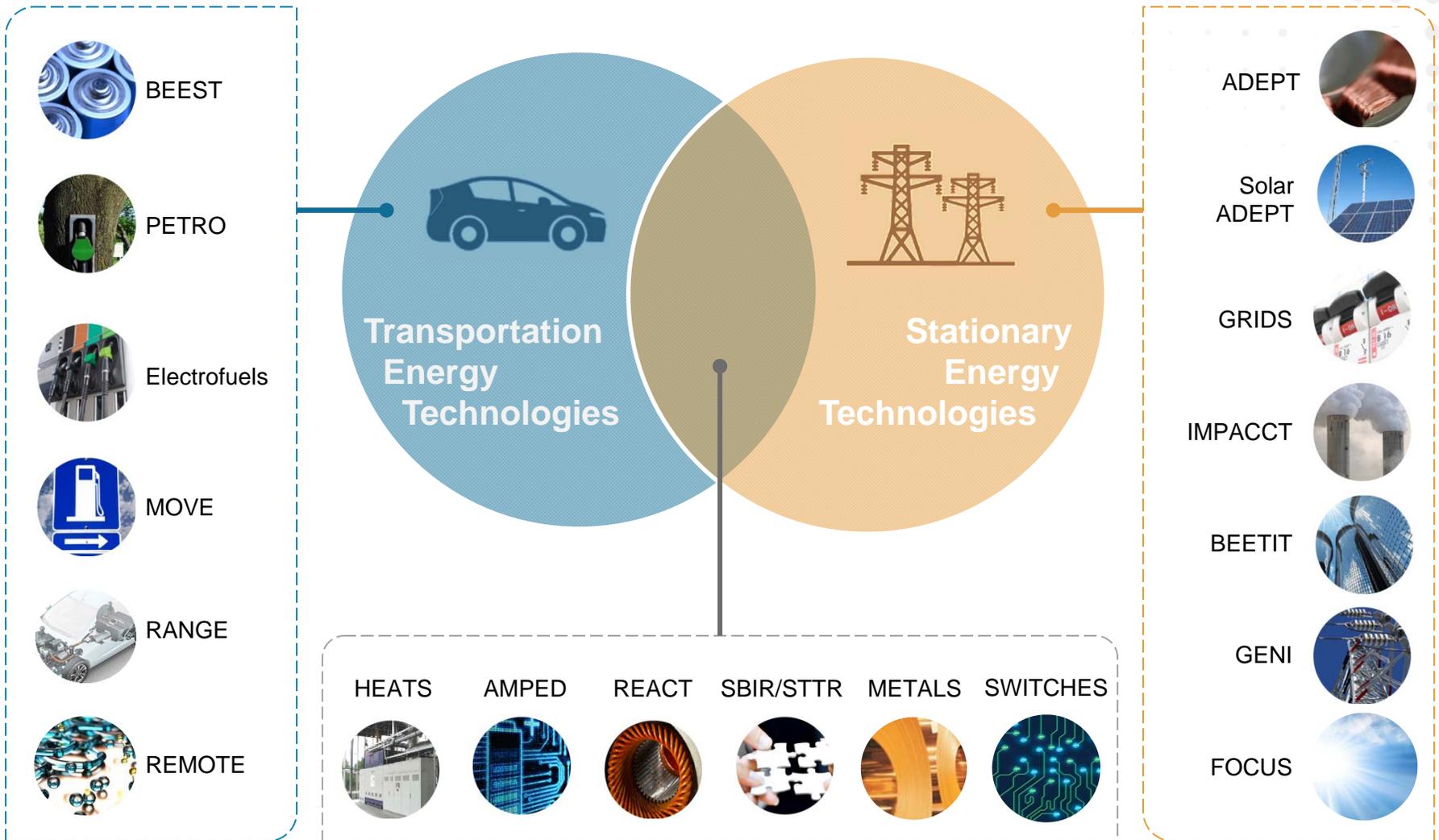
Creating New Learning Curves



Changing the Model

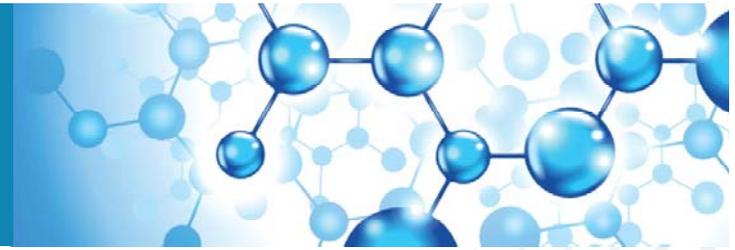


Focused Programs



REMOTE

BIOLOGICAL CONVERSION OF GAS TO LIQUIDS



Mission

Develop transformational biological technologies to convert gas to liquids for transportation fuels.

| | |
|--------------------------|--------------------|
| Program Director | Dr. Ramon Gonzalez |
| Year | 2013 |
| Projects | 15 |
| Available Funding | \$34 Million |

Goals

- Develop innovative catalysts and lab scale reactors to efficiently and cost-effectively convert natural gas
- Lower the cost of gas to liquids conversion
- Enable the use of low-cost, domestically sourced natural gas for transportation, which could reduce vehicle emissions compared to conventional gasoline engines

Highlights

- *Coming soon*

MOVE

NATURAL GAS FOR CARS



Mission

Develop (1) cost-effective ways to power passenger cars and other light duty vehicles and (2) quick-filling at-home refueling stations.

Goals

- 5-yr payback for light duty natural gas vehicles (NG is \$1.50/gallon of gas equivalent, gasoline \$3.50/gallon)
- Conformable tanks with energy density = CNG
- Convenient, low-cost at-home refueling

Approaches

Approach 1: Low pressure storage (< 500 psi)

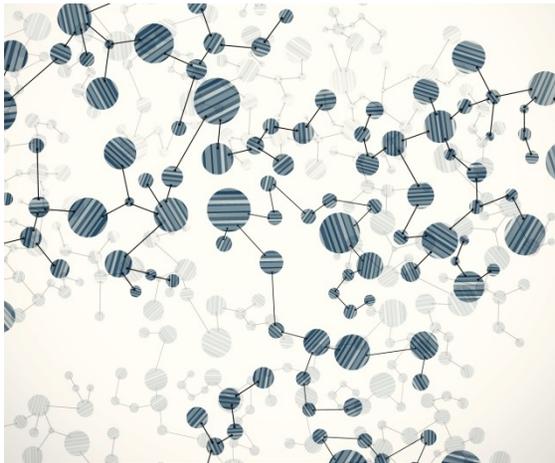
- Sorbent materials with energy density equal to CNG

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

- High strength, conformable tanks with low cost compression

| | |
|-------------------------|-----------------|
| Program Director | Dr. Dane Boysen |
| Year | 2012 |
| Projects | 13 |
| Total Investment | \$30 Million |

FY14 Focused Solicitations



REBELS

Reliable Electricity Based on EElectrochemical 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.

Selections to be Announced 6/19/14



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;
Concept Papers Submitted 6/13/14



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;
Concept Papers Submitted 6/13/14



U.S. DEPARTMENT OF
ENERGY

www.arpa-e.energy.gov