



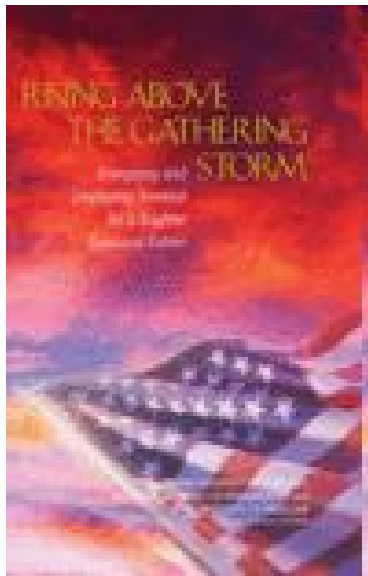
# SBIR at ARPA-E?

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# Background on ARPA-E



## Rising Above the Gathering Storm, 2006 (National Academies)

- Establish an Advanced Research Projects Agency for Energy (ARPA-E)
- “Creative, out-of-the-box, transformational” energy research
- Spinoff Benefit – Help educate next generation of researchers

# Background on ARPA-E



## America COMPETES Act, 2007

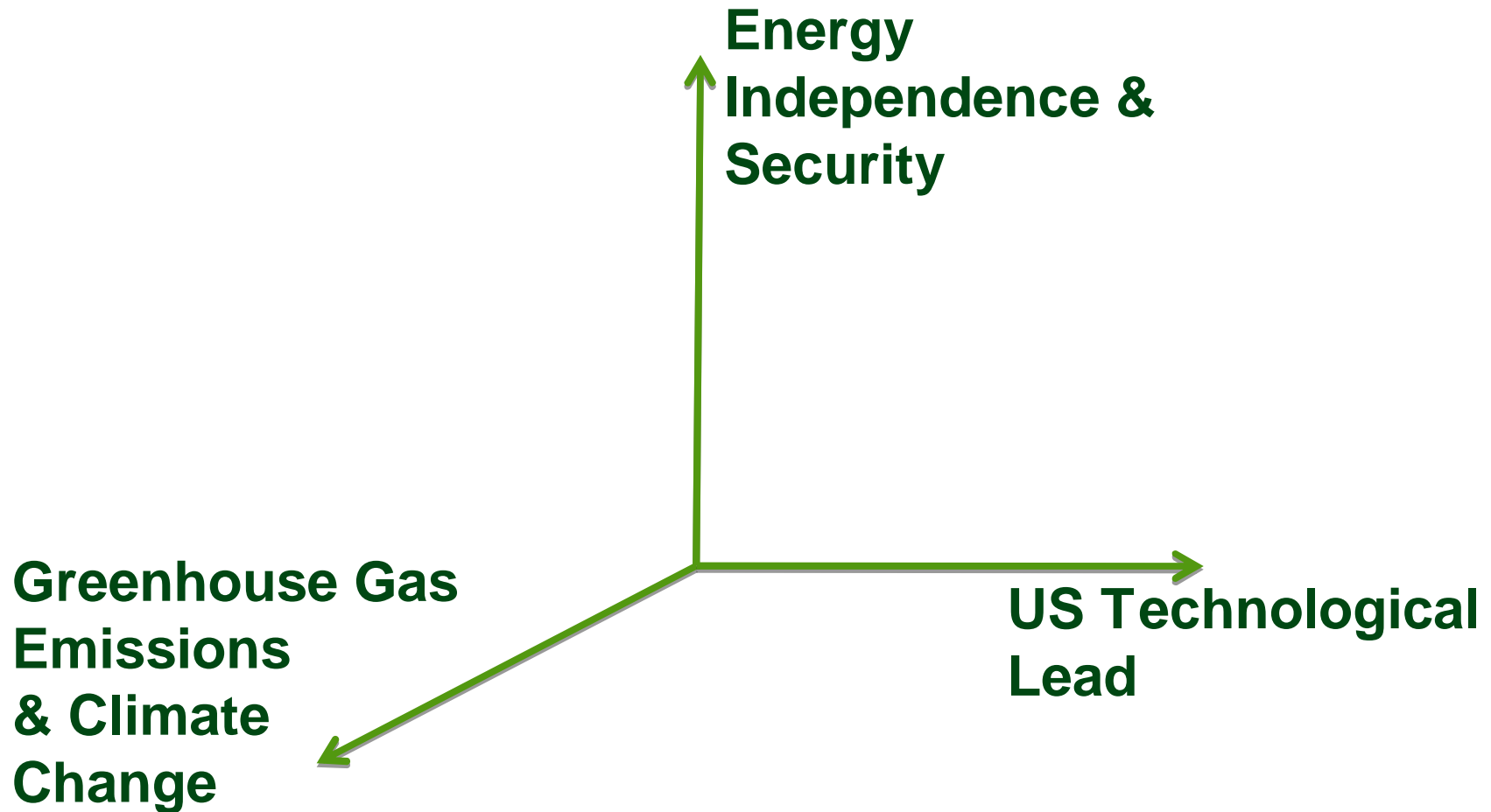
- Authorizes the establishment of ARPA-E with a clear mission and means to achieve it.



## American Recovery and Reinvestment Act of 2009 (Recovery Act)

- \$400M provided for ARPA-E
- President Obama launches ARPA-E in a speech at National Academy of Sciences on April 27, 2009

# Three Sputniks of our Generation



# Mission and Means



## Mission:

- § To “enhance the economic and energy security of the US” through:
  - “Reduction in energy imports”
  - “Improvement in energy efficiency”
  - “Reduction in energy-related emissions, including greenhouse gasses”
  
- § To “ensure” US “technological lead in developing and deploying advanced energy technologies”

# Mission and Means



## Means:

- § “Identifying and promoting” [but not itself making] “revolutionary advances in fundamental sciences”
- § “Accelerate transformational technological advances in areas that industry by itself is not likely to undertake...”
- § “Translate scientific discoveries and cutting edge inventions into technological innovations”

# Mission and Means



## Key Takeaways:

- § New lean, flat organization within DOE
- § Can engage small businesses, large businesses, universities, nonprofits, and national labs
- § Use of existing DOE authorities, including “Other Transactions Authority”
- § Separate budget line and Treasury Fund account

# ARPA-E Technology Selection



## **Innovative Technical Approach**

- Focused on high risk/high reward R&D
- Seeking new approaches that leapfrog to new learning curves, rather than advancement along existing learning curves
- Identifying new areas of research with much white-space

## **Under-served by private sector investment**

- Very high technical risk (and reward)
- Both technology and market risk

## **Best-in-class people and teams**

- Strong preference for teams/consortia comprised of leaders in different scientific fields and technology areas
- Strong interest in bringing new researchers to energy research



# ARPA-E Funding Selection



§ Competitive Selection: By law, ARPA-E is required to give preference to proposals submitted through a competitive process (i.e., funding opportunity announcements).

- Agile Delivery of Electrical Power Technology (ADEPT)
- Batteries for Electrical Energy Storage in Transportation (BEEST)
- Building Energy Efficiency Through Innovative Thermodevices (BEETIT)
- Electrofuels
- Grid-Scale Rampable Intermittent Dispatchable Storage (GRIDS)
- Innovative Materials & Processes for Advanced Carbon Capture Technologies (IMPACCT)

# ARPA-E Non-Competitive Awards



- § ARPA-E also accepts unsolicited proposals.
- § All unsolicited proposals should be sent to John N. Augustine at the address below:

John N. Augustine  
Unsolicited Proposal Manager  
National Energy Technology Laboratory  
U.S. Department of Energy  
E-mail: [DOEUSP@netl.doe.gov](mailto:DOEUSP@netl.doe.gov)

§ <http://www.netl.doe.gov/business/usp/USPGuide.pdf>

# ARPA-E Competitive Awards



## First Funding Opportunity

- § Open to all ideas, best well formulated high impact projects across all energy technologies
- § Utilize concept papers as first phase before selecting best for full proposals
- § 37 projects selected for funding out of nearly 3,700 concepts received, processed, and reviewed in First Funding Opportunity

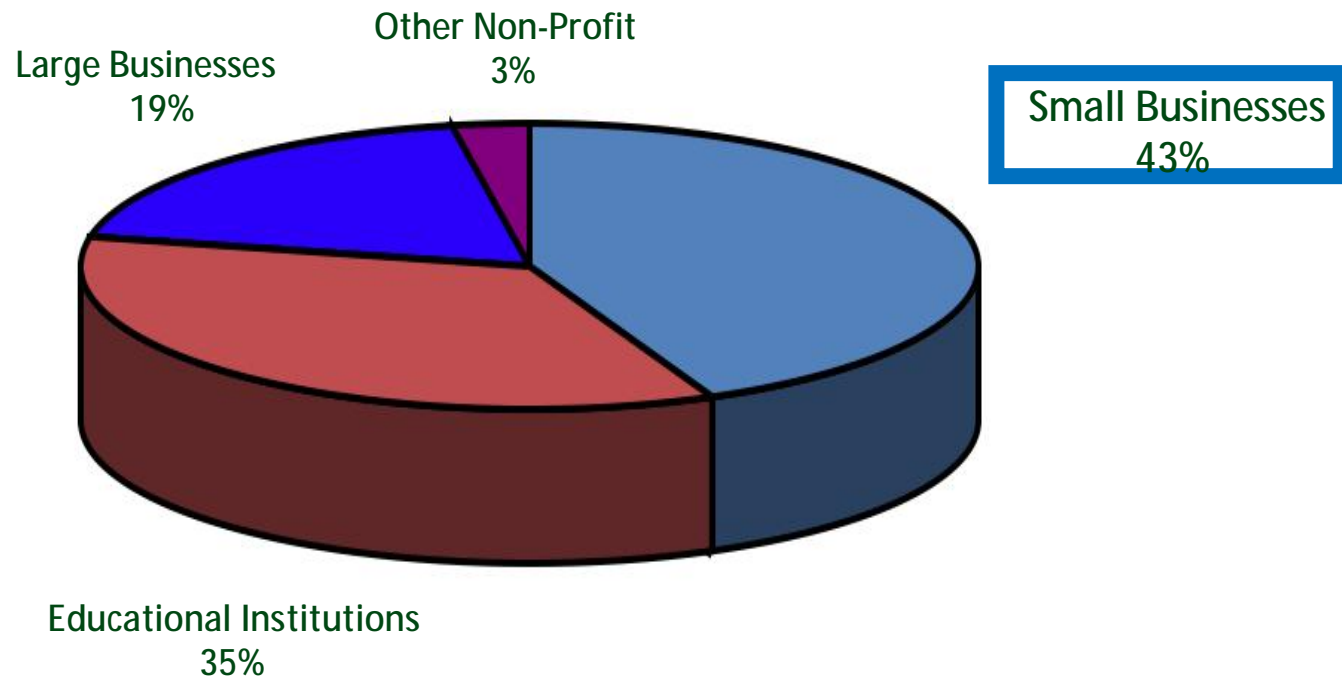
## Second and Third Rounds of Funding Opportunities

- § Solicited proposals on topics with clear needs and some emergent opportunities
- § Program-focused approach, building portfolios around specific technology challenges that need more development and input to formulate
- § Specific challenges with cost and / or performance metrics
  - § BEEST
  - § IMPACCT
  - § GRIDS
  - § ADEPT
  - § Electrofuels
  - § BEETIT

# Summary of Applications Funded



## Lead Organization Type for Selected Projects



# Awardees in Each Project Category Represent a Diverse Cross-Section of the United States



- 📍 ALL
- 📍 Broad Funding Announcement
- 📍 BEEST
- 📍 IMPACCT
- 📍 GRIDS
- 📍 ADEPT
- 📍 Electrofuels
- 📍 BEETIT

# ARPA-E Program Management is Active and Flexible



The selected teams don't just get ARPA-E funding, they will get full coordinated support and scrutiny from ARPA-E team.

- § Operations Team will expedite transactions
- § Program Team will provide technical help and monitor technical progress
- § Outreach Team will highlight progress to media, Congress, etc.
- § Commercialization Team will provide feedback and links to/from potential adopters

# ARPA-E: U.S. Competitiveness with Respect to New Inventions



- § University and Nonprofit: Grant of exclusive right to use or sell invention in U.S. must be to the party who agrees to substantially manufacture in the U.S.
  
- § **Small Business: Awardee and exclusive licensees must substantially manufacture in the U.S. for products to be used or sold in the U.S.**
  
- § Large Business: Awardee and all licensees must substantially manufacture in the U.S. for products to be used or sold in any country.

# ARPA-E: Challenges Going Forward



§ Budget

§ Preparing the next round of Funding Opportunity Announcements

§ Monitoring and reviewing milestones and deliverables from currently funded projects



# SBIR AT ARPA-E

