Electrochemical Approaches to Modular Power Generation Workshop: Introduction to ARPA-E

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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 Lead

Reduce Imports

Improve Efficiency

Reduce Emissions
A Brief History of ARPA-E

2007
RISING ABOVE THE GATHERING STORM PUBLISHED

2007
AMERICA COMPETES ACT SIGNED

2009
AMERICAN RECOVERY & REINVESTMENT ACT
$400M Appropriated

2011
FY2011 BUDGET
$275M Appropriated

2012
FY2012 BUDGET
$250M Appropriated

2013
FY2013 BUDGET
$275M Appropriated

Programs | 2009 – Present
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Programs | 2 Open + 14
Projects | 285
Dollars (MM) | $770
Creating New Learning Curves

New Learning Curves

Current Learning Curve
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
How does ARPA-E Enable Transformations?

Science & Technology Knowledgebase

Unique Project Team

Disruptive New Technologies

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

TRANSPORTATION ENERGY TECHNOLOGIES
- BEEST
- Electrofuels
- PETRO
- MOVE

HEATS
- AMPED
- SBIR/STTR

REACT

STATIONARY ENERGY TECHNOLOGIES
- BEET-IT
- IMPACCT
- GRIDS
- Solar ADEPT
- GENI
- ADEPT
OPEN 2012: 66 Projects, 24 States, 11 Areas

- 2 Advanced Vehicles
- 2 Water
- 13 Advanced Fuels
- 3 Building Efficiency
- 2 Stationary Generation
- 9 Grid Modernization
- 10 Renewable Power
- 8 Stationary Energy Storage
- 4 Carbon Capture
- 5 Thermal Energy Storage
- 7 Transportation Storage
Measuring ARPA-E’s 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
New Funding Opportunities

**RANGE**
Robust Affordable Next Generation EV-storage

*Release Date: 2/19/2013*

**METALS**
Modern Electro/Thermochemical Advances in Light-metal Systems

*Release Date: 3/20/2013*

**REMOTE**
Reducing Emissions Using Methanotrophic Organisms for Transportation Energy

*Release Date: 3/15/2013*
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

If you are interested please contact me or any ARPA-E program director.