

# THE ADVANCED RESEARCH PROJECTS AGENCY-ENERGY

## OVERVIEW

### ABOUT ARPA-E

The Advanced Research Projects Agency-Energy (ARPA-E) invests in disruptive ideas to create America's future energy technologies. ARPA-E focuses exclusively on early-stage technologies that could fundamentally change the way we generate, use, and store energy.

ARPA-E invests in innovative ideas from academia, private industry, national labs, start-up companies, and small businesses—providing project teams with an average award of \$2-3 million over several years. Every project team receives hands-on guidance to meet ambitious technical milestones that push the boundaries of energy innovation. ARPA-E's unique Technology-to-Market program also empowers project teams with business insight and strategies to accelerate the adoption of their potentially game-changing technologies.

To date, ARPA-E has invested in over 400 energy technology projects across 20+ focused program areas. The Agency also issues periodic open funding solicitations to address the full range of energy-related technologies, as well as funding solicitations aimed at supporting America's small business innovators.

### ARPA-E HISTORY

In 2005, leaders from both parties in Congress asked the National Academies to identify concrete steps that federal policymakers could take to bolster U.S. competitiveness in science and technology to help the U.S. prosper and stay secure in the 21st century. The National Academies recommended that Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy (DOE). In 2007, Congress passed, and President Bush signed into law, the America COMPETES Act, establishing ARPA-E. In 2009, Congress appropriated and President Obama allocated the new agency's first \$400 million in funding.

ARPA-E is modeled after the successful Defense Advanced Research Projects Agency (DARPA) in the Department of Defense (DoD), the agency credited with such innovations as GPS, the stealth fighter, and computer networking.

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“Pound for pound, dollar for dollar, it's hard to find a more effective thing government has done than ARPA-E.”

– FedEx Founder, chairman, president, and CEO Fred Smith

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### ARPA-E'S UNIQUE PROCESS

For ARPA-E, ultimate success is moving disruptive energy innovations out of the lab and into the market. ARPA-E's goal is always to best position a project so partners are likely to commit to next-stage development once ARPA-E's investment period is over.

ARPA-E advances its early-stage technologies to the market with four measurable, results-oriented handoff strategies:

- **Strategic partnerships** with private companies that can license, acquire, and buy technologies help project teams advance along a clear path to market after their time with ARPA-E.
- **New company formation**, which takes place when ARPA-E project teams at labs or universities “spin out” their work, is a way to facilitate and expedite the commercialization process for technologies.
- **Public development** from other parts of the government, including the DoD and other agencies in DOE, can further advance projects after ARPA-E's initial investment.
- **Follow-on investment** from private investors during or after an ARPA-E award can provide project teams with the strategic funding needed to move their technologies forward.

As of early 2014, 22 ARPA-E projects had attracted more than \$625 million in private-sector follow-on funding after ARPA-E's investment of approximately \$95 million. In addition, at least 24 ARPA-E project teams have formed new companies to advance their technologies, and more than 16 ARPA-E projects have partnered with other government agencies for further development.

## ARPA-E LEADERSHIP



**Dr. Ellen Williams** is the Director of ARPA-E, responsible for oversight of the Agency. Prior to joining ARPA-E, Dr. Williams served as the Senior Advisor to the Secretary of Energy and as the Chief Scientist for BP. She is currently on a leave of absence from the University of

Maryland where she has served as a Distinguished University Professor in the Department of Physics and the Institute for Physical Science and Technology since 2000. She founded the University of Maryland Materials Research Science and Engineering Center and served as its Director from 1996 through 2009. Dr. Williams received a B.S. in Chemistry from Michigan State University and a Ph.D. in Chemistry from the California Institute of Technology.



**Shane Kosinski** is ARPA-E's Deputy Director for Operations, responsible for oversight and operations of all ARPA-E programs. Previously, Kosinski served as the Acting Deputy Director for ARPA-E and led the effort to stand up the ARPA-E Program Office and develop the means

to efficiently and effectively obligate ARPA-E's Recovery Act funding. Kosinski previously worked in the DOE's Office of the Chief Financial Officer where he led several agency-wide efforts for the 2009 Presidential Transition and the American Recovery and Reinvestment Act. Kosinski entered the federal government through the competitive Presidential Management Fellows Program. He has a B.S. in Economics and B.A. in Biological Science from Binghamton University, and he earned a M.A. in Economics from the University at Albany.



**Dr. Cheryl Martin** is ARPA-E's Deputy Director for Commercialization. Dr. Martin leads ARPA-E's Technology-to-Market program, which helps breakthrough energy technologies succeed in the marketplace. Dr. Martin served as ARPA-E's Acting Director from November 2013 to

December 2014. Prior to joining ARPA-E, Dr. Martin was an Executive in Residence with Kleiner Perkins Caufield and Byers, a venture capital firm based in Menlo Park, California. She also spent 20 years with Rohm and Haas Company where she held various research, marketing, and leadership roles. She earned a B.A. degree in chemistry from the College of the Holy Cross and a Ph.D. in Organic Chemistry from the Massachusetts Institute of Technology (MIT).



**Dr. Eric A. Rohlfing** is ARPA-E's Deputy Director for Technology, responsible for oversight of all technology issues relating to ARPA-E's programs. He joined ARPA-E from DOE's Office of Science, where he most recently served as Director of the Chemical Sciences, Geosciences, and

Biosciences Division in the Office of Basic Energy Sciences (BES). Dr. Rohlfing also held postdoctoral appointments at Exxon Research and Engineering Company and Los Alamos National Laboratory. He is the author of approximately 50 peer-reviewed articles and holds membership in the American Chemical Society and the American Physical Society. Dr. Rohlfing received a B.S. degree in Chemistry from the University of Virginia and a Ph.D. in Physical Chemistry from Princeton University.

## THE ARPA-E ENERGY INNOVATION SUMMIT

ARPA-E hosts the premier U.S. energy technology event: the annual ARPA-E Energy Innovation Summit. The Summit brings together thought leaders from academia, business, and government to discuss cutting-edge energy issues and facilitate relationships to help move technologies into the marketplace. In 2014, the Summit had over 2,100 attendees representing a mix of research institutions and universities, investment firms, government agencies, and small and large businesses. Previous Summit keynote speakers have included former President Bill Clinton, Microsoft Chairman Bill Gates, and Tesla CEO Elon Musk. The 2015 Summit will be held February 9-11 at the Gaylord Convention Center in National Harbor, Maryland. Additional information and registration details can be found at [www.arpae-summit.com/](http://www.arpae-summit.com/).

### CONTACT US

For additional information on ARPA-E, please visit our website, [arpa-e.energy.gov](http://arpa-e.energy.gov).

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