



Department of Energy

Advanced Research Projects Agency – Energy (ARPA-E)

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Research Opportunities with the DOE for HBCUs

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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
- Secretary Chu (then Director of Berkeley National lab) on committee

America COMPETES Act, 2007

- Authorizes the establishment of ARPA-E



American Recovery and Reinvestment Act of 2009 (Recovery Act)

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



Background on ARPA-E

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”

Means

- “Identifying and promoting” [but not itself making] “revolutionary advances in fundamental sciences”
- “Translating scientific discoveries and cutting edge inventions into technological innovations”
- “Accelerating transformational technological advances in areas that industry by itself is not likely to undertake...”
 - Authority for: testing and evaluation, demonstration, mfg. technology, tech transfer

Key Takeaways

- Creates a new organization within DOE, reporting directly to the Secretary
- Hiring and management unrestricted by civil service laws - very broad authority
- Lean, flat organization (70-120 program managers)
- Use of existing DOE authorities, including “Other Transactions Authority” (OTA)
- Can engage universities, industry, and when in consortia with others, FFRDCs

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National Energy Strategy

ARPA-E is part of the President’s national energy strategy:

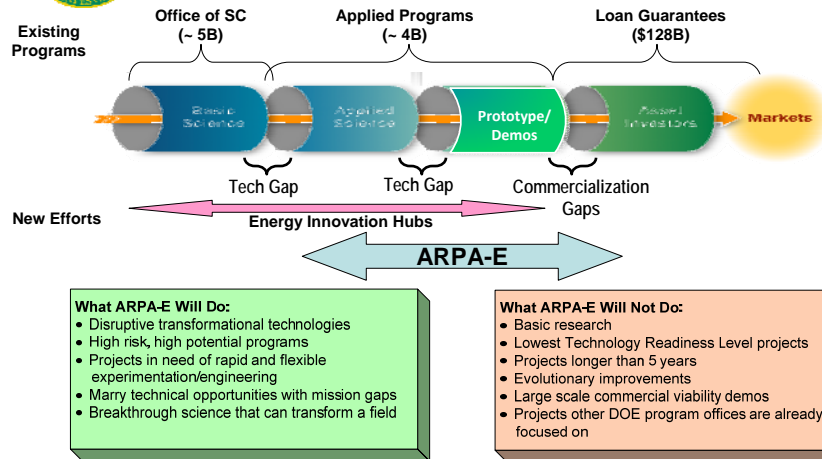
- **Breaking Dependence on Oil**
 - Promote the next generation of cars and trucks and the fuels they run on
- **Producing More Energy at Home**
 - Enhance U.S. energy supplies through responsible development of domestic renewable energy, fossil fuels, advanced biofuels and nuclear energy.
- **Promoting Energy Efficiency**
 - Promote investments in the transportation, electricity, industrial, building and agricultural sectors that reduce energy bills.
- **Closing the Carbon Loophole**
 - By stemming carbon pollution through a market-based cap, we can address in a systematic way all the energy challenges that we face: curbing our dependence on foreign oil, reducing our use of fossil fuels, and promoting new industries right here in America.
- **Promoting U.S. Competitiveness**
 - Ensure a level playing field for domestic manufacturing and secure significant actions to combat climate change by our trading partners.

(http://www.whitehouse.gov/issues/energy_and_environment/)

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Filling the Gaps

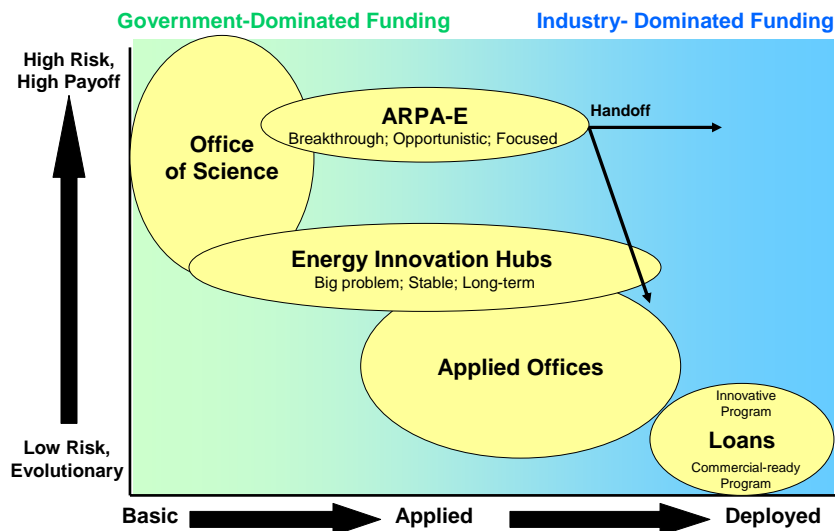


ARPA-E can move across the energy innovation pipeline depending on the needs of the technology

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Role in Innovation Pipeline



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Connections to Other DOE Programs

- **Office of Science**
 - SC undertakes basic science, and works with ARPA-E when a technology is ready for the next stage of rapid experimentation/engineering
 - ARPA-E can help move SC technologies toward deployment
- **Applied Programs (Fossil, Energy Efficiency Renewable Energy, etc.)**
 - ARPA-E will be flexible to accelerate high potential technologies (5 year window)
 - Applied programs can pick up technologies from ARPA-E that are ready for demonstrations and deployment
- **National Labs (FFRDCs)**
 - Labs can compete for ARPA-E funding as part of the consortia
 - ARPA-E can harvest high potential technologies from the labs
- **Energy Innovation Hubs**
 - ARPA-E can harvest high potential technologies from the Hubs
 - Hubs can pull ideas from ARPA-E to address focus areas
 - ARPA-E may fund alternative approaches in the Hubs' focus areas
- **All DOE components can collaborate with ARPA-E**
 - Programs will help ARPA-E design focus areas

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ARPA-E's First Funding Opportunity

- **Initial Funding Opportunity**
 - Released April, 27, 2009, up to \$150M
 - Broad on energy application and technologies; narrowly focused on transformational R&D
 - Focused on applicants who already have a relatively well-formed R&D plan for a transformational concept or new technology that can make a significant contribution
- **Response**
 - Concept Papers were due June 10, ~3,500 received
- **Next Steps**
 - Working with outside reviewers for technical analysis of each concept paper
 - Program Managers will use make final recommendations using technical analysis and other selection factors
 - Feedback to applicants by the end of July, full application due 31 days later
 - Funding awardees early to mid fall

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Future ARPA-E Opportunities

- Additional ARPA-E Recovery Funding Opportunities Announcements (FOA) in the near future
- Recruiting high potential Program Managers
 - Technically outstanding and entrepreneurial
 - 3 year appointment, will consider IPAs
- For more information:
 - <http://arpa-e.energy.gov/>
 - ARPA-E@hq.doe.gov