



DEPARTMENT OF ENERGY

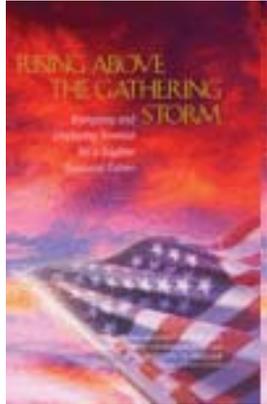
**ADVANCED RESEARCH
PROJECTS
AGENCY – ENERGY
(ARPA-E)**

Thermoelectric Applications Workshop

Sept. 29, 2009



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

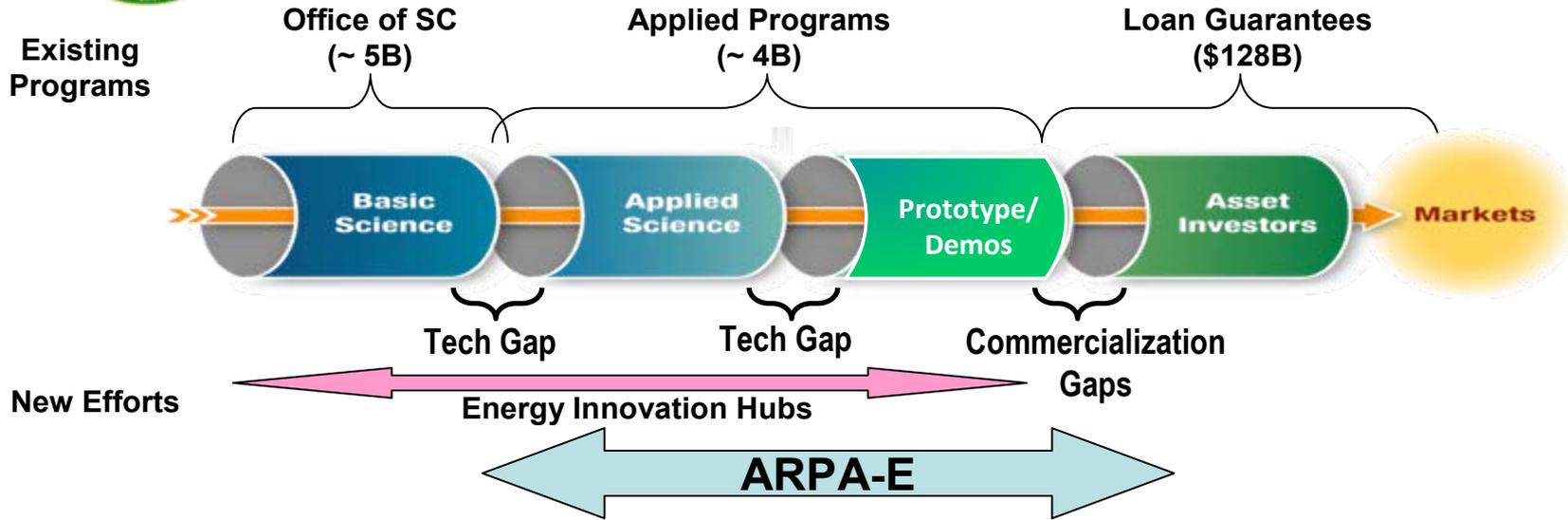
- To “enhance the economic and energy security of the US” through:
 - “Reduction in energy imports”
 - “Improvement in energy efficiency”
 - “Reduction in energy-related emissions, including greenhouse gasses”
- To “ensure” US “technological lead in developing and deploying advanced energy technologies”

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



FILLING THE GAPS



What ARPA-E Will Do:

- Disruptive transformational technologies
- High risk, high potential programs
- Projects in need of rapid and flexible experimentation/engineering
- Marry technical opportunities with mission gaps
- Breakthrough science that can transform a field

What ARPA-E Will Not Do:

- Basic research
- Lowest Technology Readiness Level projects
- Projects longer than 5 years
- Evolutionary improvements
- Large scale commercial viability demos
- Projects other DOE program offices are already focused on

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



ARPA-E'S FIRST FUNDING OPPORTUNITY

- **Initial Funding Opportunity**
 - Released April, 27, 2009, up to \$150M
 - Broad on energy application and technologies; 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 to mission areas
- **Response**
 - Concept Papers were due June 10, ~3,700 received
 - Full proposals requested from small fraction of concept papers
 - Over 500 reviewers participated in concept paper and full proposal review, conducting nearly 10,000 individual reviews
 - Announcement of awardees in mid fall



FUTURE ARPA-E OPPORTUNITIES

- RFI request for public input on programmatic areas and opportunities for transformational impact on mission areas.
 - Initial input recently closed – Sept 25th.
- Workshops to be held on topical opportunities to inform future Funding Opportunity Announcements (FOA)s
 - Grid scale storage – Oct 4th in Seattle
- Additional ARPA-E Recovery Funding Opportunities Announcements (FOA) in the near future



ARPA-E OPPORTUNITIES

- Dr. Arun Majumdar, from UC Berkeley and LBL, nominated by President Obama as ARPA-E director on Sept. 18th
- Recruiting high potential Program Managers
 - Technically outstanding and entrepreneurial
 - 3 year appointment, will consider IPAs
 - Details posted on ARPA-E website
- For more information:
 - <http://arpa-e.energy.gov/>
 - ARPA-E@hq.doe.gov