

FEDERAL GRANT OPPORTUNITIES

updated 06/05/09

Open grants & deadlines:

- **Advanced Research Projects Agency – Energy (ARPA-E)** *(May 26, June 10 – extended)*
- **Industrial Energy Efficiency Grand Challenge** *(June 15, July 14)*
- **Wind Energy Consortia between Institutions of Higher Learning & Industry (Wind & Hydropower Technologies Program)** *(June 19, July 29)*
- **Deployment of Combined Heat & Power (CHP) Systems, District Energy Systems, Waste Energy Recovery Systems, & Efficient Industrial Equipment** *(July 14)*
- **Geothermal Technologies Program: Ground Source Heat Pumps** *(July 16 & August 6)*
- **Enhanced Geothermal Systems (EGS) Component Research & Development Analysis** *(July 17)*
- **Energy Efficient Information & Communication Technology** *(July 21)*
- **Solar Market Transformation – Solar Workforce Development** *(July 30)*
- **High Penetration Solar Deployment** *(July 30)*
- **Enhanced Geothermal Systems (EGS) Demonstration** *(July 30)*

Advanced Research Projects Agency – Energy (ARPA-E)

FOA # DE-FOA-0000065

- Cover sheet submissions due May 26
- Concept papers due June 10 (extended from June 2)
- \$150 million available
- 20% cost share required
- 36 month period of performance
- Any capable R&D entity is eligible
- ARPA-E is a new organization within Department of Energy that will foster research and development of transformational energy-related technologies
- Money will fund scientists and technologists to take immature technology that promises to make a large impact on ARPA-E Mission Areas and develop it
- ARPA-E Mission Areas:
 - To enhance the economic and energy security of U.S. through development of technologies that result in:
 - Reductions of energy imports
 - Reductions of energy-related emissions, including greenhouse gases
 - Improvement in energy efficiency of all economic sectors
 - To ensure U.S. maintains technological lead in developing and deploying advanced energy technologies

Industrial Energy Efficiency Grand Challenge

FOA # DE-FOA-0000113

- Letter of intent due June 15, 2009
- Application due date: July 14, 2009
- \$5 million available in FY 2009; \$10 million available in FY 2010
- \$100,000 floor; \$300,000 ceiling
- Cost share no less than 20% of total Concept Definition study cost
- 50 expected awards
- Duration: 1 year
- See <http://www.fedconnect.net/> for additional information
- Eligible applicants (*note: teaming strongly encouraged*): large and small companies, academia, trade organizations, research organizations
- Purpose: to fund cost-shared development of transformational industrial processes and technologies that reduce the energy intensity (million Btus per unit system output) or greenhouse gas emissions (carbon equivalent) of the system by 25% while providing a return on investment of 10% or more
- Goal: to cost-effectively improve energy efficiency of U.S. economy
- FOA seeks Concept Definition (Stage 2) projects. Per DOE, concept definition involves early stage research needed to explore and define technical concepts and may include laboratory scale experiments, exploration of fundamental science concepts associated with technology, data generation, and analysis
- Project should indicate how technology will eventually fit into commercial markets

- *Topic Area 1: Next Generation Manufacturing Concepts*
 - Entirely new manufacturing concepts to potentially replace conventional manufacturing processes
 - Study will focus on specific, promising technologies that offer the potential for major energy, carbon, and economic benefits

- *Topic Area 2: Energy Intensive Processes*
 - Must address specific technology areas that are expected to generate large energy-saving benefits
 - 4 technology areas expected to generate large energy-saving benefits
 1. Reactions and separations
 2. High temperature processing
 3. Waste heat minimization and recovery
 4. Sustainable manufacturing

- *Topic Area 3: Advanced Materials*
 - Study to focus on specific, promising industrial materials technologies that offer potential for major energy, carbon, and economic benefits in two areas
 1. Thermal and degradation resistant materials
 2. Materials for energy systems

- *Topic Area 4: Industrial Greenhouse Gas Emissions Reduction*
 - Transformational technologies that address carbon intensity reductions and absolute carbon reductions

ARRA – Wind Energy Consortia between Institutions of Higher Learning & Industry (Wind and Hydropower Technologies Program)

FOA # DE-FOA-0000090

- Letter of intent due June 19, 2009
- Application due July 29, 2009
- Mission: “Responsible stewardship of national resources to increase the development and deployment of reliable, affordable, and environmentally sustainable wind and water power and realize the benefits of domestic renewable energy production”
- \$24 million available; \$12 million available for 1st year of funding
- \$8 million floor; \$12 million ceiling
- 10% cost share required
- 2 year period of performance
- Eligible applicants: Consortia led by institution of higher learning
 - Must include at least one four-year institution that has at least one engineering program accredited by ABET
 - Turbine location must have Power Class 3 at 50 meters and above wind resources and be within 50 miles of university
- Additional information at <http://www.fedconnect.net/>

- *2 areas, but not separate topics*
 1. Partnerships for Wind Research and Turbine Reliability
 - Universities in Power Class 3 at 50 meters or greater wind region with consistent wind resources throughout year are encouraged to team with industry partners to establish facilities/equipment and research agenda necessary to study major challenges facing the wind industry
 - Address 1 or more challenges in 20% Wind Energy by 2030 report and describe how wind hardware and software will be acquired
 - Research in turbine reliability is encouraged
 2. Wind Energy Research & Development
 - University research & development to advance material design, performance measurements, analytical models, and leveraging partnership with industry to improve power systems operations, maintenance or repair operations, wind turbine and/or component manufacturing, and interdisciplinary system integration
 - Universities encouraged to partner with wind industry in defining R&D agenda, curriculum, and intern partnership

ARRA – Deployment of Combined Heat & Power (CHP) Systems, District Energy Systems, Waste Energy Recovery Systems, & Efficient Industrial Equipment

Funding Opportunity Announcement # DE-FOA-0000044

- Application due date: July 14, 2009
- \$156 million available
- 5-30 awards
- Performance period of 1-3 years
- See <http://www.fedconnect.net/> for additional information
- Eligible applicants: All except federal agencies, federally-funded Research & Development Center contractors, and non-profit organizations as described in 501(c)(4) in Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995

- *Area 1: Combined Heat & Power*
 - \$1 million floor
 - Cost share of 50%, but as low as 25% could be considered
 - Generation of electric energy and heat in a single, integrated system, with thermal efficiency of 60% or more on higher-heating value basis
 - Grant for deployment of commercially-available CHP technologies
 - May include single or multiple installations at multiple sites
 - Should replace an inefficient existing system, with at least 25% efficiency increase when compared to the system being replaced, or system should not have existed previously

- *Area 2: District Energy Systems*
 - \$10 million floor
 - 1-4 expected awards
 - Cost share of 50%, but as low as 25% could be considered
 - District Energy Systems: systems providing thermal energy from renewable energy sources, thermal energy source, or highly efficient technology to more than 1 building or fixed energy consuming use from 1 or more thermal energy production facilities through pipes or other means to provide space heating or conditioning, hot water, steam, compression process energy
 - Grant for deployment of commercially available district energy system technologies
 - May include single or multiple installations at multiple sites
 - For new district energy systems where technology previously didn't exist or for the replacement of an inefficient system
 - Minimum 60% efficiency for system
 - If a replacement, should have at least 60% efficiency and represent a 25% efficiency increase compared to the replaced systems

- *Area 3: Waste Energy Recovery*
 - \$500,000 floor
 - 5-30 expected awards
 - Cost share of 50%, but as low as 25% could be considered
 - Waste Energy Recovery: Collection and reuse of energy from sources such as exhaust heat or flared gas from any industrial process: waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented; a pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat
 - For commercially available waste energy recovery technologies
 - May include single or multiple installations at multiple sites
 - Limited to new integrated waste energy systems where similar systems didn't exist or for the replacement of an inefficient existing system
 - New systems must have a minimum efficiency of 30%
 - Replacement systems must have a minimum of 30% efficiency, with a 25% increase over the replaced system

- *Area 4: Efficient Industrial Technology*
 - \$10 million floor
 - Expected 1-8 awards
 - Cost share: 50%
 - Any proven, commercially-available technology
 - Grant for the deployment of technologies and systems with a minimum efficiency improvement of 25% into industrial sector
 - Required bundling of multiple projects
 - Project sized to exceed \$10 million total project value

ARRA – Geothermal Technologies Program: Ground Source Heat Pumps (GHP)

Funding Opportunity Announcement # DE-FOA-0000116

- Notice of Intent due by July 16, 2009
- Application due date: August 6, 2009
- \$50 million available
- See <http://www.fedconnect.net/> for additional information
- Greater consideration will be given to applicants with more aggressive completion schedules, that create more jobs, that have a greater cost share, and show cooperation between industry, education, and/or Indian tribes
- Eligible applicants: State and local governments, higher education, non-profits, for-profit private entities, Indian Tribes, and Tribal Energy Resource Development organizations or groups

- *Area 1: Technology Demonstration Projects*
 - Ceiling of \$5 million
 - Minimum cost share of 50%
 - Up to 10 awards
 - Performance period of 5 years
 - For mid- to large-scale (50-100 tons heating and/or cooling) cost-shared technology demonstration projects that incorporate innovative business and financing strategies and/or technical approaches designed to overcome commercialization barriers that exist for GHPs
 - Includes data gathering and analysis

- *Area 2: Data Gathering & Analysis*
 - Ceiling of \$250,000
 - Minimum cost share of 20%
 - Up to 8 awards
 - Performance period of 1 year
 - For research papers related to system costs, performance, and installation techniques which will provide insights into lowest life-cycle cost applications for GHPs and assist customers in determining project feasibility
 - Should collaborate with industry, academia, and National Laboratory partners
 - Should model system performance and cost benefits for system design and applications for small residential to large heating systems

- *Area 3: National Certification Standard*
 - Ceiling of \$3 million
 - No cost share
 - Up to 3 awards
 - Performance period of 5 years
 - To create a national certification standard for GHP industry
 - Should increase consumer confidence, reduce potential for improperly-installed systems, and assure quality
 - Should solicit information from industry stakeholders, manufacturers, and trade organizations

ARRA – Enhanced Geothermal Systems Component Research & Development Analysis

FOA # DE-FOA-0000075

- Application due by July 17, 2009
- \$56 million available
- 20-30 expected awards
- Ceiling based on topic areas
- 1-3 year performance period
- Funds to find cost-effective creation, management, and utilization of EGS in reservoir environments
- Programs to establish critical energy, environmental, and economic baseline information needed in 23 target areas
- See <http://www.fedconnect.net/> for additional information

ARRA – Energy Efficient Information & Communication Technology

FOA # DE-FOA-0000107

- Application due: July 21, 2009
- Ceiling: \$10 million
- \$50 million available for new awards
- 5-15 expected awards
- 1-2 year performance period, depending on topic area
- Goal: To develop new technologies to dramatically improve energy efficiency in information, communications technology (ICT) with emphasis on new technologies that can be commercialized within next 3-5 years, and to demonstrate through field testing highly energy efficient, emerging technologies that are ready for or are in the initial state of commercial introduction
- See <http://www.fedconnect.net/> for additional information

- *Area 1: Concept Definition Studies for Energy Efficient Information and Communications Technology*
 - Technologies considered for Concept Definition Studies must be at Stage 2 as defined by *ITP Stage-Gate Innovation Management Guidelines*
 - Focus on specific, ICT technology that offers potential for major energy, carbon, and economic benefits
 - Must identify how technology will eventually fit into commercial markets
 - Will identify technical barriers and critical R&D paths for developing a commercial application or product that addresses a significant market opportunity
 - Study should address technology applicable to one of three categories
 1. Equipment and software
 2. Power supply chain
 3. Cooling

- *Area 2: Information & Communications Technologies R&D for Energy Efficiency*
 - Proposals in three areas:
 1. Equipment and software
 - Develop all-optical systems to increase energy efficiency
 - Advance ultra-low power circuits
 - Utilize ultra-efficient nano-electronic circuitry
 - Create hardened electronic equipment which can withstand temperature, humidity, and particulate conditions outside boundary of current generation electronics

2. Power Supply Chain (R&D proposals may address the following)
 - Research and develop high-efficiency power conversion circuits which optimize server-based data center and telecommunication equipment
 - Develop special purpose chips, multiphase clocking, lower-power chips
 - Research use of optical switching
 - R&D of superconducting components
 - Efficiency optimized control systems for power conversions
 3. Cooling – cooling of server-based telephone central offices and data centers can be made more energy efficient through:
 - Creating advanced component level cooling technologies
 - Develop mitigation techniques to reduce probability of failures associated with “free” cooling
 - Identify and create effective uses of low-quality waste heat generated
- R&D applicants must be organizational participants capable of and experienced in:
 4. Research
 5. Manufacturing the technology proposed
 6. Bringing technology to end user through sales and marketing
 7. Serving as an end user of technology proposed
 - R&D project to be funded for two years
- *Area 3 – Demonstration & Field Testing of Highly Energy Efficient & Emerging Technologies for Data Center or Telecommunications Use*
 - For field testing and independently validating the energy performance of emerging technologies that show potential to improve energy efficiency while not compromising data center or telecommunications reliability
 - Applicant must show plan for technologies to be demonstrated and the adoption of other best energy management practices to improve a data or telecommunication center’s energy intensity performance by more than 25% and have a data center infrastructure efficiency of 0.80 or greater
 - New and innovative technologies that are not widely commercial and improve parts of a data center or telecommunications facility to be considered:
 - IT optimization
 - Energy efficient electrical power distribution and supply
 - Energy efficient cooling schemes
 - Distributed generation or alternative power technologies

ARRA – Solar Market Transformation – Solar Workforce Development

FOA # DE-FOA-0000078

- Application due by July 30, 2009
- See <http://www.fedconnect.net/> for additional information

- *Topic 2 – Solar Installer Instructor Training*
 - Goal: to promote increase in the quality and availability of instruction relating to installation of PV and SHC systems
 - 2 categories of funding
 - Regional Resource & Training Providers
 - Provide training and professional development to instructors who are creating or improving existing PV or SHC installation training courses
 - Awardees will be entities that currently offer high quality training in solar installation process and possess excellent instructors and training facilities
 - Categories:
 - 1A – PV only
 - 1B – SHC only
 - 1C – PV & SHC
 - Administration of the National Consortium for Solar Installer Instructor Training
 - Primary task: to create and manage operations of National Consortium for solar installer instructor training and to coordinate activities between itself, the National Consortium, and the Regional Resource and Training Providers

ARRA – High Penetration Solar Deployment

FOA # DE-FOA-0000085

- Application due by July 30, 2009
- See <http://www.fedconnect.net/> for additional information
- Must have a team approach: members of PV suppliers, integrators, and research institutions is preferred; one electric utility participation is required in all topic areas
- Cost share required, depending on topic area

- *Topic Area 1: Improved Modeling Tools Development*
 - 12 month phases, project period over 3 years
 - Development of PV performance models and their integration into existing distribution system planning and engineering analysis
 - Improved ability to model effects of high penetration solar electricity generation on electric distribution system
 - Approaches for enhanced PV performance models and should encompass new inverter models to better understand the performance of inverter designs for load flow analysis under normal and fault conditions as well as for short circuit current calculations

- *Topic Area 2: Field Verification of High-Penetration Levels of PV into the Distribution Grid*
 - 3-5 12 month phases
 - Must address modeling and approaches for field testing and validation of high-penetration levels of PV on prototypical distribution circuits and on new circuit configurations for optimized technical and economic performance

- *Topic Area 3: Modular Power Architecture*
 - One phase, 1 year performance period
 - Demonstrate that low-cost, easy-to-install modular and scalable power architecture can be deployed throughout the U.S.

- *Topic Area 4: Demonstration of PV and Energy Storage for Smart Grids*
 - One phase, 12 month completion
 - Integrate PV and energy storage into Advanced Metering Infrastructure (AMI) pilot programs

Enhanced Geothermal Systems (EGS) Demonstration

FOA # DE-FOA-0000092

- Application due by July 30, 2009
- \$90 million available
- \$25 million ceiling
- 10 expected awards
- 50% cost share, but cost share as low as 25% could be considered
- Eligible applicants: Institutions of higher educations, non-profits, for-profit entities, state and local governments, Indian Tribes
- Geothermal Technologies Program (GTP) will facilitate research, development, and demonstration to establish geothermal energy as a major contributor for electricity generation
- Seeking projects in a variety of geologic formations to quantitatively demonstrate and validate stimulation techniques that successfully sustain sufficient fluid flow and heat extraction for 5-7 years that produce up to 50 MWe per year per project site/geothermal reservoir
- Applicant must provide sufficient legal documentation to demonstrate legal surface and subsurface rights necessary for stimulation and heat mining; applicant must also include NEPA EF1
- See <http://www.fedconnect.net/> for additional information