FEDERAL GRANT OPPORTUNITIES

updated 4/9/10

new opportunities or changes highlighted

Open grants & deadlines:

- **FY 2009 Global Climate Change Mitigation Incentive Fund (GCCMIF)**
- **Federal Loan Guarantees for Projects that Employ Innovative Energy Efficiency, Renewable Energy, & Advanced Transmission & Distribution Technologies** *(September 14, 2009-August 24, 2010; November 13, 2009-December 31, 2010)*
- **Industrial Technologies Program Superior Energy Performance Program Administrator Technical Assistance** (March 19-May 6, 2010)
- **University Turbine Systems Research (UTSR) Program** (March 15-April 28)
- **CO2 Utilization** (March 6, April 20)
- **Nuclear Energy University Programs: Reactor Upgrades** (March 24-May 11)
- **Nuclear Energy University Programs: General Scientific Infrastructure Support** (March 24 – April 27)
- **Subsurface Biogeochemical Research** (March 24- April 29 Pre-application, July 15, 2010 Application)
- **Scientific Discovery through Advanced Computing: Advanced Simulation of Fusion Plasmas** (Pre-application Due (required): April 23; Final Application Due: May 20, 2010)
- **U.S. China Clean Energy Research Center (CERC)** (May 14, 2010)
- **Engineering Design of Advanced H2 – CO2 Membrane Separations** (May 17, 2010)
- **National Electric Sector Cyber Security Organization** (April 30, 2010)
- **Agile Delivery of Electrical Power Technology (ADEPT)** (Concept Paper - April 2, 2010, Final Application due Mid May)
- **Waste Heat from Vehicles** (May 21, 2010-Letter of Intent, June 22, 2010- Final Due)

FY 2009 Global Climate Change Mitigation Incentive Fund (GCCMIF)

- Applications due: Rolling basis
- Visit http://www.eda.gov/ for additional information and for any programming changes
- GCCMIF established to strengthen the link between economic development and environmental quality
- GCCMIF finances projects that foster economic development by advancing the green economy in distressed communities
- Applications are competitive, based on the Economic Development Association's standard eligibility and distress criteria, investment policy guidelines, and funding priority considerations
- Projects must achieve the same job and capital investment outcomes as traditional EDA investments
- Project must be one of the following:
    - Renewable energy (wind, solar, biomass, and geothermal)
    - Energy efficiency
    - Reuse/Recycling/Restoration (reuse of a given product or production of a new or innovative product for recyclable materials; also includes ecosystem restoration)
    - Green building (new construction or renovation certified by USGBC in LEED or comparable certificate program
- Must result with outputs:
    - Development and/or manufacture of green end-product that furthers or contributes to sustainability and/or environmental quality (activity, item, plan, or program)
    - Greening of an existing function or process (investments that result in green enhancements to the resource, energy, water, and/or waste efficiency of an existing function or process)
    - Creation or renovation of a green building

ARRA - Federal Loan Guarantees for Projects that Employ Innovative Energy Efficiency, Renewable Energy, & Advanced Transmission & Distribution Technologies

Funding Opportunity Announcement (FOA) # DE-FOA-0000140

- Application due dates:
    - Parts I & II submission dates depend on rounds
    - Part I: September 14, 2009 – August 24, 2010
    - Part II: November 13, 2009 – December 31, 2010
- Submission of applications for loan guarantees under Title XVII of the Energy Policy Act of 2005 in support of debt financing for projects in the U.S. that employ energy efficiency, renewable energy, and advanced transmission and distribution technologies that constitute new or significantly improved technologies that are not a commercial technology
- DOE will make up to $8.5 billion in loan guarantee authority available
- Despite the due dates, the solicitation will remain open until the aggregate $8.5 billion in loan guarantee authority is fully obligated
- Visit http://www.fedconnect.net/ to view the full FOA, and consult http://www.energy.gov/, http://www.whitehouse.gov/omb/ or http://www.recovery.gov/ for additional information

- Only 3 categories of projects that begin construction no later than 9/30/11 are eligible under Section 1705 of Title XVII and may have their credit subsidy costs covered by appropriated funds under the Recovery Act
    1. Renewable energy systems, including incremental hydropower, that generate electricity or thermal energy and facilities that manufacture related components
    2. Electric power transmission system projects, including upgrading projects
    3. Leading edge biofuel projects that will use technologies performing at the pilot or demonstration scale that the Secretary determines are likely to become commercial technologies and will produce transportation fuels that substantially reduce life-cycle greenhouse gas emissions compared to other transportation fuels
- Eligible projects in categories listed below and which fall within 1 of the 2 distinct project types described:
    1. Alternative fuel vehicles
    2. Biomass
    3. Efficient electricity transmission, distribution, and storage
    4. Energy efficient building technologies and applications
    5. Geothermal
    6. Hydrogen and fuel cell technologies
    7. Energy efficiency projects
    8. Solar
    9. Wind & hydropower

- Technology categories for 1705 eligible projects are limited to renewable energy systems projects, electric power transmission systems projects, and leading edge biofuels projects
- Per DOE, eligible projects under categories 1, 4, 6, & 7 generally do not constitute 1705 eligible projects for which the credit subsidy costs may be paid for out of funds appropriated under the Recovery Act to pay for the costs of loan guarantee issued under the Section 1705 program
- Project types: manufacturing or stand-alone; see FOA for list of primary goals and objectives for these project types

Industrial Technologies Program Superior Energy Performance Program Administrator Technical Assistance

DE-FOA-0000246

- Closing Date: May 6, 2010
- Visit www.grants.gov for more information
- 1 to be Awarded
- Estimated Funding: $370,000 to $5,000,000 over 5 years; subject to availability of funds
- Ceiling: $5,000,000
- Floor: $370,000
- Eligible Applicants: State Governments, County Governments, City of Township Governments, Special District Governments, Independent School Districts, Public and State controlled institutions of higher education, Native American Tribal Governments (Federally Recognized), Native American Tribal Organizations (other than Federally recognized tribal governments), Nonprofits having 501(c)(3) status with IRS other than institutions of higher education, Private Institutions of Higher Education, Individuals, For Profit Organizations other than small businesses, Small Businesses
- Project Income/Cost Sharing
    - Recipient is required to apply all fees collected from plants applying for certification and any other related fees collected pursuant to the SEP Certification program toward project costs.
    - DOE may continue to provide limited funding after the program achieves sustainability to continue to cover SEP program reporting requirements to members of the U.S. CEEM and DOE during the performance period of the award.
    - The applicant should address projected income and strategy for achieving sustainability in the business model submitted as part of the application.
    - The applicant should include projected income in budget documents.
    - Cost share in addition to certification and related fees is also encouraged. Recipient cost share must come from non-federal sources.
- This Funding Opportunity Announcement is to fund an administrator and technical assistance provider for the new American National Standards Institute- accredited Superior Energy Performance industrial plant/facility certification program.
    - The new American National Standards Institute- accredited Superior Energy Performance (SEP) industrial plant/facility certification program will serve as a roadmap for achieving continual improvement in energy efficiency at an industrial facility.
- The Department of Energy will fund one awarded of this FOA as the Superior Energy Performance Program Administrator (SEP-PA).
- The SEP-PA will develop, launch and operate the SEP Certification Program in cooperation with the U.S. Council for Energy-Efficient Manufacturing.

University Turbine Systems Research (UTSR) Program

DE-FOA-0000248

- Closing Date: April 28, 2010
- Expected Awards: 5 - Science and Technology and other Research and Development
- Estimated Total Program Funding: $2,500,000
- Eligible Applicants: Public and State controlled institutions of higher education, and Private institutions of higher education.
- Cost Sharing: The recipient will be required to cost share a minimum of 20% of the total project costs (i.e. total project costs = DOE Share + FFRDC Costs + Recipient Cost Share).
- Visit http://www.netl.doe.gov/technologies/coalpower/turbines for more information
- Key Issues
    - The Advanced Turbine Program addresses key technologies needed to enable the development of advanced gas turbines and gas turbine-based systems that will operate cleanly and efficiently when fueled with coal-derived synthesis gas and hydrogen fuels.
    - Advanced Turbine Program is to provide high efficiency, near-zero emissions and lower cost turbines for coal-based stationary power systems.
    - All projects selected from this FOA are expected to have no significant environmental impacts due to both the scale and type of research activities requested.
    - Applications which propose activities that would require construction outside of a lab-scale or bench-scale setting or significant field work will be declined.
    - To conduct research in understanding combustion phenomena, innovative cooling techniques to maintain integrity of gas turbine components, and to develop high temperature materials as it applies to gas turbines using coal syngas and high hydrogen content (HHC) fuels.
- Technical Issues (include but not limited to)
    - A Increasing mass flow with low BTU fuels
    - Unique combustion properties of hydrogen
    - Dealing with high moisture contents
    - Reducing cooling losses at elevated firing temperature
    - Improving aerodynamics/heat transfer predictions
    - Developing advanced 3-D CFD modeling
    - High temperature and low thermal conductivity thermal barrier coatings (TBCs)
    - Environmental issues with syngas/HHC fuels
    - Improved capability to resist corrosion and oxidation
- Areas of Interest
    - Combustion
    - Aero/Heat Transfer
    - Turbine Materials

CO2 Utilization

DE-FOA-0000253

- Closing Date: April 20, 2010
- Registration Requirements
  - Applicants must obtain a DUNS number. http://fedgov.dnb.com/webform
  - Applicants must register with the CCR. http://www.ccr.gov/
  - Applicants must register with Grants.gov. http://grants.gov/
  - Applicants must register with FedConnect to submit questions. www.fedconnect.net
- For additional information go to www.grants.gov or call 1-800-518-4726
- Estimated Funding: $5.6 million awarded to 6-8 applicants
- Cost Sharing: The Recipient will be required to cost share a minimum of 20 % of the **total project costs** (**Total Project Costs** = DOE Share + FFRDC Costs + Recipient Cost Share).
- Period of Performance: DOE anticipates making awards with project periods of 24-36 months. Budget periods within each project generally do not exceed 12 months in duration.
- Eligible Applicants: All types of entities are eligible to apply, except other Federal agencies, FFRDC Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.
- Objectives
  - To secure applications that will support the Sequestration Programs efforts to develop technologies that utilize CO_2 as a reactant to produce useful products at a net cost of less than $10 per metric ton.
  - The Carbon Sequestration Program involves three key elements for technology development: Core R&D, Infrastructure and Global Collaborations.
  - More information: http://www.netl.doe.gov/technologies/carbon_seq/index.html
- The selected projects will support three of DOE's Strategic Goals:
  - Energy Security – Technologies and approaches developed for beneficial use of CO_2 will offer opportunities to mitigate Green House Gas emissions while developing an industry that could convert the CO_2 to either a fuel or other useable products, reducing the dependence on foreign sources of oil and prolonging the domestic supplies in the United States.
  - Scientific Discovery and Innovation – These projects will seek to develop technologies that enhance our understanding of the chemical and physical processes of conversion of CO_2 to useable products and absorption of CO_2 through indirect sinks.
  - Environmental Responsibility – The projects will facilitate opportunities to utilize or mitigate CO_2 emissions from the fossil fuel based electricity industry as well as other industrial sources that emit CO_2.
- Special Area of Interest: CO2 Conversion to Commodity
  - Current commercial utilization of CO_2 is small compared to total CO_2 emissions, and is often emitted to the atmosphere after use.
  - Applications which propose activities that would require construction or significant field work will be declined.
  - CO_2 mineralization based on methods to enhance natural weathering processes is not of interest for this FOA and this type of application will be declined unless an economically useful product is the result.

Nuclear Energy University Programs – Reactor Upgrades

DE-FOA-0000322

- Closing Date May 11, 2010
- Estimated Funding: $7,000,000 ($3 million is set aside for major reactor infrastructure upgrades and $4 million is set aside for minor reactor infrastructure upgrades)
- Expected Number of Grants:
    - 2 for major reactor upgrades up to $1,500,000
    - 20 for minor reactor upgrades up to a base amount of $150,000 with an additional $50,000 to be made available if the applying university provides a matching amount, for a maximum total of $200,000 in government funding.
- Eligible Applicants: Eligibility for award is limited to U.S. colleges and universities with research reactors. Minority institutions such as historically black colleges and universities and/or minority serving institutions are encouraged to apply.
- Cost Matching: Cost matching is applicable only to minor reactor upgrades for grants under this FOA. Cost matching is encouraged but not required, with an additional $50,000 available if the applying university provides a matching amount.
- For additional information go to www.grants.gov
- Objectives
    - Seeking proposals from U.S. universities and colleges with operating research reactors.
    - The purpose of the program is to upgrade and improve the U.S. university nuclear research and training reactors and to contribute to strengthening the academic community's nuclear engineering infrastructure.
    - Due to funding availability, responses to this FOA are not to include hiring or other human capital costs, or the operation and maintenance of equipment.
    - Institution-specific costs, not specific to the equipment or instrumentation, are the responsibility of the university.

Nuclear Energy University Programs: General Scientific Infrastructure Support

DE-FOA-0000321

- Closing Date April 27, 2010
- Estimated Funding: $7,500,000
- Expected Number of Grants:
    - Approximately 25 Grants with varying amounts depending on project size and available funds with no minimum.
    - Anticipates the awards will consist of up to a $250,000 base with and addition $50,000 for installation or supportive facility upgrades if University provides matching funds.
- Eligible Applicants: award is limited to U.S. universities, colleges, community colleges, and trade schools. Minority institutions such as historically black colleges and universities and/or minority serving institutions are encouraged to apply.
- Cost Matching: Cost matching is encouraged but not required with an additional $50,000 available if the applying university provides a matching amount. The matching funds are to be used for installation and facility upgrades that are *directly* supportive of the equipment purchased through the award.
- For additional information go to www.grants.gov
- Objectives:
    - Seeking proposals for equipment and instrumentation infrastructure to support nuclear energy-related engineering and science teaching and research laboratories.
    - The infrastructure requested by a university should be individual, discrete, and definable items or capabilities that will support, maintain, or enhance the university's or college's capacity to attract and teach high quality students interested in nuclear energy-related studies; build the university's or college's NS&E basic research or education capabilities; or enhance the university's or college's capability to perform R&D that is relevant to DOE-NE's R&D mission.
    - All equipment and instrumentation and associated facility upgrades requests that support nuclear energy related R&D or education are welcomed.
    - Requests made under this FOA may include the purchase, set-up, and vendor installation costs for equipment and instrumentation, as well as building modifications that immediately support the installation and operation of the equipment given the university matches partial funding.
    - Due to funding availability, responses to this FOA are not to include hiring or other human capital costs, or the operation and maintenance of equipment.
    - Institution-specific costs, not specific to the equipment or instrumentation, are the responsibility of the university.

Subsurface Biogeochemical Research

DE-FOA-0000311

- Pre-application Due Date: April 29, 2010
- Application Due Date: July 15, 2010
- For additional information go to http://www.grants.gov/GetStarted
- Registration Requirements
    - Applicants must obtain a DUNS number. http://fedgov.dnb.com/webform
    - Applicants must register with the CCR. http://www.ccr.gov/
    - Register with the credential provider
    - Applicants must register with Grants.gov. http://www.grants.gov/GetStarted
- Estimated Funding: $5,000,000 for 15-20 Awards
    - Annual budgets for single investigator projects may not exceed $250,000/year total costs.
    - Annual budgets for multi investigator projects may not exceed $450,000/year total costs.
    - For an Exploratory Application (narrative limited to 10 pages), applicants may request project support for up to two years with a total budget of up to $150,000.
- Eligible Applicants: All types of entities are eligible to apply except Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.
- Objectives
    - Applications for research grants for Subsurface Biogeochemical Research (SBR), which is within the Climate and Environmental Sciences Division (CESD) in the Office of Biological and Environmental Research (BER).
    - SBR seeks to advance fundamental science towards solutions to key DOE environmental challenges including carbon sequestration, contamination from past nuclear weapons production and a scientific basis for the long term stewardship of nuclear waste disposal.
    - Basic research to investigate the key processes affecting the mobility of subsurface contaminants found at DOE sites.
    - Support innovative, fundamental research investigating the coupled physical, chemical, and biological processes affecting the transport of subsurface contaminants at DOE sites.
    - Applications should identify critical knowledge gaps and address hypothesis-driven research to better understand the significant physical, chemical, and biological processes influencing the form and mobility of DOE contaminants in the subsurface.
    - Research projects should aim to provide the scientific basis for the long term stewardship of contaminated sites across the DOE complex and the development of new remediation concepts and strategies.
    - Applications must address the applicability of the proposed research to understanding DOE relevant, field-scale, contaminant transport processes by including an explanation of how the proposed effort will support the accomplishment of the BER long term performance measure.

Scientific Discovery through Advanced Computing: Advanced Simulation of Fusion Plasmas

DE-FOA-0000316

- Pre-application Due (required): April 23, 2010
- Final Application Due: May 20, 2010
- Grants must be submitted through www.grants.gov
    - Applicant must obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov
    - To complete this process you should allow at least 21 days.
- Estimated Funding: $5,400,000 to an estimated 5 recipients
- Award Ceiling: $1,100,000
- Award Floor: $450,000
- Eligibility: Unrestricted except to other Federal Agencies
- No Cost Sharing Requirement
- Objectives
    - Receiving Cooperative Agreement applications from interdisciplinary teams for the development and application of high performance scientific simulation codes under the SC Scientific Discovery through Advanced Computing (SciDAC) program.
    - The FES SciDAC portfolio focuses on the creation of high physics fidelity simulation codes that can advance scientific discovery in fusion plasma science and contribute to the FES goal of developing a validated predictive capability for magnetically confined plasmas by fully exploiting the emerging capabilities of petascale and beyond computing resources and associated progress in software and algorithm development.
    - The specific areas of interest under this Funding Opportunity are:
        1. Electromagnetic waves in plasmas
        2. Magnetohydrodynamics
        3. Plasma turbulence and transport, and
        4. Energetic particles in plasmas

U.S. China Clean Energy Research Center (CERC)

DE-FOA-0000324

- Application Due Date: May 14, 2010
- Estimated Funding: For each award, approximately $2,500,000 is expected to be available in the first year of operation, and an additional $10,000,000 is expected to be available for each award in years FY 2012 through FY 2015 (i.e., $2,500,000 per award per year), subject to annual Congressional appropriations
- Expected Number of Awards: 3
- Anticipated award size for projects under each Program/Topic Area in this announcement is:
  1. Building energy efficiency $12,500,000
  2. Clean coal including carbon capture and storage $12,500,000
  3. Clean vehicles $12,500,000
- Performance Period: 5 years
- Eligible Applicants: All types of domestic entities, including DOE Federally Funded Research and Development Centers (FFRDC) contractors, are eligible to apply as prime applicants, with the exception of other Federal agencies, non-DOE FFRDC contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.
- Cost sharing: 50% is required. The cost share is based on the total allowable costs (i.e., the sum of the Government share, including FFRDC contractor costs if applicable, and the recipient share of allowable costs equals the total allowable cost of the project) and must come from non-Federal sources unless otherwise allowed by law. Cost sharing may be considered within the "other selection factors."
- Goals:
  - U.S. Department of Energy (DOE), Chinese Ministry of Science and Technology (MOST) and Chinese National Energy Administration (NEA) agreed to develop a U.S.-China Clean Energy Research Center (CERC).
  - This Center will facilitate joint research and development on clean energy by teams of scientists and engineers from the U.S. and China, as well as serve as a clearinghouse to help researchers in each country.
  - Priority topics to be addressed through CERC are:
    - BUILDING ENERGY EFFICIENCY: The objective is to contribute to dramatic improvements in the energy efficiency of buildings (commercial or residential) in the U.S. and China. Possible topics include: building heating and cooling, advanced lighting, advanced shells, daylighting designs, energy-efficient building materials, software for building design and operations, sensor and control networks, and ways to reduce the cost of building retrofits. Research on integrating renewable energy technologies such as building-integrated photovoltaics (BIPV), wind energy, ground source heat pumps, and biomass could also be explored.
    - CLEAN COAL INCLUDING CARBON CAPTURE AND STORAGE: The objective is to accelerate the understanding of key issues that face clean coal and carbon capture and storage. Possible topics include: geologic storage capacity and techniques for

estimation and verification; computer simulations of CCS, including, chemistries involved in geologic sequestration of CO2; CCS plant simulations; risk assessment methodologies; and revolutionary CO2 capture concepts

        - CLEAN VEHICLES: The objective is to contribute to dramatic improvements in technologies with the potential to reduce the dependence of vehicles on oil and/or improve vehicle fuel efficiency. Possible topics include: advanced systems integration and components such as waste heat recovery or regenerative braking, battery architecture, battery chemistries, vehicle aerodynamics, lightweighting of vehicles and advanced biofuels.
    - Awards will be made to consortia with the knowledge and experience to undertake first-rate collaborative research programs.
    - These consortia will leverage existing resources and physical infrastructure and will not require new "bricks and mortar" facilities.
    - To keep the focus on research and international collaboration, management and administrative expenses will be kept to a minimum.
    - These consortia will help bring together top talent from both countries and are expected to generate key technological advancement through genuine collaboration between U.S. and Chinese researchers.

Engineering Design of Advanced H2 – CO2 Membrane Separations

DE-FOA-0000215

- Application Due May 17, 2010
- Registration Requirements
  - Applicants must obtain a DUNS number. http://fedgov.dnb.com/webform
  - Applicants must register with the CCR. http://www.ccr.gov/
  - Applicants must register with Grants.gov. http://grants.gov/
  - Applicants must register with FedConnect to submit questions. www.fedconnect.net
- Estimated Funding: $20,000,000
  - Floor: None
  - Ceiling: Phase I: $2,000,000. Phase II and III: $10,000,000
- Anticipated Awards: 4
- Eligible Applicants: All Entities excluding Federal Agencies, FFRDC and Non Profit
- Cost Sharing: 20%
- Performance of Work in US: As a condition of award under this funding opportunity announcement, applicants must agree that at least 75% of the direct labor cost for the project (including subcontractor labor) will be incurred in the United States unless the applicant can demonstrate to the satisfaction of the DOE that the United States economic interest will be better served through a greater percentage of work performed outside the United States.
- Goals: To develop advanced energy technologies which will facilitate the use of our nation's abundant coal (coal-biomass) resources to produce, deliver, store, and utilize affordable hydrogen in an environmentally clean manner.
  - Research will focus on hydrogen separations technology, including advanced separation membranes (inorganic, metallic and both materials), that provide high purity hydrogen and/or offer a combination of hydrogen separation with low-cost removal of (Carbon Dioxide) CO_2 and other trace impurities from hydrogen-CO_2 mixtures.
  - Demonstrate the separation of hydrogen from coal (or coal-biomass) derived syngas via membranes at the pre-engineering/pilot scale.
  - Applications are sought for research, development and demonstration (RD&D) at the pre-engineering/pilot scale for innovative membrane materials, concepts and strategies which separate hydrogen from a coal (coal-biomass)-based syngas with performance that is sufficient to meet the DOE 2015 targets of flux, selectivity, cost and chemical and mechanical robustness.
  - At the End of Phase III DOE seeks a hydrogen separation membrane unit that has been demonstrated to perform to DOE 2015 targets under actual syngas conditions and a membrane and module design capable of producing a minimum of four tons per day of H_2

National Electric Sector Cyber Security Organization

DE-FOA-0000245

- Application Due April 30, 2010
- Registration Requirements
  - Applicants must obtain a DUNS number. http://fedgov.dnb.com/webform
  - Applicants must register with the CCR. http://www.ccr.gov/
  - Applicants must register with FedConnect to submit questions. www.fedconnect.net
- Estimated Funding: Single Ward of approximately $5,000,000 in Year 1, $3,000,000 in Year 2, and $2,000,000 in Year 3, is expected to be available under this announcement.
- Award Size: DOE anticipates that the total award will not exceed $16,250,000 (including Cost Share) for the 3-year period with an overall cost share requirement of 38 percent.
- Eligible Applicants: All types of domestic entities are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995. However, FFRDCs may participate as a subawardee.
- Cost Sharing: The minimum cost share requirement is as follows: Year 1 – 20%; Year 2 – 40%; Year 3 – 60%.
- Goals: To illustrate the expertise, capabilities, and experience of the applicant, in the electric-sector critical infrastructure, that will lead to the formation, governance and implementation of a National Electric Sector Cyber Security Organization.
  - This organization is envisioned as a partnership between the federal government and the electric-sector stakeholders to help protect the electric grid and enhance integration of smart grid technologies that are adequately protected against cyber attacks.
  - Meet the Nation's need for a reliable, efficient and resilient electric power grid, as well as improved accessibility to a variety of energy sources for generation.
  - Provide executive leadership to facilitate research, development and deployment priorities, identify and disseminate best cyber security practices; organize the collection, analysis, monitoring, and dissemination of infrastructure vulnerabilities and threats; and work cooperatively with DOE and other Federal agencies which will enhance cyber security of the electric grid including control and information technology (IT) systems.
- The objective of this FOA is to establish a National Electric Sector Cyber Security Organization that has the knowledge, capabilities, and experience to protect the electric grid and enhance integration of smart grid technologies that are adequately protected against cyber attacks
- This organization shall, at a minimum:
  - Strengthen the cyber security posture of the electric sector by establishing a broad–based public-private partnership for collaboration and cooperation;
  - Enhance electric infrastructure reliability and cyber security solutions development;
  - Provide a path for rapid, tangible response to national priorities;
  - Provide data analysis and forensics capabilities to assess cyber-related threats and events;
  - Assist in creating a framework to identify and prepare for immediate and future challenges to grid reliability;

- Institute the capability to share information, best practices, resources, and solutions to and from domestic and international electric sector participants; and
- Stimulate support and interaction with key electric sector suppliers and vendors.

Agile Delivery of Electrical Power Technology (ADEPT)

DE-FOA-0000288

- Concept Paper Due: April 2, 2010
- Submission Due: Mid May 2010
- Requirements
    - Register with ARPA-E through the ARPA-E eXCHANGE (please see Section IV.B. for details)
    - Obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number at http://fedgov.dnb.com/webform
    - Register with the Central Contractor Registry (CCR) at https://www.ccr.gov/
- Anticipated Individual Awards: Awards will be for the Government's share of the allowable project costs to be in the range of $500,000 to $10 million. Multiple awards are anticipated, but not required. The Government reserves the right for one, several, or no awards under this FOA.
- Types of Agreements that may be Awarded: Cooperative Agreement or Technology Investment Agreement (TIA)
- Cost Sharing Requirements: If an applicant is exclusively a university or other educational institution ("Educational Institution"), a cost share of at least 10% of the total allowable costs will be required. For consortia or teams consisting exclusively of Educational Institutions, cost share of at least 10% is required. If an applicant is not an Educational Institution ("Other Applicant"), a cost share of at least 20% of the total allowable costs will be required. For consortia or teams including one or more Other Applicants, cost share of at least 20% is required. For awards where ARPA-E determines that use of a TIA is appropriate -- when a standard cooperative agreement is not feasible or appropriate -- a cost share of at least 50% of the total allowable costs will be required to the maximum extent practicable. The Government share shall include any costs incurred by Federally Funded Research and Development Centers. Cost sharing beyond the required minimum amount is encouraged and may be considered during the selection process. Monetary cost share is preferred; however, in-kind cost share is permitted and will be considered.
- Period of Performance: Not to exceed 36 months
- Eligible Applicants: Any type of capable technology research and development entity. This includes, but is not limited to, for-profit entities, academic institutions, research foundations, not-for-profit entities, collaborations, and consortia. A Federally Funded Research and Development Center (FFRDC) may submit a proposal as a project lead entity only if the FFRDC is the lead for a consortium, collaboration, or other teaming arrangement. The FFRDC may not submit a proposal as a stand alone entity.
- Objectives: Focused on the development of advanced component technologies, converter architectures, and packaging and manufacturing processes with the potential to improve the performance and lower the cost of power converters and power management systems. 3 Categories
    - *Category 1* seeks to broaden the application space for *fully-integrated, chip-scale power converters* from mobile applications to applications including, but not limited to, dimmable SSL drivers, distributed micro-inverters, and computer power supplies.
    - *Category 2* seeks to broaden the application space for *package integrated power converters* by reducing the size and improving component and package performance enabling applications such as inverters for grid-tied photovoltaics and variable speed motors.

    - *Category 3* addresses *lightweight, solid-state, medium voltage* energy conversion for high power applications such as solid-state substations and wind turbine generators.
- Areas of Interest
    - Magnetic materials with high operating flux densities
    - Advanced circuit topologies and converter architectures that support higher reliability, lower costs, and/or miniaturization.
    - Advanced solid-state switch technologies to support miniaturization of power converters in all System Categories.
    - Advanced charge storage devices with power densities approaching electrolytic capacitors.

Building Energy Efficiency Through Innovative Thermodevices (BEETIT) DE-FOA-0000289

- Concept Paper submission deadline: April 2, 2010
- Full Application submission deadline: mid-May 2010
- Anticipated Individual Awards: Awards will be for the Government's share of the allowable project costs to be in the range of $500,000 to $10 million. Multiple awards are anticipated, but not required. The Government reserves the right for one, several, or no awards under this FOA.
- Types of Agreements that may be Awarded: Cooperative Agreement or Technology Investment Agreement (TIA)
- Cost Sharing Requirements: If an applicant is exclusively a university or other educational institution ("Educational Institution"), a cost share of at least 10% of the total allowable costs will be required. For consortia or teams consisting exclusively of Educational Institutions, cost share of at least 10% is required. If an applicant is not an Educational Institution ("Other Applicant"), a cost share of at least 20% of the total allowable costs will be required. For consortia or teams including one or more Other Applicants, cost share of at least 20% is required. For awards where ARPA-E determines that use of a TIA is appropriate -- when a standard cooperative agreement is not feasible or appropriate -- a cost share of at least 50% of the total allowable costs will be required to the maximum extent practicable. The Government share shall include any costs incurred by Federally Funded Research and Development Centers. Cost sharing beyond the required minimum amount is encouraged and may be considered during the selection process. Monetary cost share is preferred; however, in-kind cost share is permitted and will be considered.
- Period of Performance: Not to exceed 36 months
- Eligible Applicants: Any type of capable technology research and development entity. This includes, but is not limited to, for-profit entities, academic institutions, research foundations, not-for-profit entities, collaborations, and consortia. A Federally Funded Research and Development Center (FFRDC) may submit a proposal as a project lead entity only if the FFRDC is the lead for a consortium, collaboration, or other teaming arrangement. The FFRDC may not submit a proposal as a stand alone entity.
- Objectives: To develop energy efficient cooling technologies/air conditioners (AC) for buildings to reduce GHG from: (a) primary energy consumption due to space cooling; and (b) refrigerants used in vapor compression systems.
    - Development of cooling systems that use refrigerants with global warming potential ≤ 1
    - Development of energy efficient air conditioning (AC) system for warm and humid climates to increase the coefficient of performance (COP) of ventilation load cooling by ≥ 50%
    - Increased efficiency of vapor compression AC system for hot climate for re-circulating air loads by increasing the COP by ≥ 50%
    - Area of Interest 1: Compact cooling systems that are based on refrigerants with global warming potential ≤ 1
    - Area of Interest 2: Enhanced energy efficiency of vapor compression based air conditioning systems

Waste Heat from Vehicles

NSF 10-549

- Letter of Intent Due: May 21, 2010
- Final Application Due: June 22, 2010
- Anticipated Funding Amount: $1,000,000 to $1,500,000 $9,000,000 total, equally distributed in FY 2010, 2011, and 2012, pending availability of funds.
- Estimated Number of Awards: 6 to 9 Awards: Each of up to 3-years duration
- Cost Sharing Requirements: Cost Sharing is not required under this solicitation
- Eligibility: None Specified
- For more information: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf10549
- Contact: Theodore Bergman at tbergman@nsf.gov
- Objectives: The National Science Foundation and the U.S. Department of Energy request proposals for Devices for Vehicle Applications. NSF and DOE seek research proposals with transformative ideas that will impact national needs and priorities in energy conservation and climate change, specifically as pertains to novel thermoelectric devices and systems for harvesting waste heat in vehicle applications.
    - Providing a means to economically convert the otherwise wasted heat that is contained in a vehicle's exhaust into electrical power is a key opportunity to (i) decrease fuel consumption and (ii) reduce emissions.
    - Key Elements: Materials, Thermal management, Durability, Interfaces, Heat sink design. Metrology.
- Required Elements:
    - To promote and accelerate thermoelectric device discovery and deployment in vehicle applications, proposals must address the following two elements:
    - R1) Proposals must be submitted by teams of researchers who will simultaneously address, in a balanced manner, at least three of the six key elements indicated in the preceding discussion and figure. Funding decisions by NSF and DOE will be made, in part, by the need to include all key elements in the ultimate mix of proposals funded under this solicitation.
    - R2) Proposals must address the connection of the research to deployment at a scale commensurate with the global vehicle manufacturing enterprise.