

**RECOVERY ACT**  
**FINANCIAL ASSISTANCE**  
**FUNDING OPPORTUNITY ANNOUNCEMENT**



**U. S. Department of Energy**  
**Office of Electricity Delivery and Energy Reliability**

**Smart Grid Investment Grant Program**  
**Funding Opportunity Number: DE-FOA-0000058**  
**Announcement Type: Initial Announcement**  
**CFDA Number: 81.122 - Electricity Delivery and Energy Reliability**  
**Research, Development and Analysis**

**Issue Date: June 25, 2009**

**Letter of Intent Due Date**

**July 16, 2009**  
**October 23, 2009**  
**February 10, 2010**

**Application Due Dates**

**August 06, 2009 at 8:00 PM, Eastern**  
**November 04, 2009 at 8:00 PM, Eastern**  
**March 03, 2010 at 8:00 PM, Eastern**

**Submit Questions to: [DOESGIGQuestions@HQ.DOE.GOV](mailto:DOESGIGQuestions@HQ.DOE.GOV)**

**Submit Letters of Intent to: [DOESGIGApplications@HQ.DOE.GOV](mailto:DOESGIGApplications@HQ.DOE.GOV)**

**Submit Applications to: [DOESGIGApplications@HQ.DOE.GOV](mailto:DOESGIGApplications@HQ.DOE.GOV)**

Executive Summary  
Funding Opportunity Announcement Number  
DE-FOA-000058

The overall purpose of the Smart Grid Investment Grant Program (SGIG) is to accelerate the modernization of the nation's electric transmission and distribution systems and promote investments in smart grid technologies, tools, and techniques which increase flexibility, functionality, interoperability, cyber-security, situational awareness, and operational efficiency. This purpose will be accomplished through a merit-based, competitive solicitation for projects to receive federal financial assistance for up to 50% percent of eligible project costs. This financial assistance is intended to enable measurable improvements that can result from accelerated achievement of a modernized electric transmission and distribution system, including:

- Reliability of the electric power system.
- Electric power system costs and peak demand.
- Consumer electricity costs, bills, and environmental impacts.
- Clean energy development and greenhouse gas emissions.
- Economic opportunities for businesses and new jobs for workers.

DOE would like to acknowledge the questions and comments received following the Notice of Intent and thank the individuals and organizations who submitted them. DOE will provide answers to frequently asked questions on June 26, 2009.

DOE would appreciate receiving a Letter of Intent from those individuals and organizations planning to submit an application in response to the FOA so that we may organize the merit review teams to assist our goal of proceeding to award as expeditiously as practicable.

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## **PART I – FUNDING OPPORTUNITY DESCRIPTION**

### **A. Recovery Act Information**

Projects under this FOA will be funded, in whole or in part, with funds appropriated by the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act or Act). The Recovery Act's purposes are to stimulate the economy and to create and retain jobs. The Act gives preference to activities that can be started and completed expeditiously. Accordingly, special consideration will be given to projects that promote and enhance the objectives of the Act, especially job creation, preservation and economic recovery, in an expeditious manner.

Be advised that special terms and conditions may apply to projects funded by the Act. These special terms and conditions will be based on provisions included in Titles XV and XVI of the Act.

The Office of Management and Budget (OMB) has issued Initial Implementing Guidance for the Recovery Act. See M-09-10, Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009. See also 2 CFR Part 176, "Requirements for Implementing Sections 1512, 1605 and 1606 of the American Recovery and Reinvestment Act of 2009 for Financial Assistance Awards," for detailed explanations of the Buy American and Davis Bacon wage requirements. (Attached as Appendix 6). OMB will be issuing additional guidance concerning the Act as appropriate. Applicants should consult the DOE website, [www.energy.gov](http://www.energy.gov), the OMB website <http://www.whitehouse.gov/omb/>, and the Recovery website, [www.recovery.gov](http://www.recovery.gov) regularly to keep abreast of guidance and information as it evolves.

Recipients of funding appropriated by the Act shall comply with requirements of applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA, unless relief has been granted by DOE. Recipients shall flow down the requirements of applicable Federal, State and local laws, regulations DOE policy and guidance, and instructions in this FOA to subrecipients at any tier to the extent necessary to ensure the recipient's compliance with the requirements.

### **B. Smart Grid Investment Grant Program - Introduction**

The Department of Energy (DOE) announces this competitive Funding Opportunity Announcement (FOA) to solicit applications for grants for the Smart Grid Investment Grant Program (SGIG). SGIG was originally authorized by Section 1306 of the Energy Independence and Security Act of 2007, Public Law 110-140 (EISA) and later modified by the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act). The Research and Development (R&D) Division within DOE's Office of Electricity Delivery and Energy Reliability (OE) will implement and manage the SGIG.

SGIG projects will be funded in accordance with the Recovery Act, which provides guidance and processes for managing and carrying out projects under the Act. Award recipients will be required to follow Recovery Act requirements for reporting. Additionally, applicants and their project team members should have up-to-date records of their profiles in Dunn and Bradstreet Universal Numbering System (DUNS), and have registered with Central Contractor Registration (CCR). Applicants not registered in both databases will not be eligible to receive an SGIG award.

The overall purpose of the SGIG is to accelerate the modernization of the nation's electric transmission and distribution systems and promote investments in smart grid technologies, tools, and techniques which increase flexibility, functionality, interoperability, cyber-security, situational awareness, and operational efficiency. This purpose will be accomplished through a merit-based, competitive solicitation for projects to receive Federal financial assistance for up to 50% percent of eligible project costs. This financial assistance is intended to enable measurable improvements that can result from accelerated achievement of a modernized electric transmission and distribution system, including:

- Reliability of the electric power system.
- Electric power system costs and peak demand.
- Consumer electricity costs, bills, and environmental impacts.
- Clean energy development and greenhouse gas emissions.
- Economic opportunities for businesses and new jobs for workers.

The goals of the SGIG program involve accelerating progress toward a modern grid that provides the following specific characteristics that DOE believes define what a smart grid would accomplish:

- Enabling informed participation by consumers in retail and wholesale electricity markets.
- Accommodating all types of central and distributed electric generation and storage options.
- Enabling new products, services, and markets.
- Providing for power quality for a range of needs by all types of consumers.
- Optimizing asset utilization and operating efficiency of the electric power system.
- Anticipating and responding to system disturbances.
- Operating resiliently to attacks and natural disasters.

Projects that accomplish the purpose and goals of the SGIG will be those that help implement necessary digital upgrades to electric transmission and distribution systems, large and small, and to residential, commercial, industrial, and public buildings, appliances, and equipment that connect with those systems. Such projects will support the two-way flow of both electric power and information between electric power companies and electricity consumers and will include methods and capabilities addressing interoperability, which is the capability of two or more networks, systems, devices, applications, or components to share and readily use information securely and effectively with little or no inconvenience to the user. Easing the integration effort to achieve interoperability is an important enabling aspect of smart grid deployments and SGIG projects are expected to recognize and address this.

It is expected that SGIG projects will also enable the entire electricity supply and delivery chain – as a whole or in part – (including power plants, transmission lines, substations, distribution lines, meters, and customer systems) to operate in a more reliable, efficient, secure, and affordable manner through operational improvements in areas such as outage detection, equipment maintenance, and asset deferral and at a higher level of environmental protection through increased capabilities for cost-effectively integrating renewable, energy efficient, and less carbon-intensive technologies. Such projects will also provide an economic stimulus to local areas, states, and regions through investment in electric infrastructure, expansion of economic opportunities for businesses, creation of jobs for American workers, and enhancements of worker skills.

The ability to measure the impacts of awarded projects, estimate costs and benefits, and determine progress toward achievement of the SGIG purpose, goals, and metrics is paramount to overall success. Implementing a process for evaluating project impacts, costs, and benefits is an essential aspect of DOE's management responsibilities for the SGIG program and is an important part of this FOA. DOE expects the full cooperation and participation of grant recipients in cost-benefit analysis that includes the collection and analysis of consistent and comparable data from across the projects and the application of standard cost-benefit and statistical analysis methodologies.

### C. Overview of DOE-OE Smart Grid and Related Activities

OE carries out a variety of research, development, demonstration, analysis, technology transfer, and technical coordination activities related to modernization of the nation's electric transmission and distribution system and implementation of smart grid technologies, tools, and techniques. These activities include efforts authorized by EISA Title XIII to provide national leadership in coordinating smart grid activities across federal agencies, collaborating with the National Institutes of Standards and Technology (NIST) and the Federal Energy Regulatory Commission (FERC) in developing a framework for interoperability standards, and developing Reports to Congress on the status of smart grid implementation across the country and the security implications of smart grid devices and capabilities.

The purpose of DOE's activities in the development and implementation of smart grid technologies, tools, and techniques is to accelerate the deployment and integration of advanced digital systems that are needed to modernize the nation's electric delivery network for enhanced interoperability and cyber security. The electric delivery infrastructure for grid modernization and smart grid implementation encompasses electric transmission and distribution systems across the country. It includes all of the subsystems, components, devices and equipment that are necessary for interconnecting power plants and consumers, transporting electric power across the grid, and balancing electricity supply and demand. It also includes the regulatory processes and business practices for long-term electric system planning and day-to-day electric system operations, as well as the appropriate policies and procedures (at the federal, state, and local levels) for consumer and environmental protection.

The application of advanced digital technologies (i.e., microprocessor-based measurement and control, communications, computing, and information systems) are expected to greatly improve the reliability, security, interoperability, and efficiency of the electric grid, while reducing environmental impacts and promoting economic growth. Achieving enhanced connectivity and interoperability will require innovation, ingenuity, and different applications, systems, and devices to operate seamlessly with one another, involving the combined use of open system architecture, as an integration platform, and commonly-shared technical standards and protocols for communications and information systems. To realize smart grid capabilities, deployments must integrate a vast number of smart devices and systems. **Interoperability is the capability of two or more networks, systems, devices, applications, or components to share and readily use information securely and effectively with little or no inconvenience to the user.**<sup>1</sup> Easing the integration effort to achieve interoperability is an important enabling aspect of smart grid deployments that applications need to recognize and address.

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<sup>1</sup> GridWise Architecture Council, "Introduction to Interoperability and Decision-Maker's Interoperability Checklist, v1.0," available at, <http://www.gridwiseac.org/about/publications.aspx>

One of OE's top smart grid priorities is the work with NIST and FERC on a framework for interoperability standards. This effort is focused on an accelerated timetable for the development of a standards development roadmap and a process for getting standards for interoperability in place as rapidly as possible. As the smart grid develops and the grid becomes more interconnected, the Nation needs to guard against introducing cyber related vulnerabilities that would allow for disruption of the grid. This could occur, at least in theory, either through unintended pathways from the Internet or less secure customer networks into the infrastructure control systems or through the ability of malicious actors to manipulate large numbers of small systems that would affect the load on the grid and thus destabilize grid operations. As smart grid technologies are placed into operation, careful consideration should be given to how these components affect the security of the grid as a whole by avoiding unnecessary connectivity or functionality or by providing by appropriately secured, authenticated activity while still allowing for the sharing of information necessary to enable innovation and cost savings. Particular care is required where different networks of varying security levels converge to share information whether it is a utility interface to the home (e.g. smart meters) or a server belonging to a utility or a third-party provider.

In addition to NIST and FERC, DOE is working on this activity with many other private organizations including the North American Electric Reliability Corporation, the Institute of Electrical and Electronic Engineers, the National Electrical Manufacturers Association, and the GridWise Architecture Council.

Another OE smart grid priority involves further research and development (R&D) activities for the "next generation" of smart grid technologies, tools, and techniques. OE's smart grid R&D will focus on integrated communications, advanced components, advanced control methods, sensing and measurements, and improved interfaces and decision support. Integrated communications activities include continuation of efforts in the development of interoperability standards and smart grid market maturity models. Advanced components activities include new efforts in solid state systems, power electronics, and new materials for energy conversion and power flow control at transmission and distribution level voltages. Advanced control methods activities include continuation of projects in renewable and distributed systems integration and in assessing the grid impacts of plug-in electric vehicles. Sensing and measurement activities include new efforts to investigate advanced materials for lowering the cost and improving the durability and reliability of sensors in high voltage applications. Improved interfaces and decision support activities include continued efforts in visualization tools, simulation modeling, and power systems analysis.

OE is in the process of developing a "smart grid information clearinghouse and website" to serve the needs of the electric power stakeholder community for comprehensive and detailed information about the attributes, performance, impacts, costs, and benefits of smart grid technologies, tools, and techniques. It is intended to contain technical, legislative, and other information on smart grid development and practices. It will also direct website users to other sources for additional information. Through direct sharing and dissemination of information on knowledge gained, lessons learned, and best practices, the clearinghouse will serve to promote and facilitate coordination and collaboration in smart grid development and practices. It will also serve as an information resource for State and Federal officials, and all interested parties including the general public.

OE has had a long standing role in supporting the development, deployment, operation, and integration of high-speed time-synchronized electric power grid measurement technology, including phasor measurement unit (PMU) devices. PMUs utilize accurate time reference to

calculate relative phase angles and also other measurements of grid parameters such as frequencies and line flows. These so-called synchrophasor measurements produced by PMUs are the heart of a network-based, wide-area measurement system that provides data to run analytical applications that provide real-time information and visualization on the status of the grid. OE is interested in projects for the design, acquisition, installation, commissioning, and training for PMUs or similar high-speed time synchronized equipment capable of accurately measuring electric power parameters, installed within either the electric power transmission or distribution infrastructure. Projects can include other hardware and/or software that process, manage, store, transmit, receive, or deliver measurement data associated with these PMUs and can include visualization, display, decision support, or other advanced software applications that utilize this measurement information for enhancing the reliability and operational effectiveness of the Nation's electric power system.

To fully leverage the capabilities of this technology, it is necessary to install and network many of these high-resolution, time-synchronized sensors, collect and analyze their data, and use those data in analysis tools for operating and planning more reliable electric power systems. A critical goal of these grants is to expand the number and coverage of PMUs in each interconnection that feed their output into a network that shares data necessary to detect and mitigate wide-area disturbances. DOE works closely with the North American SynchroPhasor Initiative (NASPI) to advance the application of information and communications systems within the electric power industry. More information on NASPI may be found at [www.naspi.org](http://www.naspi.org).

One of OE's primary responsibilities in carrying out smart grid activities is to evaluate and report on the implementation progress of smart grid technologies, tools, and techniques across the country according to specific, quantitative metrics. On June 19-20, 2008, OE held a technical workshop in Washington, D.C. involving 140 experts, representing various stakeholder groups associated with smart grid technologies to identify a set of quantitative metrics for measuring progress toward smart grid implementation. The workshop results can be found in "Metrics for Measuring Progress toward Implementation of the Smart Grid," at <http://www.oe.energy.gov/smartgrid.htm>.

The following sections provide examples of metrics that OE plans to use in measuring progress toward implementation of smart grid technologies, tools, and techniques caused by SGIG projects.

### **1. Customer-Level Metrics**

- The number and percentage of electricity customers and magnitude of total load in the service territory of the local electric distribution company served by advanced metering infrastructure.
- The number and percentage of electricity customers and magnitude of total load in the service territory of the local electric distribution company served by dynamic pricing programs (e.g., real-time pricing, critical peak pricing, and/or time-of-use tariffs).
- The number and percentage of electricity customers and magnitude of total load in the service territory of the local electric distribution company served by load management programs (e.g., interruptible tariffs, direct load control, and consumer load control with incentives).
- The number and percentage of electricity customers and magnitude of total load in the service territory of the local electric distribution company served by appliances

and/or equipment which can communicate information automatically about on/off status and availability for load control.

- The number and percentage of projected annual vehicle sales that involve plug-in electric and hybrid electric vehicles.
- The number and percentage of electricity customers and magnitude of total load of the load in the service territory of the local electric distribution company served by grid-connected distributed generation (renewable and non-renewable) and storage.

## **2. Distribution-Level Metrics**

- The number and percentage of installations and magnitude of total load in the service territory of the local electric distribution company served by substations or feeder lines that use automation equipment or that possess advanced measurement technologies.
- The number and percentage of installations and magnitude of total load in the service territory of the local electric distribution company covered by microgrids.
- The number of points and percentage and magnitude of the total load in the service territory of the local electric distribution company covered by Supervisory Control and Data Acquisition (SCADA) systems.

## **3. Transmission-Level Metrics**

- The number of installation points and percentage and magnitude of the total load in the service territory covered by phasor measurement units (PMUs).
- The number of installation points and percentage and magnitude of the total load in the service territory served by phasor data concentrators (PDCs) receiving data from PMUs that share all relevant data with external parties in support of reliability management.
- The number of installation points and percentage and magnitude of the total load in the service territory served by real time data management and visualization systems receiving data from PDCs and PMUs.
- The number of installation points and percentage magnitude of the load in the service territory covered by automated electric transmission systems or possessing advanced measurement.

These metrics are to be considered by applicants in responding to this FOA. Award recipients will be expected to provide progress reports to DOE that document project activities and accomplishments according to these metrics.

## **D. Relationship between the Smart Grid Investment Grant and Smart Grid Demonstration Programs**

While the two programs are both aimed at modernization of the nation's electric grid through the application of smart grid technologies, tools, and techniques, they are separate and distinct undertakings.

The SGIG is authorized by EISA, Title XIII, Section 1306 as amended by the Recovery Act. The intent of the SGIG FOA is to provide grants of up to one-half of qualifying smart grid investments to support the manufacturing, purchasing and installation of smart grid devices and related technologies, tools, and techniques for immediate commercial use in electric system and

customer-side applications including electric transmission systems, electric distribution systems, building systems, advanced metering, appliances, and equipment. The ultimate aim is to enable smart grid functions on the electric system as soon as possible.

The Smart Grid Demonstration Program (SGDP) is authorized by the EISA, Title XIII, Section 1304 as amended by the Recovery Act. The intent of the SGDP FOA is to provide financial support, up to one-half of the total project cost, to demonstrate how a suite of existing and emerging smart grid technologies can be innovatively applied and integrated to prove technical, operational and business-model feasibility. The ultimate aim is to demonstrate new and more cost-effective smart grid technologies, tools, techniques, and system configurations that significantly improve upon the ones that are either in common practice today or are likely to be proposed in the SGIG Program. Furthermore, these demonstration projects should serve as models for other entities to readily adapt and replicate across the country.

Unlike SGIG, SGDP applications can include the costs of distributed energy and storage equipment. Under SGDP, the costs of distributed energy and storage equipment can be included up to 20% of the total value of the project.

To the extent possible, impacts, costs, and benefits of projects in both programs will be assessed in a consistent and comparable manner. However, each FOA has technical merit review criteria that are designed to evaluate applications against the intended purpose of the specific FOA.

## **PART II – AWARD INFORMATION**

### **A. Type of Award Instrument**

DOE anticipates awarding grants under this Funding Opportunity Announcement.

### **B. Estimated Funding**

Approximately \$3.4 billion is expected to be available for new awards under this announcement.

### **C. Maximum and Minimum Award Size**

The federal funds for this program have been divided into two categories:

- Smaller projects in which the federal share would be in the range of \$300,000 to \$20,000,000.
- Larger projects in which the federal cost share would be in the range of \$20,000,000 to \$200,000,000.

Approximately 40% of SGIG funding will be allocated for smaller projects, while approximately 60% will be allocated for larger projects. DOE reserves the right to revise these allocations depending on the quantity and quality of the applications received.

### **D. Period of Performance**

The period of performance for DOE projects is three years. DOE has a preference for a shorter period of performance. DOE expects to complete the award of projects under this FOA by September 30, 2010. DOE anticipates making awards in October 2009, March 2010 and June

2010. All costs for these awards must be invoiced and paid by September 30, 2015.

### **PART III – ELIGIBILITY INFORMATION**

All applicants, projects, and investments are required to meet certain eligibility requirements. Multiple applications from the same originator are allowed but each submission must meet all eligibility requirements.

General eligibility requirements include:

The applicant must not propose a project period longer than three years.

The applicant must provide a minimum of 50% sharing for the total project costs. (See item E for further details)

The applicant must have no conflict of interest and be otherwise eligible for award.

#### **A. Applicants**

Eligible applicants include individual entities ((lead organizations or “primes”) or teams of entities (lead and supporting organizations or “lower tier” applicants)). Organizations eligible for both lead and/or supporting roles include, but are not limited to:

- electric power companies
  - investor-owned utilities
  - municipal utilities and public utility districts
  - electric cooperatives
  - other types of load serving entities
  - regional organizations such as independent system operators, transmission organizations, and coordinating councils
  - national-level utility organizations
- state, county, local, or municipal government agencies
- universities and colleges
- electricity consumers singly or aggregated together, including residential, commercial, industrial, and agricultural customer classes
- appliance manufacturers, electrical equipment manufacturers, software providers, and communications and information services providers
- other private companies including but not limited to retail electricity suppliers, energy services companies, independent power producers, demand response services providers, metering services providers, project developers, electricity marketers, and consultants

Federal agencies, including Power Marketing Administrations, Tennessee Valley Authority, and the United States Postal Service, are eligible only for supporting roles, but not for lead or prime roles.

Non-eligible applicants include DOE’s national laboratories and all Federal Funded Research and Development Centers, may not participate in any application.

#### **B. Projects**

Eligible projects are required to support or advance one or more of the “smart grid functions” as listed in EISA, Section 1306 (d):

- “The ability to develop, store, send and receive digital information concerning electricity use, costs, prices, time of use, nature of use, storage, or other information relevant to device, grid, or utility operations, to or from or by means of the electric utility system, through one or a combination of devices and technologies.
- The ability to develop, store, send and receive digital information concerning electricity use, costs, prices, time of use, nature of use, storage, or other information relevant to device, grid, or utility operations to or from a computer or other control device.
- The ability to measure or monitor electricity use as a function of time of day, power quality characteristics such as voltage level, current, cycles per second, or source or type of generation and to store, synthesize or report that information by digital means.
- The ability to sense and localize disruptions or changes in power flows on the grid and communicate such information instantaneously and automatically for purposes of enabling automatic protective responses to sustain reliability and security of grid operations.
- The ability to detect, prevent, communicate with regard to, respond to, or recover from system security threats, including cyber-security threats and terrorism, using digital information, media, and devices.
- The ability of any appliance or machine to respond to such signals, measurements, or communications automatically or in a manner programmed by its owner or operator without independent human intervention.
- The ability to use digital information to operate functionalities on the electric utility grid that were previously electro-mechanical or manual.
- The ability to use digital controls to manage and modify electricity demand, enable congestion management, assist in voltage control, provide operating reserves, and provide frequency regulation.”

### C. Investments

Eligible investments for SGIG funds may include the following (per EISA, Section 1306 (b)):

- “In the case of appliances covered for purposes of establishing energy conservation standards under part B of title III of the Energy Policy and Conservation Act of 1975 (42 U.S.C. 6291 et seq.), the documented expenditures incurred by a manufacturer of such appliances associated with purchasing or designing, creating the ability to manufacture, and manufacturing and installing for one calendar year, internal devices that allow the appliance to engage in smart grid functions.
- In the case of specialized electricity-using equipment, including motors and drivers, installed in industrial or commercial applications, the documented expenditures incurred by its owner or its manufacturer of installing devices or modifying that equipment to engage in smart grid functions.
- In the case of transmission and distribution equipment fitted with monitoring and communications devices to enable smart grid functions, the documented expenditures incurred by the electric utility to purchase and install such monitoring and communications devices.
- In the case of metering devices, sensors, control devices, and other devices integrated with and attached to an electric utility system or retail distributor or marketer of electricity that are capable of engaging in smart grid functions, the documented

expenditures incurred by the electric utility, distributor, or marketer and its customers to purchase and install such devices.

- In the case of software that enables devices or computers to engage in smart grid functions, the documented purchase costs of the software.
- In the case of entities that operate or coordinate operations of regional electric grids, the documented expenditures for purchasing and installing such equipment that allows smart grid functions to operate and be combined or coordinated among multiple electric utilities and between that region and other regions.
- In the case of persons and entities other than electric utilities owning and operating a distributed electricity generator, the documented expenditures of enabling that generator to be monitored, controlled, or otherwise integrated into grid operations and electricity flows on the grid utilizing smart grid functions.
- In the case of electric or hybrid-electric vehicles, the documented expenses for devices that allow the vehicle to engage in smart grid functions (but not the costs of electricity storage for the vehicle).
- The documented expenditures related to purchasing and implementing Smart Grid functions in other cases as the Secretary shall identify. “

Non-eligible investments for SGIG funding include any of the following as listed in EISA, Section 1306 (c):

- “Investments or expenditures for smart grid technologies, devices, or equipment that utilize specific tax credits or deductions under the Internal Revenue Code, as amended.
- Expenditures for electricity generation, transmission, or distribution infrastructure or equipment not directly related to enabling smart grid functions.
- After the final date for State consideration of the Smart Grid Information Standard under section 1307 (paragraph (17) of Section 111(d) of the Public Utility Regulatory Policies Act of 1978), an investment that is not in compliance with such standard.
- After the development and publication by the Institute of protocols and model standards for interoperability of smart grid devices and technologies, an investment that fails to incorporate any of such applicable protocols or model standards.
- Expenditures for physical interconnection of generators or other devices to the grid except those that are directly related to enabling smart grid functions.
- Expenditures for ongoing salaries, benefits, or personnel costs not incurred in the initial installation, training, or startup of smart grid functions.
- Expenditures for travel, lodging, meals or other personnel costs.
- Ongoing or routine operation, billing, customer relations, security, and maintenance expenditures.”

#### **D. Multiple Applications**

Subsection (D) of EISA section 1304(b) states that:

- “[n]o person or entity participating in any demonstration project conducted under this subsection [Regional Demonstration Initiative] shall be eligible for grants under section 1306 [Federal Matching fund for Smart Grid Investment Costs] for otherwise qualifying investments made as part of that demonstration project.”

Therefore, applicants can submit separate applications to both programs, or multiple applications to each program, but they must be for distinctly different projects and they cannot involve the use

of federal funds from both programs in a single project.

### **E. Cost Sharing or Matching**

The cost share or match must be at least 50% of the total allowable costs of the project (i.e., the sum of the recipient's allowable costs and the Federal Government share equals the total allowable costs of the projects) and must come from non-Federal sources. (See Section IV, C - Commitment Letters from Third Parties Contributing to Cost Sharing and 10 CFR part 600 for the applicable cost sharing requirements.) Refer to Appendix 2, Cost Share Information, for further discussion of calculating cost share.

This is a requirement that can not be waived or reduced.

## **PART IV – APPLICATION AND SUBMISSION INFORMATION**

### **A. Address to Request Application Package**

This announcement includes all the information needed to complete an application.

### **B. Content and Form of Application Submission**

Go to [http://www.management.energy.gov/business\\_doe/business\\_forms.htm](http://www.management.energy.gov/business_doe/business_forms.htm) to download all the forms necessary to complete an application.

#### **1. DUNS Number**

All applicants, except individuals who would personally receive an award under his announcement apart from any business or non-profit organization they may operate, must include a Dun and Bradstreet (D&B) Data Universal Numbering System (DUNS) number in their application. For the purpose of this requirement, the applicant is the entity that meets the eligibility criteria and has the legal authority to apply for an award. For example, a consortium formed to apply for an award must obtain a DUNS number for that consortium. For assistance in obtaining a DUNS number at no cost to you, call the DUNS Number request line at 1 866-705-5711. Be prepared to provide the following information: 1) Organization name; 2) Address; 3) Local telephone number; 4) Name of the CEO/business owner; 5) Legal structure of the business (corporation, partnership, etc); 6) Year the organization started; 7) Primary line of business; 8) Total number of employees (full and part time). If you do not already have a DUNS number, you should obtain one as soon as you decide to submit an application. Applicants must have obtained a DUNS number prior to being awarded a grant.

#### **2. Pre-application/Notice of Intent**

Pre-applications are not required.

Applicants are requested to submit a letter of intent for each phase they intend to submit an application: Phase 1 by July 16 2009; Phase 2 by October 23, 2009; and Phase 3 by March 03, 2010. The letter should include:

- the name of the lead and supporting organization(s);
- whether the application will be for a small or large project including projected (non-

binding) total project cost; and

- the topic area to which it applies.

Letters of intent will be used to organize and expedite the merit review process. Failure to submit such letters will not negatively effect a responsive application submitted in a timely fashion. The letter of intent should be e-mailed to <https://www.DOESGIGApplications@HQ.DOE.GOV>. Only one Letter of Intent is requested per application.

### 3. Application Instructions

#### a. Topic Areas

Applicants are required to designate the topic area in which their project best fits by applying either of the following criteria: (1) the topic area that best includes the primary objectives of the project, or (2) the topic area in which the largest fraction of the project's funding will be spent (including both Federal and Non-Federal portions). Applicants are not permitted to submit the same application for more than one topic area. However, applicants are permitted to submit more than one application in a given area, or for other areas, if each application represents a unique project with unique objectives, equipment, activities, and methods. (See PART III, Section 4. for further instructions on the eligibility of multiple applications.) Table 1 lists the SGIG topic areas.

**Table 1 - SGIG Topic Areas**

- |                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Equipment Manufacturing</li> <li>• Customer Systems</li> <li>• Advanced Metering Infrastructure</li> <li>• Electric Distribution Systems</li> <li>• Electric Transmission Systems</li> <li>• Integrated and/or Crosscutting Systems</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### i. Equipment Manufacturing

Project applications in this topic area will be aimed at the production or purchase of smart grid systems, equipment, devices, software, or communications and control systems for modifying existing electric system equipment; building, office, commercial, or industrial equipment; consumer products and appliances; or distributed generation, demand response, or energy storage devices to enable the smart grid functions listed in PART III, Section B.

#### ii. Customer Systems

Project applications in this topic area will be aimed at enabling the smart grid functions listed in PART III, Section B of buildings, facilities, and appliances and equipment on the customer-side-of-the-meter. Projects will primarily involve adding smart grid functions to equipment and/or software applications including but not necessarily limited to “smart” appliances and equipment, home area networks, building or facility management systems, distributed energy systems, demand response equipment, load control systems for lowering peak demand, energy storage devices, plug-in hybrid electric vehicles, and microgrids.

### **iii. Advanced Metering Infrastructure**

Project applications in this topic area will be aimed at the installation of smart meters which are able to measure, store, send and receive digital information concerning electricity use, costs, prices and time-of-use between power companies and customers for purposes that include but are not necessarily limited to dynamic pricing, demand response, load management, billing, remote connect/disconnect, outage detection and management, and tamper detection.

This topic area also includes projects that involve dynamic pricing combined with processes for offering rate structures in a randomized and unbiased manner. Special consideration is given to these applications (see Part V, Section D, Program Policy Factors).

### **iv. Electric Distribution Systems**

Project applications in this topic area will be aimed at adding smart grid functions to local electric distribution systems in retail electricity markets. Projects will primarily involve adding smart grid functions to devices, equipment, and/or software applications including but not necessarily limited to substations, transformer banks, feeder lines, pole top transformers, and customer interconnection and communications systems, up to but not necessarily including the meter. Projects in this area can involve distribution automation systems; Supervisory Control and Data Acquisition (SCADA) systems; distribution monitoring, control, and optimization systems; load control systems for lowering peak demand; and electric distribution applications of distributed generation and energy storage equipment.

### **v. Electric Transmission Systems**

Project applications in this topic area will be aimed at adding smart grid functions to the electric transmission systems in bulk power markets that typically involve power delivery over long distances including multi-state regions. Projects will primarily involve adding smart grid functions to devices, equipment, and/or software applications including but not necessarily limited to phasor measurement units, phasor data concentrators, and visualization tools that use phasor or other data; other types of remote sensing, monitoring, data acquisition and retrieval equipment; planning and control room applications; advanced communications and interconnection systems; and retrofit of electric transmission systems with smart grid functions and capabilities.

### **vi. Integrated and/or Crosscutting Systems**

Project applications in this topic area will be aimed at adding smart grid functions to multiple portions of the electric system. Projects in this topic area will tend to be large and involve equipment and/or software applications that cover two or more of the topic areas including for example “Advanced Metering Infrastructure” and “Electric Distribution Systems”; “Customer Systems and Advanced Metering Infrastructure”; or “Electric Transmission Systems” and “Electric Distribution Systems”.

## b. Project Plan

Applicants are required to submit a comprehensive and complete Project Plan that includes six sections, plus attachments:

- An abstract of the project that includes a title; provides a concise description of the purpose, scope, and activities; and designates the topic area;
- A detailed description of the tasks to be performed and a project schedule that shows the major milestones and key deliverables;
- A management plan that provides a description of the qualifications of the organizations and individuals who will be performing and managing the tasks, an organizational structure that clearly identifies roles, responsibilities, and lines of authority and control; letters that demonstrate organizational commitment; and a discussion of how the project will address risks;
- A technical approach that describes methodologies, strategies, processes, and procedures for how the project will enable smart grid functions;
- A technical approach that describes how the project will address interoperability and cyber-security; and
- A plan for collecting data and determining project impacts, costs, and benefits.
- Attachments include resumes, letters of commitment, other letters of support or letters from federal, state, regulatory, or local officials, and the list of other applications for Recovery Act funds.

### 1. Project Abstract (200-300 words)

Submitted Project Plans are required to have a Project Abstract which should include a title; a clear and concise project summary of the purpose, scope, and activities and how the project contributes to furthering the development of smart grid functions; and a designation of the topic area in which the applicant determines the project applies.

### 2. Project Tasks and Schedule

Submitted Project Plans are required to include a detailed description of the project, including an explanation of the tasks, milestones, and deliverables. There should be a simple and logical breakdown of project tasks and activities and a detailed description of the scope of the activities, including a discussion of important task interdependencies, and identification of critical path tasks whose successful completion are pivotal to the overall success of the project. Items to be explained in this section include, for example, discussions of the equipment to be used; installation and operations activities; regulatory or other external approvals; key internal decision points; and data collection, analysis, and reporting activities.

Submitted Project Plans are required to include a project schedule. Project schedules should identify key milestones (e.g., critical path task endpoints, important deliverables, or major decision points). Project schedules should include milestones for annual reports and a final report that include information on accomplishments and progress according to the metrics that apply to the project, as well as on the data that will be used for cost-benefit analysis.<sup>2</sup>

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<sup>2</sup> DOE is developing a “smart grid information clearinghouse and website” to house and make available information on smart grid activities from across the country. DOE plans to provide information on the

### Special Instructions for Projects that Require Federal, State, or Local Regulatory Approvals

For projects that include the need for approvals from state, local, regional, and/or federal agencies, submitted Project Plans are required to include a discussion in the technical approach of when and how those approvals will be obtained. Applications should include correspondence from the relevant regulatory agency indicating when the approval process will begin and outlining the likely timeline. (Such correspondence will not be included in the 40 page limit.) For projects to be undertaken by state or local government agencies, submitted Project Plans are required to include a discussion of how and when the Governor, Mayor, or other chief executive, as appropriate, will certify by acceptance of an award that the "...infrastructure investment has received full review and vetting required by law and that the chief executive accepts responsibility that the infrastructure investment is an appropriate use of taxpayer dollars." This certification is required by Section 1511 Certifications of the Recovery Act for funds made available to state or local governments for infrastructure investments.

Applicants that do not yet have regulatory approval are eligible for receiving an award. Examples might include applications that require approvals for cost recovery or dynamic pricing tariffs. However, DOE may withhold some or all of the grant funds until regulatory approval is obtained.

### **3. Management Plan**

Submitted Project Plans are required to include a section that discusses the relevance of the project and its goals, objectives, and scope of activities to the purpose and goals of the SGIG.

Submitted Project Plans are required to include a description of the project team with a project organization chart and a discussion of respective roles and responsibilities (covering both organizations and individuals). There should be a section describing the management plan including a discussion of how tasks and activities will be organized and managed, who will be responsible for what, and how team members (organizations and individuals) will work together to carry out project tasks.

Submitted Project Plans are required to include a description of the qualifications of the team to accomplish assigned tasks including the lead and major supporting organizations and key individuals. The name and qualifications of the individual designated to manage the project (the project manager) should be provided (with a resume showing the project manager's background and experience). The names and qualifications of other key project personnel (e.g., task leaders, technical contributors, or special advisors) should also be included along with their resumes. In addition, the names and qualifications of the significant vendors and their products or services need to be provided.

Submitted Project Plans are required to demonstrate organizational commitment by providing letters of support or statements of commitment from senior executives of the lead and supporting organizations, including the key equipment vendors. The letters should indicate: (1) the commitment of the organization(s) to provide the people and resources included in the application, (2) the relative importance of the project in relation to the mission and goals of the

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SGIG projects (e.g., title, team members, activities, and eventually the results of the DOE estimation of project costs and benefits) to this clearinghouse for storage and sharing with the electric power stakeholder community and the general public. Application information will not be used in the clearinghouse.

lead organization, and (3) the individual(s) who have decision making authority to commit organizational resources to support project tasks, and the role of that individual in the project.

Submitted Project Plans are required to include a section on the technical approach to address potential risks (technical, financial, regulatory, or institutional) that may impact the successful completion of work or impede the schedule. The technical approach to addressing project risks should include:

- A summary of the potential risks and a description of the potential impacts on project tasks and schedule.
- A summary of the strategies to be employed to address or mitigate the risks.

#### Special Instructions for Applicants Submitting Multiple Applications for Recovery Act Funds

DOE is interested in knowing about other projects that applicants (lead organizations or prime contractors only) have applied for involving Recovery Act funding that are related to this FOA. This includes but is not limited to application(s) to this and other FOAs from OE; DOE's Office of Energy Efficiency and Renewable Energy; the U.S. Department of Commerce and the National Institutes of Standards and Technology and the National Telecommunication and Information Administration; and the U.S. Department of Agriculture's Rural Utility Service. Applicants submitting multiple applications should include a list of the project titles of these other applications in this section of the Project Plan. This list can be included as an attachment and does not count against the 40 page limit.

#### **4. Technical Approach to Enabling Smart Grid Functions**

Submitted Project Plans are required to include a section on the technical approach that describes how and to what extent the project will advance the adoption and integration of smart grid functions. To measure progress with respect to the extent of smart grid deployments and impacts, DOE plans to use the metrics provided in PART I, Section C. Applicants should identify the set of metrics that they will use to track progress and report on results of their project to DOE. Where applicable, the discussion should also include comprehensive and complete information on:

- How the project involves smart grid technologies, tools, or techniques that meet the conditions of "qualifying investments".
- How the project installs the qualified smart grid technologies, tools, or techniques and connects them to the electric system, building, or piece of equipment.
- How the project plans to operate the smart grid technologies, tools, or techniques in a manner that causes smart grid functions to actually occur.
- How the project plans to extend installation and operation of the qualified smart grid technologies, tools, or techniques to a broader set of locations and applications after the project is complete (e.g., company-wide, city-wide, state-wide, system-wide, region-wide, interconnection-wide, or nation-wide).
- How the project plans to assess operational performance of the smart grid technologies, tools, and techniques and use the results of that assessment to optimize the way electricity is generated, delivered, or used and enable or enhance smart grid functions and help to achieve the purpose and goals of the SGIG.

Special Instructions for Applications Involving PMU Technology Deployment

Project applicants are encouraged to include one or more electric power companies and/or transmission asset owners on the project team. Applicants are also encouraged to consider an “integrated team” approach which could involve, for example, vendors, academic institutions, consultants, and power plant owners, in addition to electric power companies and/or transmission asset owners, to bring an integrated set of qualifications and skill-sets to the project. In addition, applicants are encouraged to participate in the North American Synchrophasor Initiative.

Applicants should highlight the extent to which the project supports the advancement and integration of smart grid functions into the practices of the electric power system and PMU deployments, i.e., how well they support interoperability between phasor devices, communications networks, data streams, and applications. Additional items to consider in the application include:

- A discussion of compliance with relevant technical standards, such as those established by the Institute of Electrical and Electronics Engineers, Inc. (IEEE), e.g., the IEEE C37.118 protocol, and the International Electrotechnical Commission (IEC) for high-speed grid condition measurement devices.
- A discussion of the interoperability of the devices and how they will use open architectures that facilitate further interoperability and scalability.
- A description of the communication pathway(s) used to enable connectivity to data collection locations, including how the applicant will use phasor data concentrators (PDC) to collect, store, and align the PMU data.
- A description of efforts to enable data from synchrophasors and/or PDCs to be visualized.
- A description of efforts involving NASPInet and phasor data gateways for sharing data outside of the project’s service territory or geographic boundaries.

Special Instructions for Applications Involving Advanced Metering Infrastructure Deployments

One of the primary applications of advanced metering infrastructure under the SGIG program is the implementation of dynamic pricing. There are several different types of dynamic pricing and all are eligible for consideration. DOE is also interested in advanced metering projects that enable other smart grid functions and benefits such as outage detection and management, distribution automation, equipment maintenance, other approaches to peak demand reduction (e.g., direct load control) and customer information and education for energy efficiency and other measures. Successful applicants will be expected to make data and information available to their customers. For projects involving dynamic pricing, in addition to providing plans for regulatory approvals, there should be a discussion of the types of rate options being considered and why.

Special Instructions for Applications Involving Advanced Metering with Dynamic Pricing and Randomization

Dynamic pricing is defined as time-varying retail pricing of electricity that usually involves the capabilities of advanced meters and reflects fluctuations in grid conditions or the wholesale electricity prices on short notice, such as an hour or day in advance. DOE is interested in advanced metering projects that involve dynamic pricing and use a randomized control trial design. Randomization is important for conducting cost-benefit analysis of dynamic pricing because it allows for unbiased comparisons across customers.

There are two types of dynamic pricing – real-time pricing and critical peak pricing – that come closest to aligning customer incentives with the true costs of providing power. For these reasons, DOE is most interested in projects that involve some form of real time pricing or critical peak pricing. These types of dynamic pricing structures are defined in more detail here:

*Real-Time Electricity Pricing (RTP):* Under RTP programs, the retail customer is charged prices that change at short intervals, generally each hour, but in some cases as often as every five minutes. In most cases, those prices are set one day in advance, but in some cases the price is set an hour or less in advance, and reflects real-time supply/demand balance even more accurately.

*Critical Peak Pricing Programs (CPP):* CPP programs allow the utility to declare a “critical peak” day when prices will be substantially higher for at least some hours of the day. Generally, the declaration is made one day in advance, but in some cases it is made just an hour or more before the higher rate goes into effect. Generally, the retail provider is limited – either by regulation or contract – in the number of peak days it can call in a year. At all other times, CPP customers are charged a non-dynamic rate, which may be time-invariant or may be time-of-use (TOU) based. Some CPP programs have multiple levels of critical peaks and associated retail prices, such as “peak” days and “superpeak” days, with the expectation that the latter (higher-price days) would be called less frequently.

In the ideal randomized control trial involving smart meters and dynamic pricing, smart meters would first be installed for all customers within a particular geographic area. This might be any well-defined part of the applicant’s service area or, alternatively, a set of zip codes. Selection of this area would be at the discretion of the applicant and could be based on where it would be easiest to install smart meters. Next, customers within this geographic area would be randomly assigned start dates for dynamic pricing. There would probably need to be a significant period of time between start dates. For example, a randomly-selected sample of 50% of all customers might begin dynamic pricing on March 1, 2010, while the other 50% begins on March 1, 2012. The DOE is most interested in applications in which some customers would remain on default tariffs for at least two years. The randomization would need to take place at the customer level so all customers within the geographic area are equally likely to be in each group.

It is critical that smart meters be installed in the entire geographic area prior to the beginning of dynamic pricing because program evaluation depends on comparing hourly consumption between customers with and without dynamic pricing. Applicants would need to make clear to customers that by the end of the project, all customers within the selected geographic area will face dynamic pricing.

DOE understands that there may be concerns from some customers about dynamic pricing. However, in order to avoid introducing selection bias that would hamper analysis of project costs and benefits, it is critical that dynamic pricing be applied on a mandatory basis. Applicants would need to inform customers that dynamic pricing can offer substantial benefits in the form of reduced costs and improved reliability. Under dynamic pricing, customers would face higher prices during a small number of hours during the year but lower prices during other times. Applicants should consider offering “price protection” products that allow customers to pre-purchase set quantities of electricity at fixed prices. These products substantially reduce bill volatility without distorting the price signal from dynamic pricing.

To minimize distributional concerns and to facilitate the transition to dynamic pricing it is important that customers facing dynamic pricing not subsidize customers facing traditional price schedules. In particular, price schedules for non-dynamic pricing should continue to reflect the average cost per kilowatt-hour of serving that group, which is likely to be higher than for customers on dynamic pricing.

General guidelines for data that will be needed for cost-benefit analysis of projects in this topic area include:

- The number of meters installed and criteria for installation (in general, there is a strong preference for saturation installation of meters for a type of customer within an area).
- The tariff on which each customer was billed on each day, including prices charged and how those prices were determined. (Tariff description would also include any price smoothing or hedging instruments made available to the customer and customer's participation in those programs.)
- The sources of information about the tariff that were available to the customer and the method by which these sources were made available (e.g., direct mail, website, fax, telephone hotline).
- The hourly electricity consumption of the customer.
- Demographic information about the customer.

Applications should include a plan that addresses the requirements of the ideal randomized control design to the best extent possible. After project selection and before project award DOE expects to meet with the applicant to finalize data collection and analysis requirements.

Applicants that do not yet have regulatory approval are eligible for receiving an award. Examples might include applications that require approvals for cost recovery or dynamic pricing tariffs. However, DOE may withhold some or all of the grant funds until regulatory approval is obtained.

## **5. Technical Approach to Interoperability and Cyber Security**

Submitted Project Plans are required to include a section on the technical approach to addressing interoperability with respect to the integration of smart grid devices covering the application of procedures and practices involving interface identification, specification, testing, and lifecycle management. The technical approach to addressing interoperability should include:

- A summary of the information exchange interfaces for communicating automation devices and systems (i.e., their points of connection with other elements of the system).
- A summary of how the project will provide openly available and proprietary aspects of the interface specifications, and how existing (legacy) communicating devices or systems will be integrated into the project.
- A summary of how the project will address response to failure and device upgrade scenarios, such that overall system impact is mitigated.
- A summary of how the project will support compatibility with NIST's emerging smart grid framework for standards and protocols.

Submitted Project Plans are also required to include a section on the technical approach to cyber security. Cyber security should be addressed in every phase of the engineering lifecycle of the project, including design and procurement, installation and commissioning, and the ability to

provide ongoing maintenance and support. Cyber security solutions should be comprehensive and capable of being extended or upgraded in response to changes to the threat or technological environment. The technical approach to cyber security should include:

- A summary of the cyber security risks and how they will be mitigated at each stage of the lifecycle (focusing on vulnerabilities and impact).
- A summary of the cyber security criteria utilized for vendor and device selection.
- A summary of the relevant cyber security standards and/or best practices that will be followed.
- A summary of how the project will support emerging smart grid cyber security standards.

DOE intends to work with those selected for award but may not make an award to an otherwise meritorious application if that applicant can not provide reasonable assurance that their cyber security will provide protection against broad based systemic failures in the electric grid in the event of a cyber security breach.

## **6. Project Costs and Benefits**

Submitted Project Plans are required to include a discussion of the plan for data collection and determination of project costs and benefits. With respect to project costs and benefits, DOE is interested in having project data collection efforts focus on the determination of overall and net benefits to consumers, companies, and society as a whole that result from project activities to enable smart grid functions and deploy smart grid technologies, tools, and techniques.

In addition, DOE plans to apply a framework to determine overall and net benefits of the SGIG projects. The framework provides the types of benefits that DOE would like to examine, as well as the data required to estimate those benefits. DOE intends to work with those selected for award but may not make an award to an otherwise meritorious application if the applicant does not reach an agreement with the DOE on the specific types and formats of data and information that will be needed for the DOE cost-benefit analysis. Applicants should provide a comprehensive discussion on what data will be collected and the types of benefits that will be expected from the project. In addition, applicants should discuss all of the relevant costs that should be included in the analysis of costs, including the un-depreciated costs of existing (to-be-replaced) equipment.

Applicants should also provide a brief discussion that includes quantitative estimates of the expected impact of their project on the areas of benefit (all that apply) listed in Table 6. These areas include:

- Lower electricity costs.
- Lower peak demand.
- Lower T&D losses.
- Lower O&M costs.
- Reduced transmission congestion costs.
- Reduced costs of power interruptions.
- Lower emissions of greenhouse gases.
- Lower consumption of oil.

It is an important DOE goal to analyze costs and benefits of SGIG projects in the most complete and comprehensive manner possible. In developing their Project Plans, applicants should be

aware that this analysis will require that projects provide a baseline set of conditions using a control group or other means so that appropriate estimates can be made of project costs and benefits in comparison with before- and after-, or without- and with- the installation of smart grid technologies, tools, and techniques. For example, data would be collected for a period of time before and after the smart grid technologies, tools, techniques are installed and activated.

DOE welcomes a narrative addressing methods and approaches for conducting cost-benefit analysis, including ideas on the types, formats, and availability of data needed for the analysis.

#### Special Instructions - DOE Framework for the Estimation of Project Costs and Benefits

To ensure consistency in the estimation of overall and net benefits derived from all project awarded grants, DOE will apply a cost-benefit analysis (CBA) methodology. The CBA methodology will include a number of methods for estimating and calculating project costs and benefits. The specific methods will vary depending on the nature of each project, including the smart grid functionality it supports, the scope of the technology deployment and associated costs, and the specific benefits that it provides. While the details of benefits estimation for each project might vary, the CBA methodology will be applied uniformly, and to the extent possible, DOE will use the same method, from project to project, to estimate each given type of benefit. For example, DOE will estimate reliability-related benefits of a project the same way for all projects that provide this type of benefit. DOE recognizes that projects will differ and does not anticipate that an applicant's project will be able to provide every type of benefit.

This approach will enable DOE and grant recipients to have their project benefits estimated consistently. DOE will conduct cost-benefit analysis based on project impact, cost, and other data provided by grant recipients during the course of the project and after the smart grid technologies, tools, and techniques have been deployed.

#### Types of Benefits

Within the CBA methodology, a "benefit" is defined as a final outcome of value that accrues to a stakeholder. Benefits can be expressed directly in monetary terms, or the equivalent monetary value can be imputed. For example, an operational cost savings gained by reducing the labor required to manually operate a distribution switch can be determined directly. However, the benefit of reducing outage minutes for a group of residential customers might require estimating the value of the lost service for that customer class.

The CBA methodology distinguishes between benefits and intermediate outcomes that, in turn, lead to benefits. For example, reduced loads reduce the costs of associated reserve margin requirements as well as reduced environmental emissions. Reductions in the costs of these latter considerations are benefits, whereas load reduction is an intermediate outcome that leads to these benefits.

The goal of the CBA methodology is to provide a means to consistently calculate the economic value that each project provides. Examples of benefits that DOE would like to examine include:

- Lower electricity costs to consumers from flatter load curves that result from smart meter applications and changes in consumer behavior in response to tariffs that provide incentive to use less electricity during peak hours;
- Lower transmission and distribution (T&D) losses from an optimized T&D network and from having generation closer to load (distributed generation);

- Lower operations and maintenance costs from reduced need for O&M activity and from lower equipment failure rates;
- Reduced transmission congestion costs from increased transmission transfer capability without building additional transmission capacity;
- Reduced cost of power interruptions as a result of fewer and shorter interruptions, and better power quality, that is, fewer momentary interruptions and voltage sags and swells;
- Reduced damages from greenhouse gas emissions due to lower electricity consumption, lower T&D losses, and generation from clean energy generation substituting for power from less clean sources.

Depending on the type of smart grid application, DOE would expect various, specific types of benefits. Applicants might also suggest other types of benefits their project might provide or alternatives to the data which DOE is expecting grant recipients to provide in order for it to estimate these benefits. In these instances, applicants should explain these benefits, how they differ from those DOE has identified, and the data the applicant would provide to DOE to estimate these benefits.

Table 2 summarizes the types of benefits that the CBA methodology is designed to quantify, along with the sources of these benefits.

**Table 2 - Benefits and Sources of Benefits**

Benefit	Sources of Benefit
Lower electricity cost	<ul style="list-style-type: none"> <li>• Consumption shifted to lower price periods</li> <li>• Lower total electricity consumption</li> </ul>
Lower T&D losses	<ul style="list-style-type: none"> <li>• Optimized T&amp;D network</li> <li>• Generation closer to load (DG)</li> </ul>
Lower O&M costs	<ul style="list-style-type: none"> <li>• Reduced O&amp;M activity</li> <li>• Lower equipment failure</li> </ul>
Greater transmission capability	<ul style="list-style-type: none"> <li>• Increasing transfer capability without building additional transmission capacity</li> </ul>
Reduced power interruptions	<ul style="list-style-type: none"> <li>• Fewer outages</li> <li>• Shorter outages</li> </ul>
Better power quality	<ul style="list-style-type: none"> <li>• Fewer momentary outages</li> <li>• Fewer severe sags and swells</li> <li>• Lower harmonic distortion</li> </ul>
Lower GHG/carbon emissions	<ul style="list-style-type: none"> <li>• Lower T&amp;D losses</li> <li>• Lower emissions from generation</li> </ul>
Reduced oil consumption	<ul style="list-style-type: none"> <li>• Electricity substituting for oil by “smart grid-enabled” electric vehicles</li> </ul>

**Data which the Grant Recipient is to Provide**

After project selection and before award of a grant to an applicant, DOE will work with applicants to finalize the types of costs and benefits which the grant recipient anticipates from its project and on the specific data and cost information it will provide to DOE in order for it to calculate overall and net benefits. Data on a baseline set of conditions will be needed as well, so as to estimate before- and after-, or the without- and with- project effects.

The purpose of data reporting is to demonstrate the impact of the project. Project data will become input to the CBA methodology which will use the data to calculate benefits. The data is important because it will make it possible to objectively assess each project. For example, two projects might both include demand response functionality enabled by smart meters and dynamic pricing. By reporting hourly load profiles, both projects will be able to demonstrate the peak shifting functionality of the smart grid technology and associated tariff. These measured impacts will then be used to determine the benefits of each project that might result from peak shifting.

Depending on the goals of the project and the types of benefits which the grant recipient anticipates from its project, it can expect to provide to DOE the relevant data listed in Tables 3, 4, and 5. Although DOE currently regards this listing to include data of particular relevance in estimating the identified benefits, it is also interested in other useful data. For example, measurement of power quality events is currently limited, and DOE is interested in, for example, the possible use of advanced smart meters to compile data on the frequency of voltage sags among commercial and industrial end-users.

**Table 3 - Information Related to Electricity End-Use**

Information Reported	Example Calculations Supported
Monthly electricity cost by customer (\$)	<ul style="list-style-type: none"> <li>• Consumer electricity cost</li> </ul>
Hourly consumption by customer (kWh)	<ul style="list-style-type: none"> <li>• Consumer electricity cost</li> <li>• T&amp;D capacity deferral</li> </ul>
Tariff description by customer	<ul style="list-style-type: none"> <li>• Consumer electricity cost</li> </ul>
Demographic and other information affecting demand	<ul style="list-style-type: none"> <li>• Consumer electricity cost</li> </ul>
Smart appliances in use	<ul style="list-style-type: none"> <li>• Consumer electricity cost</li> <li>• T&amp;D capacity deferral</li> </ul>

**Table 4 - Information Related to T&D Performance**

Information Reported	Example Calculations Supported
System Average Interruption Frequency Index (SAIFI)	<ul style="list-style-type: none"> <li>• Cost savings to customers associated with fewer outages</li> <li>• Incentive payments to utilities through performance based rates for reliability</li> <li>• Cost savings associated with restoring service</li> </ul>
System Average Interruption Duration Index (SAIDI)	<ul style="list-style-type: none"> <li>• Cost savings to customers associated with shorter outages</li> <li>• Incentive payments to utilities through performance based rates for reliability</li> </ul>
Momentary Average Interruption Frequency Index (MAIFI)	<ul style="list-style-type: none"> <li>• Cost savings to customers associated with fewer disturbances</li> <li>• Cost savings to utilities from longer equipment life due to less exposure to fault current</li> </ul>
T&D System Losses (MWh)	<ul style="list-style-type: none"> <li>• Cost of generation for lost energy</li> <li>• Pollutant emissions from lost energy</li> </ul>
Activity Based O&M Expenses	<ul style="list-style-type: none"> <li>• Cost efficiencies from automated operations and maintenance</li> </ul>
Equipment failure incidents	<ul style="list-style-type: none"> <li>• Capital cost of replacing equipment</li> <li>• O&amp;M cost from repair</li> </ul>
Transmission capability (MW)	<ul style="list-style-type: none"> <li>• Value of incremental transfer capability gained without building additional transmission capacity</li> </ul>

**Table 5 - Information Related to Energy Resources**

Information Reported	Example Calculations Supported
Load served by distributed energy resources (MWh)	<ul style="list-style-type: none"> <li>• Cost of centrally generated energy avoided</li> <li>• Pollutant emissions from central generation and lost energy avoided</li> <li>• Cost of generation for lost energy</li> </ul>
Combined Heat and Power installed (MW)	<ul style="list-style-type: none"> <li>• Cost of central generation avoided</li> <li>• Pollutant emissions and cost of generation from lost energy avoided</li> </ul>
Capacity and energy served by renewable energy resources (MW and MWh)	<ul style="list-style-type: none"> <li>• Cost of central generation avoided</li> <li>• Pollutant emissions from central generation and lost energy avoided</li> <li>• Cost of generation for lost energy</li> <li>• Cost of ancillary services avoided</li> </ul>
Average heat rate of system generation (BTU/MWe)	<ul style="list-style-type: none"> <li>• Pollutant emissions from central generation</li> <li>• Cost of central generation avoided</li> </ul>
Electricity consumed by electric vehicles (MWh)	<ul style="list-style-type: none"> <li>• Reduced oil consumption</li> </ul>
Capacity from electric vehicles (MW)	<ul style="list-style-type: none"> <li>• Cost of central generation avoided</li> <li>• Pollutant emissions from central generation and lost energy avoided</li> <li>• Cost of generation for lost energy</li> </ul>

All data collection and compilation by the grant recipient should be consistent with the scope of the project (e.g., at the feeder level). Also, the grant recipient is to collect and compile data according to industry standards and best practices. For example, SAIFI, SAIDI, and MAIFI are to be compiled as described in IEEE Standard 1366-2003, “IEEE Guide for Electric Power Reliability Indices); daily SAIDI estimates should be with and without major event days, as determined using the beta method, and compiled over a five year period.

Summary of Framework for Estimating Smart Grid Costs and Benefits

Table 6 summarizes DOE’s approach for estimating the benefits of smart grid projects. The “Benefit Category” is the broadly-defined category of benefits.

The “Benefit” is the final impact of the project that is of value to stakeholders. These benefits are either explicitly expressed in, or might be converted into, monetary terms. DOE acknowledges the uncertainty and associated variance in conversion factors used to convert reliability, environmental, and energy-security related benefits into monetary values. However, DOE will use the scientific literature and develop a range of plausible estimates.

The “Source of Benefit” column in Table 6 lists some of the possible intermediate outcomes or goals of projects. These intermediate outcomes give rise to the various benefits listed in the previous column.

The right-most column in Table 6 lists data which the grant recipient can expect to provide, so that DOE can estimate the benefits of the project.

Table 6 is not meant to encompass every possible proposed project nor be a comprehensive listing of all of the possible types of benefits and associated data needs. The benefits and data elements listed in the table reflect the benefits DOE has identified thus far as being of interest, possibly significant in magnitude, and for which grant recipients are likely able to compile the data for DOE to estimate their project benefits.

Table 6 - Summary of Benefits, the Sources of these Benefits and the Data which the Grant Recipient can Expect to Report			
Benefit Category	Benefit	Source of Benefit	Information Reported by Project
Economic	Lower electricity cost Lower peak demand	<ul style="list-style-type: none"> <li>Flatter load curve (from load shifted to off-peak periods, e.g., from consumer behavior and smart appliances that can respond to price signals)</li> <li>Lower electricity rates (reflecting reduced generation costs with flatter load curve)</li> <li>Lower total electricity consumption</li> </ul>	<ul style="list-style-type: none"> <li>Hourly load data, by customer</li> <li>Monthly electricity cost, by customer</li> <li>Tariff description, by customer</li> <li>Demographic and other information affecting demand</li> <li>For firms, square footage and SIC code</li> <li>Types of smart appliances in use</li> </ul>
	Lower T&D losses	<ul style="list-style-type: none"> <li>Optimized T&amp;D network</li> <li>Generation closer to load (DG)</li> </ul>	<ul style="list-style-type: none"> <li>T&amp;D system losses (MWh)</li> <li>% of MWh served by DG</li> </ul>
	Lower O&M costs	<ul style="list-style-type: none"> <li>Reduced O&amp;M activity</li> <li>Lower equipment failure</li> </ul>	<ul style="list-style-type: none"> <li>Activity based O&amp;M costs</li> <li>Equipment failure incidents</li> </ul>
	Reduced transmission congestion costs	<ul style="list-style-type: none"> <li>Increased transmission transfer capability without building additional transmission capacity;</li> </ul>	<ul style="list-style-type: none"> <li>Actual real-time capability of key transmission lines</li> </ul>
Reliability and Power Quality	Reduced cost of power interruptions	<ul style="list-style-type: none"> <li>Fewer shortages</li> <li>Shorter shortages</li> </ul>	<ul style="list-style-type: none"> <li>SAIFI</li> <li>SAIDI or CAIDI</li> </ul>
	Reduced costs from better power quality	<ul style="list-style-type: none"> <li>Fewer momentary outages</li> <li>Fewer severe sags and swells</li> <li>Lower harmonic distortion</li> </ul>	<ul style="list-style-type: none"> <li>MAIFI</li> </ul>
Environmental	Reduced damages as a result of lower GHG/carbon emissions	<ul style="list-style-type: none"> <li>Lower electricity consumption from:                             <ul style="list-style-type: none"> <li>Intelligent appliances</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Hourly consumption against baseline/control group</li> </ul>
		<ul style="list-style-type: none"> <li>Lower T&amp;D losses from:                             <ul style="list-style-type: none"> <li>Optimized T&amp;D network</li> <li>Generation closer to load (DG)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>% of MWh served by DG</li> <li>T&amp;D system losses (MWh)</li> </ul>
		<ul style="list-style-type: none"> <li>Lower emissions from generation from:                             <ul style="list-style-type: none"> <li>CHP</li> <li>Renewable energy (RE)</li> <li>Operating generators at more efficient points</li> <li>Avoiding additional generator dispatch with load response</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>MW of CHP installed</li> <li>% of MWh served by RE</li> <li>% of feeder peak load served by RE</li> <li>Average heat rate of supply (or similar information)</li> </ul>
Energy Security	Greater energy security from reduced oil consumption	<ul style="list-style-type: none"> <li>Electricity substituting for oil by “smart-grid enabled” electric vehicles</li> </ul>	<ul style="list-style-type: none"> <li>kWh of electricity consumed by electric vehicles</li> </ul>

## C. Application Filing Instructions

You must complete the mandatory forms and any applicable optional forms (e.g., SF-LLL- Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.

### 1. Application File

Complete this form first to populate data in other forms. Complete all required fields in accordance with the pop-up instructions on the form. The list of certifications and assurances referenced in Field 21 can be found on the DOE Financial Assistance Forms Page at [http://management.energy.gov/business\\_doe/business\\_forms.htm](http://management.energy.gov/business_doe/business_forms.htm) under Certifications and Assurances.

#### Project/Performance Site Location(s)

Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site location(s) in the blocks provided.

Note that the Project/Performance Site Congressional District is entered in the format of the 2 digit state code followed by a dash and a 3 digit Congressional district code, for example VA-001. Hover over this field for additional instructions.

Use the Next Site button to expand the form to add additional Project/Performance Site Locations.

#### Other Attachments Form

Submit the following files with your application and attach them to the Other Attachments Form. Click on "Add Mandatory Other Attachment" to attach the Project Narrative. Click on "Add Optional Other Attachment," to attach the other files.

### 2. Budget File

-- Budget File. Applicants must complete a separate budget for each year of support requested and a cumulative for the total project period. Use the SF 424A Excel, "Budget Information – Non-Construction Programs" form. You must also provide a separate budget for each subawardee that is expected to perform work estimated to be more than \$100,000 or 50 percent of the total work effort (whichever is less). Click here for budget form: <http://www.management.energy.gov/documents/SF424Aexcel.xls>

You may request funds under any of the categories, excluding expenditures for travel, lodging, meals or other personnel costs per EISA, Section 1306(c), listed as long as the item and amount are necessary to perform the proposed work and are not precluded by the cost principles or program funding restrictions (See Part IV. F). Save this information/budget forms in a single Excel file named "Budget." Additionally, save each subawardee's budget in a separate file. Use up to 10 letters of the subawardee's name (plus "Budget") as the file name. Click on "Add Optional Other Attachment" to attach each file.

-- Budget Justification File. A budget justification for SF 424A must be provided for the costs proposed by Applicants and subawardees in each Object Class Category/Cost Classification category for proposed direct labor, consultants, large subawards, large or unique "other direct costs", equipment, etc. Provide this information for

For subawards, identify organization name, description of the scope of work, name of the project leader, and estimated total costs. The contracting officer may request a more detailed budget for a particular subaward, if your application is selected.

Identify key persons and personnel categories and the estimated costs for each person or category; provide a list of equipment and cost of each item; identify proposed subaward/consultant work and cost of each subaward/consultant; list general categories of supplies and amount for each category; and provide any other information you wish to support your budget. Provide the name of your cognizant/oversight agency, if you have one, and the name and phone number of the individual responsible for negotiating your indirect rates. The Budget Justification for SF 424A is in the Excel format. Save this information in a single file named "BudgetJustification.xls" and click on "Add Optional Other Attachment" to attach.

-- Letters of Commitment. You must have a letter from each third party contributing cost sharing (i.e., a party other than the organization submitting the application) stating that the third party is committed to providing a specific minimum dollar amount of cost sharing. In the budget justification, identify the following information for each third party contributing cost sharing: (1) the name of the entity; (2) the proposed dollar amount to be provided; (3) the amount as a percentage of the total project costs; and (4) the proposed cost sharing – cash, services, or property. By submitting your application, you are providing assurance that you have signed the letter of commitment. Successful applicants will be required to submit these signed letters of commitment. Save this information in a Word or pdf file named "CLTP Attachment".

### 3. Technical File – Project Plan

The Project Plan is the only document that will be considered by the technical merit reviewers and must not exceed 40 pages, including cover page, table of contents, charts, graphs, maps, photographs, other pictorial presentations, and sections A-F above when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right). Resumes (no longer than two pages each), letters of commitment, other letters of support or letters from federal, state, regulatory, or local officials, and the list of other applications for Recovery Act funds should be included as attachments within the Project Plan, but they will not be counted against the 40 page limit. The font should not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application, because the information contained in these sites will not be reviewed. Save this information in Word or pdf file named "Project Plan".

### 4. Attachment Files

Applicants must submit the following additional files with their application.

- Certifications/Assurances. Applicants must complete the DOE certification/assurance information. Click here for form:

<http://www.management.energy.gov/documents/CERTSASSURANCESSF424.doc>

Save this information in a single Word or pdf file named "Certification/Assurance".

- Commitment Letters from Third Parties Contributing to Cost Sharing.

The applicant must have firm funding commitment letters from third parties expected to contribute to cost sharing. At the time the application is submitted, the applicant must identify for each participant providing cost sharing: 1) the name of the organization; 2) the proposed dollar amount to be provided; 3) the amount as a percentage of the total project cost; and 4) the proposed cost sharing – cash, services, or property. For projects with multiple cost sharing partners, summarize the information in a table format. Provide the information in a Word or pdf file named “CLTP Attachment”.

- SGIG NEPA Questionnaire

Applicants must complete the SGIG NEPA Questionnaire. Answers should be based on the entire scope of the applicant proposed project. Before completing the Questionnaire applicants are advised to read the DOE NEPA requirements found at <http://www.gc.energy.gov/NEPA/guidance.htm> and the information on NEPA in Appendix 1 to this solicitation.

The SGIG NEPA Questionnaire is provided as Appendix 5.

- Summary of Required Forms/Files

Your full application must include the following:

Application for Federal Assistance Form (SF-424)

Volume I – Technical and Project Plan

Volume II – Cost (All are attachments to the “Other Attachments File Form” in Grants.gov)

SF-424A File – Budget Information

For Non-Construction Programs

Budget Justification File

-- Subaward Budget File(s)

Certifications and Assurances

Commitment Letters

NEPA Questionnaire

## **D. Submission Dates and Times**

### **1. Application Due Date**

Applications will be evaluated in three phases: Phase 1 applications are due August 06, 2009; Phase 2 applications are due November 04, 2009 and Phase 3 applications are due March 03, 2010, not later than 8:00 PM Eastern Time. DOE cannot predict at this time that funds will remain available beyond awards provided after the first due date. Applicants not notified that they have received an award should not re-submit their application, as they will be considered in subsequent phases.

APPLICATIONS, INCLUDING ALL APPLICATION FILES, RECEIVED BEFORE THE DEADLINE DATES WILL BE REVIEWED AND CONSIDERED FOR AWARD IN THE APPROPRIATE PHASE.

APPLICATIONS, INCLUDING ALL APPLICATION FILES, RECEIVED AFTER THE (INSERT THE LAST OF DEADLINE) 8:00 PM Eastern Deadline WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

## 2. Submissions from Successful Applicants

If selected for negotiations, DOE reserves the right to request additional or clarifying information for any reason deemed necessary, including, but not limited to:

- Indirect cost information
- Other budget information
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5).
- Representation of Limited Rights Data and Restricted Software, if applicable.
- Commitment Letter from Third Parties Contributing to Cost Sharing, if applicable. No special format is required.
- Certification as to U. S. status of prime awardee or national status of any subawardee.
- EPACT Representation A successful applicant that is a business entity, other than a non-profit organization of the type described in section 501(c)(3) of the Internal Revenue Code, must complete and provide the appropriate EPACT Representation form.

Click here for forms:

<http://www.management.energy.gov/documents/EPACTREPRESENTATIONJune2005.doc>

Successful applicants must submit the information identified above not later than 15 calendar days after notification of selection. Applicants who fail to provide the information within the required time period may be eliminated from further consideration.

## E. Intergovernmental Review

This program is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

## F. Funding Restrictions

### 1. Cost Principles

Cost must be allowable in accordance with the applicable cost principles referenced in 10 CFR Part 600.

### 2. Pre-award Costs

Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are necessary for the conduct of the project activities and are otherwise allowable in accordance with the applicable cost principles and the terms and conditions of the award. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90 day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

## **G. How to Submit Your Application**

### **1. How to Submit**

The complete application package is provided with this FOA. Forms, certifications and questionnaires to be completed are contained in the Appendices. The remainder of the application documents are self-created.

**Once your application is completed, submit the files identified in Part IV, Section C by e-mail to [DOESGIGApplications@HQ.DOE.GOV](mailto:DOESGIGApplications@HQ.DOE.GOV). Please identify the topic area your application supports in the subject line of the e-mail.**

No facsimile or hardcopy submissions will be accepted.

### **2. Registration Process**

You must be registered with Dunn and Bradstreet Universal Numbering System (DUNS) and the Central Contractor Registration (CCR) in order to receive an award under the SGIG Program. Recipients will be required to follow strict requirements for reporting, information collection, budget execution, and risk management in accordance with the Recovery Act. Additionally, applicants and their potential first tier subrecipients should begin planning activities to create or update records of their profiles in DUNS and CCR. Applicants not registered in both databases will be precluded from receiving an award. **Please allow 21 days to complete the registration process.** The Special Provisions provide greater detail of the requirements for interested applicants. Additionally, a copy of the CCR requirements is provided as Appendix 4.

Click on the following web-sites for access to DUNS and CCR registration information:

DUNS: <http://fedgov.dnb.com/webform>

CCR: <http://www.ccr.gov/>

## **PART V – Application Review Information**

### **A. Initial Review Criteria**

Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; and (4) the proposed project is responsive to the objectives of the funding opportunity announcement.

## B. Merit Review

Applications that pass the initial review will be subjected to a merit review in accordance with the guidance provided in the “Department of Energy Merit Review Guide for Financial Assistance and Unsolicited Applications”. This guide is available at <http://professionals.pr.doe.gov/ma5/ma-5web.nsf/?Open> under Financial Assistance, Regulations and Guidance.

## C. Merit Review Criteria

The following technical merit review criteria will be used in the evaluation of applications and in the determination of the SGIG project awards. The relative importance of the four criteria is provided in percentages in parentheses.

1. Adequacy of the Technical Approach for Enabling Smart Grid Functions (40%)
2. Adequacy of the Plan for Project Tasks, Schedule, Management, Qualifications, and Risks (25%)
3. Adequacy of the Technical Approach for Addressing Interoperability and Cyber Security (20%)
4. Adequacy of the Plan for Data Collection and Analysis of Project Costs and Benefits (15%)

### Criterion 1 - Adequacy of the Technical Approach for Enabling Smart Grid Functions

To ensure the greatest possible impact of SGIG funding, applications will be evaluated for the extent to which they will enable smart grid functions through the deployment and operation of smart grid technologies, tools, and techniques. The following will be considered:

- The project clearly involves smart grid technologies, tools, or techniques that meet the conditions of “qualifying investments”.
- The project installs the qualified smart grid technologies, tools, or techniques and connects them to the electric system, building, or piece of equipment.
- The project includes a plan for operating the smart grid technologies, tools, or techniques in a manner that clearly causes smart grid functions to actually occur.
- The project includes a plan for expanding installation and operation of the qualified smart grid technologies, tools, or techniques to a broader set of locations and applications after the project is complete (e.g., company-wide, city-wide, state-wide, system-wide, region-wide, interconnection-wide, nation-wide).
- The project includes a plan for assessing the operational performance of the smart grid technologies, tools, and techniques and using the results of that assessment to optimize the way electricity is generated, delivered, or used.

#### Opportunities to Earn a High Technical Merit Rating for Criterion 1

For those applicants whose projects deploy smart grid technologies, tools, and techniques within an electric distribution system, there is an opportunity for a high technical merit rating for those projects that aim to improve operational performance, including improvements in asset utilization and the reliability of electric service. Applications that fully describe how smart grid functions would be achieved or enhanced and present an approach for how the information will be applied for understanding system conditions and making or planning improvements will have the

opportunity to earn a high technical merit rating.

For those applications involving advanced metering infrastructure, DOE is especially interested in projects that involve dynamic pricing, particularly ones that use pricing schemes that align customer incentives with the full cost of providing power. DOE considers one of the most valuable uses of advanced meters to be for the implementation of time-varying retail electricity rates that can respond dynamically to changes in system conditions and/or wholesale prices. Such projects will have the opportunity to receive a high technical merit rating.

For those projects that involve deployment of PMUs and related devices on electric transmission or distribution systems, there is an opportunity to earn progressively higher technical merit ratings for applications that include the following features:

- Connecting PMUs via suitable broadband communications to a data archiving unit such as a PDC.
- Installing visualization system(s) that allow operators to view the data from the PMUs and PDCs and observe steady state and dynamic conditions on their system.
- Connecting with organizations such as NASPInet to allow for the sharing of relevant data with external parties in support of reliability management.

For those applications involving customer systems projects, there is an opportunity to earn a high technical merit rating for projects that apply smart grid technologies, tools, and techniques to improve operational performance, including improvements in energy efficiency and in reducing peak demand. Applications that describe how smart grid functions would be achieved or enhanced and present an approach for how the information will be applied for understanding system conditions and making or planning improvements, including expanding the project once it is complete within the organization or to other organizations, will have the opportunity to earn a high technical merit rating. There will also be an opportunity for earning a high technical merit rating for projects that involve the sharing of information for purposes of improving energy utilization with electric power companies and communication and information services providers.

For those applications involving the manufacture of appliances and equipment that include devices for smart grid capabilities, there is an opportunity to earn a high technical merit rating for projects that provide plans to enhance the deployment of “smart” products and gain information relative to their effectiveness. Such plans would involve marketing strategies that promote their adoption, including the consideration of campaigns or collaborations with other companies or agencies that lead to actual installation of such devices by consumers and/or electric power companies.

### **Criterion 2 - Adequacy of the Plan for Project Tasks, Schedule, Management, Qualifications, Organizational Commitment, and Risks**

To ensure the successful execution of the project, applications will be evaluated for the adequacy of the Project Plan in describing the tasks, schedules, management, qualifications of the organizations and individuals, and level of organizational commitment. The following will be considered:

- The relevance of the project’s objectives and scope of activities to the purpose and goals of the SGIG.

- The effectiveness of the plan in organizing the tasks, activities, organizations, and personnel to accomplish project objectives in a timely and cost-effective manner and produce top quality deliverables, products, and services, and to define the respective roles and responsibilities of the project manager, supporting personnel, lead organization (e.g., “prime” contractor), and supporting organizations (e.g., “lower-tier” subcontractors).
- The effectiveness of the project schedule in describing the key tasks and their interrelationships, major milestones and deliverables, and a project time period of three years or less.
- The relevance and significance of the qualifications of the organizations and personnel for achieving the project objectives and contributing to the overall purpose and goals of the SGIG.
- The level of organizational commitment to the project as demonstrated by the inclusion of letters of support or other materials from senior executives in the lead and supporting organizations, key vendors, and key stakeholders.
- The effectiveness of the project strategies to address technical, financial, regulatory, or institutional risks.

#### Opportunities to Earn a High Technical Merit Rating for Criterion 2

Applications with a Project Plan that convincingly demonstrates a comprehensive, integrated approach, indicating a high probability of success, to fulfill the technical promise of the application on schedule and within the budget will have an opportunity to earn a high merit rating. A proven project manager; a complete discussion of risk and risk mitigation strategies; a realistic, well thought out implementation schedule, appropriate tools to monitor performance, well established interfaces with all organizational elements are critical to a high merit rating.

#### **Criterion 3 - Adequacy of the Technical Approach for Addressing Interoperability and Cyber Security**

Applications will be evaluated on the adequacy of the plans for addressing interoperability and cyber security.

The Project Plan’s technical approach for interoperability will be evaluated as to how clearly it provides a description of the automation component interfaces (devices and systems), how integration is supported to achieve interoperability, and how interoperability concerns will be addressed throughout all phases of the engineering lifecycle, including design, acquisition, implementation, integration, test, deployment, operations, maintenance, and upgrade.

The Project Plan’s technical approach for cyber security protections will be evaluated as to how clearly and concisely it provides a description of how cyber security concerns will be addressed throughout the project. Of particular concern in the evaluation will be the integration of the new smart grid application into the existing environment, and how any new cyber security vulnerabilities will be mitigated through technology or other measures. Although sensitive cyber security details that would jeopardize system security if they were exposed should not be revealed in the application, sufficient detail should be included to judge the project on its cyber security merits.

DOE may not make an award to an otherwise meritorious application if that application cannot provide reasonable assurance that their approach to cyber security will prevent broad based systemic failures in the electric grid in the event of a cyber security breach.

Opportunities to Earn a High Technical Merit Rating for Criterion 3

With respect to interoperability, project applications have the opportunity to earn a higher technical merit rating when the Project Plans clearly and concisely address the following:

- The information exchange interface points for each type of communicating automation device and system.
- The reasonableness of the openly-available and proprietary aspects of the interface specifications.
- Where a type of communicating device or system is expected in large numbers (e.g., meters, sensors, customer interfaces), the extent of support for multiple suppliers who will integrate their devices or systems that may be based on different technologies at the points of interface.
- If existing (legacy) communicating devices or systems are integrated into the project, the extent to which they integrate and interoperate at the points of interface with new components.
- The reasonableness of the interacting parties' anticipated response to failure scenarios, particularly loss of communications, such that overall system impact is mitigated in the event of such failure.
- The reasonableness of the anticipated process for upgrading devices or systems (hardware and software) so that overall system operation impact is mitigated.
- The extent of the evidence that will be provided (interface specifications, interoperability test plans and results, reviews, and other engineering artifacts) to ensure interoperability at the interfaces of communicating automation devices and systems.
- The reasonableness of the project's ability to support compatibility with NIST's emerging smart grid framework for standards and protocols as information becomes available.

With respect to cyber security, project applications have the opportunity to earn a higher technical merit rating when the Project Plans clearly and concisely address the following:

- The methodology used to identify cyber security risks and the results of this assessment (e.g., the assessment should consider the mission of the new smart grid project and also potential impacts to other critical grid control functions to which they are connected).
- How cyber security risks will be mitigated at each phase of the engineering lifecycle, including policy, procedural, and technical (logical and physical) controls, with special emphasis on strategies for:
  - ensuring the confidentiality, integrity, and availability of device and system data and communications commensurate with the application requirements,
  - securing, logging, monitoring, alarming, and notification, and
  - applications where logical and physical security may not be under the direct jurisdiction of the installing entity.
- The relevant cyber security standards or best practices that will be used.
- The capability of the components or system to be updated to meet future cyber security requirements or technologies.
- How evidence will be provided (e.g., a test plans, engineering artifacts, independent testing and review) to demonstrate and validate the effectiveness of the cyber security controls.

#### **Criterion 4 - Adequacy of the Plan for Data Collection and Analysis of Project Costs and Benefits**

Applications will be evaluated on the adequacy of plans for data collection and analysis of project costs and benefits. The evaluation will consider the thoroughness of the discussion of data requirements (including what types of data and their availability) and how that data will be provided to DOE so that project costs and benefits can be properly analyzed. The evaluation will also consider the applicant's estimates of project benefits. In addition, the evaluation will consider the comprehensiveness of the plan for determining the baseline against which the costs and benefits will be assessed.

##### Opportunities to Earn a High Technical Merit Rating for Criterion 4

For those applications involving advanced metering with dynamic pricing and randomization, there is an opportunity to earn a high merit rating for projects that provide a clear and comprehensive approach to randomization.

#### **D. Program Policy Factors**

After the technical merit review process is complete, DOE may choose to apply program and policy factors in the selection of grant recipients. In doing this DOE reserves the right to select applications of lesser merit than other applications. DOE's goal is to ensure that the selection process results in an efficacious portfolio of SGIG projects and provides for an appropriate mix of methods, approaches, concepts, and strategies.

Application of the program and policy factors could result in the selection of projects that include:

- Different types and sizes of organizations to assess smart grid functionality and benefits across a broader range of institutional structures, business models, and operational requirements.
- Different geographic areas to assess smart grid functionality and benefits across a broader range of weather conditions, customer and business demographics, electricity prices or supply and demand conditions, and market structures.
- Diverse topic areas to assess a broader range of potential smart grid technologies, tools, techniques, concepts, pricing strategies, and technical approaches and methods. (e.g., projects involving advanced metering with dynamic pricing and randomization). If supported by the applications submitted, DOE intends to award at least one large and up to five small projects that involve dynamic pricing combined with randomization where advanced metering infrastructure is being deployed.
- Abilities to further optimize the use of available funds by allowing more applications to be supported or for applications that can be accomplished sooner than the three-year, maximum period of performance.
- Impact of the proposed project to effectively support the goals of the Recovery Act.
- Cost share in excess of the minimum required 50%.

#### **E. Selection**

The Selection Official will consider the merit review recommendation, program policy factors,

and the amount of funds available.

**F. Discussions and Award**

The Government may enter into discussions with an applicant for any reason deemed necessary, including but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR 600; (4) data collection for the DOE estimation of project impacts (metrics), costs and benefits, and/or (5) cyber security assurances (6) special terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

**G. Anticipated Announcement of Award**

DOE anticipates notifying applicants selected for award within 90 days after the applicable application due date.

## **PART VI – AWARD ADMINISTRATION INFORMATION**

### **A. Award Notices**

#### **1. Notice of Selection**

DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Section IV.F with respect to the allowability of pre-award costs.) Organizations whose applications have not been selected will be advised as promptly as possible.

#### **2. Notice of Award**

A Notice of Financial Assistance Award issued by the contracting officer is the authorizing award document. It includes, either as an attachment or by reference: (1) a budget that indicates the amounts, by categories of expenses, on which the agency has based its support; (2) the application; (3) applicable program regulations, if any; (4) special terms and conditions; (5) DOE assistance regulations at 10 CFR part 600, or, for Federal Demonstration Partnership (FDP) institutions, the FDP terms and conditions; and (6) a reporting checklist, which identifies the reporting requirements.

### **B. Administrative and National Policy Requirements**

The administrative requirements and national policy requirements (e.g., “generally applicable requirements”) for DOE grants and cooperative agreements are contained in 10 CFR Part 600, except for grants made to Federal Demonstration Partnership (FDP) institutions. The FDP terms and conditions and DOE FDP agency specific terms and conditions are located on the National Science Foundation web site at [www.nsf.gov](http://www.nsf.gov). “Generally applicable requirements” are defined in 10 CFR 600.12.

Special Provisions relating to work funded under American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 shall apply. Also, the Office of Management and Budget may be promulgating additional provisions or modifying existing provisions. Those additions and modifications will be incorporated into the Special Provisions as they become available.

The overall goal of the Smart Grid Investment Grant Program is to accelerate modernization of the nation’s electric grid. While the Department of Energy has decided to utilize grants as the vehicle for providing funds to accomplish this purpose, applicants are advised that the Department intends to exercise more stringent management oversight and control than normally seen in grant programs. Methods the Department may use include payments based on milestone or task accomplishment or similar verifiable progress payment methods.

### **C. Special Provisions Relating to Work Funded under the American Recovery and Reinvestment Act of 2009 (Mar 2009)**

In addition to the above, DOE will include the following terms and conditions for all grants, cooperative agreements and technology investment agreements (new or amended) that apply funds appropriated under the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5 (Recovery Act).

## 1. Preamble

The Recovery Act was enacted to preserve and create jobs and promote economic recovery, assist those most impacted by the recession, provide investments needed to increase economic efficiency by spurring technological advances in science and health, invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits, and stabilize State and local government budgets in order to minimize and avoid reductions in essential services and counterproductive State and local tax increases. Recipients shall use grant funds in a manner that maximizes job creation and economic benefit.

The Recipient shall comply with all terms and conditions in the Recovery Act relating generally to governance, accountability, transparency, data collection and resources as specified in Act itself and as discussed below.

Recipients should begin planning activities for their first tier subcontractors, including obtaining a DUNS number (or updating the existing DUNS record), and registering with the Central Contractor Registration (CCR).

Be advised that Recovery Act funds can be used in conjunction with other funding as necessary to complete projects, but tracking and reporting must be separate to meet the reporting requirements of the Recovery Act and related Guidance (as issued by DOE). For projects funded by sources other than the Recovery Act, Contractors should plan to keep separate records for Recovery Act funds and to ensure those records comply with the requirements of the Act.

The Government has not fully developed the implementing instructions of the Recovery Act, particularly concerning the how and where for the new reporting requirements. The Contractor will be provided these details as they become available. The Contractor must comply with all requirements of the Act. If the contractor believes there is any inconsistency between Recovery Act requirements and current contract requirements, the issues will be referred to the Contracting Officer for reconciliation.

## 2. Definitions

“Covered Funds” means funds expended or obligated from appropriations under the Recovery Act. Covered Funds will have special accounting codes and will be identified as Recovery Act funds in the contract and/or modification using Recovery Act funds. Covered Funds must be reimbursed by September 30, 2015.

“Non-Federal employer” means any employer with respect to covered funds, i.e., the contractor, subcontractor, grantee, or recipient, as the case may be, if the contractor, subcontractor, grantee, or recipient is an employer; and any professional membership organization, certification of other professional body, any agent or licensee of the Federal government, or any person acting directly or indirectly in the interest of an employer receiving covered funds; or with respect to covered funds received by a State or local government, the State or local government receiving the funds and any contractor or subcontractor receiving the funds and any contractor or subcontractor of the State or local government; and does not mean any department, agency, or other entity of the Federal government.

“Recipient” means any entity that receives Recovery Act funds directly from the Federal government (including Recovery Act funds received through grant, loan, or contract) other than an individual and includes a State that receives Recovery Act Funds.

### 3. Special Provisions

#### a. Flow Down Requirement

Recipients must include these special terms and conditions in any subaward.

#### b. Segregation of Costs

Recipients must segregate the obligations and expenditures related to funding under the Recovery Act. Financial and accounting systems should be revised as necessary to segregate, track and maintain these funds apart and separate from other revenue streams. No part of the funds from the Recovery Act shall be commingled with any other funds or used for a purpose other than that of making payments for costs allowable for Recovery Act projects.

#### c. Prohibition on Use of Funds

None of the funds provided under this agreement derived from the Recovery Act may be used by any State or local government, or any private entity, for any casino or other gambling establishment, aquarium, zoo, golf course, or swimming pool.

#### d. Wage Rates

All laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the Recovery Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code. With respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan numbered 14 of 1950 (64 Stat. 1267, 5 U.S.C. App.) and section 3145 of title 40 United States Code.

Notice of Wage Requirements under Section 1606 of the Recovery Act (2 CFR § 176.190)

(a) Section 1606 of the Recovery Act requires that all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the Recovery Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code.

Pursuant to Reorganization Plan No. 14 and the Copeland Act, 40 U.S.C. 3145, the Department of Labor has issued regulations at 29 CFR parts 1, 3, and 5 to implement the Davis-Bacon and related Acts. Regulations in 29 CFR 5.5 instruct agencies concerning application of the standard Davis-Bacon contract clauses set forth in that section. Federal agencies providing grants, cooperative agreements, and loans under the Recovery Act shall ensure that the standard Davis-Bacon contract clauses found in 29 CFR 5.5(a) are incorporated in any resultant covered contracts that are in excess of \$ 2,000 for construction, alteration or repair (including painting and decorating).

(b) For additional guidance on the wage rate requirements of section 1606, contact your awarding agency. Recipients of grants, cooperative agreements and loans should direct their initial inquiries concerning the application of Davis-Bacon requirements to a particular federally assisted project

to the Federal agency funding the project. The Secretary of Labor retains final coverage authority under Reorganization Plan Number 14.

e. Reporting Requirements for Recipients

Not later than 10 days after the end of each calendar quarter, each recipient shall submit a report to the Contractor Officer or to an address or website designated by the Contracting Officer that contains:

- i. The total amount of Recovery Act covered funds received from that agency;
- ii. The amount of Recovery Act covered funds received that were expended or obligated to projects or activities;
- iii. A detailed list of all projects or activities for which Recovery Act covered funds were expended or obligated including:
  - (a) Name of project or activity,
  - (b) Contract or agreement number,
  - (c) Description of project or activity,
  - (d) Evaluation of the completion status of project or activity,
  - (e) Estimate of number of jobs created and retained by project or activity in the manner and form prescribed,
  - (f) Infrastructure investments made by State and local governments, purpose, total cost, rationale of agency for funding infrastructure investment, name of agency contact, and
  - (g) Information on subgrants awarded by recipient to include data elements required to comply with the Federal Accountability and Transparency Act of 2006 (Pub. L. 109-282).
  - (h) Description of effectiveness data collected to date and during the preceding quarter.

A Reporting Requirements Checklist for the Recovery Act-Performance Progress Report and Instructions will be provided. This information shall be reported to and published on the Internet at [www.Recovery.gov](http://www.Recovery.gov).

Recipients required to report must register with the Central Contractor Registration (CCR) database. Recipients shall ensure that all first-tier sub-recipients have a DUNS number and are registered in the CCR no later than the date the first report is due. Failure to comply with this reporting requirement may result in termination of that part of the award funded by the Recovery Act.

f. Access to Records

With respect to each contract or grant awarded utilizing at least some of the funds appropriated or otherwise made available by the Recovery Act, any representative of an appropriate inspector general appointed under section 3 or 8G of the Inspector General Act of 1988 (5 U.S.C. App.) or of the Comptroller General is authorized:

- To examine any records of the contractor or grantee, any of its subcontractors or subgrantees, or any State or local agency administering such contract that pertain to, and involve transactions relation to, the subcontract, subgrant, grant, or subgrant; and
- To interview any officer or employee of the contractor, grantee, subgrantee, or agency regarding such transactions.

## g. Publications

An application may contain technical data and other data, including trade secrets and/or privileged or confidential information, which the applicant does not want disclosed to the public or used by the Government for any purpose other than the application. To protect such data, the applicant should specifically identify each page including each line or paragraph thereof containing the data to be protected and mark the cover sheet of the application with the following Notice as well as referring to the Notice on each page to which the Notice applies:

*Notice of Restriction on Disclosure and Use of Data*

*The data contained in pages ---- of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data here to the extent provided in the award. This restriction does not limit the Government's right to use or disclose data obtained without restriction from any source, including the applicant.*

*Information about this agreement will be published on the Internet and linked to the website, [www.recovery.gov](http://www.recovery.gov), maintained by the Accountability and Transparency Board. The Board may exclude posting contractual or other information on the website on a case-by-case basis when necessary to protect national security or to protect information that is not subject to disclosure under sections 552 and 552a of title 5, United States Code.*

## h. Protecting State and Local Government and Contractor Whistleblowers

The requirements of Section 1553 of the Act are summarized below. They include, but are not limited to:

Prohibition on Reprisals: An employee of any non-Federal employer receiving covered funds under the Recovery Act may not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing, including a disclosure made in the ordinary course of an employee's duties, to the Accountability and Transparency Board, an inspector general, the Comptroller General, a member of Congress, a State or Federal regulatory or law enforcement agency, a person with supervisory authority over the employee (or other person working for the employer who has the authority to investigate, discover or terminate misconduct, a court or grant jury, the head of a Federal agency, or their representatives information that the employee believes is evidence of:

- Gross management of an agency contract or grant relating to covered funds;
- A gross waste of covered funds;
- A substantial and specific danger to public health or safety related to the implementation or use of covered funds;
- An abuse of authority related to the implementation or use of covered funds; or

- As violation of law, rule, or regulation related to an agency contract (including the competition for or negotiation of a contract) or grant, awarded or issued relating to covered funds.

Agency Action: Not later than 30 days after receiving an inspector general report of an alleged reprisal, the head of the agency shall determine whether there is sufficient basis to conclude that the non-Federal employer has subjected the employee to a prohibited reprisal. The agency shall either issue an order denying relief in whole or in part or shall take one or more of the following actions:

- Order the employer to take affirmative action to abate the reprisal;
- Order the employer to reinstate the person to the position that the person held before the reprisal, together with compensation including back pay, compensatory damages, employment benefits, and other terms and conditions of employment that would apply to the person in that position if the reprisal had not been taken; and
- Order the employer to pay the employee an amount equal to the aggregate amount of all costs and expenses (including attorneys' fees and expert witnesses' fees) that were reasonably incurred by the employee for or in connection with, bringing the complaint regarding the reprisal, as determined by the head of a court of competent jurisdiction.

Nonenforceability of Certain Provisions Waiving Rights and Remedies or Requiring Arbitration: Except as provided in a collective bargaining agreement, the rights and remedies provided to aggrieved employees by this section may not be waived by any agreement, policy, form, or condition of employment, including any predisputed arbitration agreement. No predisputed arbitration agreement shall be valid or enforceable if it requires arbitration of a dispute arising out of this section.

Requirement to Post Notice of Rights and Remedies: Any employer receiving covered funds under the Recovery Act shall post notice of the rights and remedies as required therein. (Refer to Section 1553 of the Recovery Act, [www.Recovery.gov](http://www.Recovery.gov), for specific requirements of this section and prescribed language for the notices.)

#### i. Request for Reimbursement

Recipients must provide information with its submission of the SF-270, Request for Advance or Reimbursement, to identify the portion of the request that is associated with Recovery Act projects. If the award will have Recovery Act and non-Recovery Act funds, reimbursement costs must be done by receipt of an SF-270, Request for Advance or Reimbursement, through the Automated Clearing House and the Vendor Invoice Payment Electronic Reporting System (VIPERS).

#### j. False Claims Act

Recipient and subrecipients shall promptly refer to the DOE or other appropriate Inspector General any credible evidence that a principal, employee, agent, contractor, subgrantee, subcontractor or other person has submitted a false claim under the False Claims Act or has committed a criminal or civil violation of laws pertaining to fraud, conflict of interest, bribery, gratuity or similar misconduct involving those funds.

k. Information in Supporting of Recovery Act Reporting

Recipients may be required to submit backup documentation for expenditures of funds under the Recovery Act including such items as timecards and invoices. Recipient shall provide copies of backup documentation at the request of the Contracting Officer or designee.

l. Availability of Funds

Funds appropriated under the Recovery Act and obligated to this award are available for reimbursement of costs until September 30, 2015.

m. Buy American

As noted in Section 1605 of the Recovery Act (on use of American iron, steel, and manufactured goods):

- (a) None of the funds provided under this agreement derived from the Recovery Act may be used for a project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States.
- (b) Subsection (a) shall not apply in any case or category of cases in which the head of the Federal department or agency (grantor) finds that –
  - (1) Applying subsection (a) would be inconsistent with the public interest;
  - (2) Iron, steel, and the relevant manufactured goods are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or
  - (3) Inclusion of iron, steel and manufactured goods produced in the United States will increase the cost of the overall project by more than 25 percent.
- (c) If the head of a Federal department or agency determines that it is necessary to waive the application of subsection (a) based on a finding under subsection (b), the head of the department or agency shall publish in the Federal Register a detailed written justification as to why the provision is being waived.
- (d) This section shall be applied in a manner consistent with United States obligations under international agreements.

**Notice of Required use of American Iron, Steel, and Manufactured Goods (2 CFR § 176.150)**

(a) *Definitions.* Manufactured good, public building and public work, and steel, as used in this notice, are defined in the 2 CFR 176.140. (Attached as Appendix 6).

(b) *Requests for determinations of inapplicability.* A prospective applicant requesting a determination regarding the inapplicability of section 1605 of the American Recovery and Reinvestment Act of 2009 (Pub. L. 111-5) (Recovery Act) should submit the request to the award official in time to allow a determination before submission of applications or proposals. The prospective applicant shall include the information and applicable supporting data required by paragraphs at 2 CFR 176.140(c) and (d) in the request. If an applicant has not requested a determination regarding the inapplicability of 1605 of the Recovery Act before submitting its application or proposal, or has not received a response to a previous request, the applicant shall include the information and supporting data in the application or proposal.

(c) *Evaluation of project proposals.* If the Federal Government determines that an exception

based on unreasonable cost of domestic iron, steel, and/or manufactured goods applies, the Federal Government will evaluate a project requesting exception to the requirements of section 1605 of the Recovery Act by adding to the estimated total cost of the project 25 percent of the project cost, if foreign iron, steel, or manufactured goods are used in the project based on unreasonable cost of comparable manufactured domestic iron, steel, and/or manufactured goods.

(d) *Alternate project proposals.* (1) When a project proposal includes foreign iron, steel, and/or manufactured goods not listed by the Federal Government at 2 CFR 176.140(b)(2), the applicant also may submit an alternate proposal based on use of equivalent domestic iron, steel, and/or manufactured goods.

(2) If an alternate proposal is submitted, the applicant shall submit a separate cost comparison table prepared in accordance with 2 CFR 176.140(c) and (d) for the proposal that is based on the use of any foreign iron, steel, and/or manufactured goods for which the Federal Government has not yet determined an exception applies.

(3) If the Federal Government determines that a particular exception requested in accordance with 2 CFR 176.140(b) does not apply, the Federal Government will evaluate only those proposals based on use of the equivalent domestic iron, steel, and/or manufactured goods, and the applicant shall be required to furnish such domestic items.

#### **Notice of Required use of American Iron, Steel and Manufactured Goods (2 CFR § 176.170)**

(a) *Definitions.* *Designated country iron, steel, and/or manufactured goods, foreign iron, steel, and/or manufactured good, manufactured good, public building and public work, and steel,* as used in this provision, are defined in 2 CFR 176.160(a) (Attached as Appendix 6)-.

(b) *Requests for determinations of inapplicability.* A prospective applicant requesting a determination regarding the inapplicability of section 1605 of the American Recovery and Reinvestment Act of 2009 (Pub. L. 111-5) (Recovery Act) should submit the request to the award official in time to allow a determination before submission of applications or proposals. The prospective applicant shall include the information and applicable supporting data required by 2 CFR 176.160 (c) and (d) in the request. If an applicant has not requested a determination regarding the inapplicability of section 1605 of the Recovery Act before submitting its application or proposal, or has not received a response to a previous request, the applicant shall include the information and supporting data in the application or proposal.

(c) *Evaluation of project proposals.* If the Federal Government determines that an exception based on unreasonable cost of domestic iron, steel, and/or manufactured goods applies, the Federal Government will evaluate a project requesting exception to the requirements of section 1605 of the Recovery Act by adding to the estimated total cost of the project 25 percent of the project cost if foreign iron, steel, or manufactured goods are used based on unreasonable cost of comparable domestic iron, steel, or manufactured goods.

(d) *Alternate project proposals.* (1) When a project proposal includes foreign iron, steel, and/or manufactured goods, other than designated country iron, steel, and/or manufactured goods, that are not listed by the Federal Government in this Buy American notice in the request for applications or proposals, the applicant may submit an alternate proposal based on use of equivalent domestic or designated country iron, steel, and/or manufactured goods.

(2) If an alternate proposal is submitted, the applicant shall submit a separate cost comparison table prepared in accordance with paragraphs 2 CFR 176.160(c) and (d) for the proposal that is based on the use of any foreign iron, steel, and/or manufactured goods for which the Federal

Government has not yet determined an exception applies.

(3) If the Federal Government determines that a particular exception requested in accordance with 2 CFR 176.160(b) does not apply, the Federal Government will evaluate only those proposals based on use of the equivalent domestic or designated country iron, steel, and/or manufactured goods, and the applicant shall be required to furnish such domestic or designated country items.

Applicants are strongly encouraged to read the attached file 2 CFR Part 176 for complete information regarding Buy American provisions in this solicitation.

n. Title to Real Property and Equipment

The rules governing the ownership and disposition of property purchased using federal funds are outlined within the following sections of the Code of Federal Regulations:

- **10 CFR 600. 130-137**, Grants and Cooperative Agreements with Institutions of Higher Education, Hospitals, Other Non-Profit Organizations and Commercial Organizations
- **10 CFR 600. 231-233**, Grants and Cooperative Agreements with State and local Governments
- **10 CFR 600. 320-325**, Grants and Cooperative Agreements with For-Profit Organizations

o. Intellectual Property

Patent Rights – For awards involving research, development or demonstration, the government will have certain statutory rights in any invention that may be conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, DOE may waive all or any part of the rights of the U.S. in such inventions, subject to certain conditions. DOE will consider granting a class patent waiver for inventions arising under this program.

Rights in Technical Data – Normally, a Federal government has unlimited rights in technical data created under a DOE agreement. Delivery, or third party licensing, of proprietary software or data developed solely at private expense will not normally be required, except as specifically negotiated in a particular agreement to satisfy DOE's own needs or to ensure the commercialization of technology developed under a DOE agreement. DOE will explore whether greater protections for data developed under awards under this program may be available.

p. Certifications by State and Local Government Officials for Infrastructure Investments

With respect to covered funds made available to State or local governments for infrastructure investments under the Recovery Act (as noted within Section 1511), the Governor, mayor, or other chief executive, as appropriate, certifies by acceptance of the award that the infrastructure investment has received the full review and vetting required by law and that the chief executive accepts responsibility that the infrastructure investment is an appropriate use of taxpayer dollars. Recipients shall provide an additional certification that includes a description of the investment, the estimated total cost, and the amount of covered funds to be used for posting on the Internet. A State or local agency may not receive infrastructure investment funding from funds made available by the Act unless this certification is made and posted.

q. Additional Funding Distribution and Assurance of Appropriate Use of Funds

As noted within the Recovery Act, Section 1607:

- (a) Certification by Governor – Not later than April 3, 2009, for funds provided to any State or agency thereof by the Recovery Act, the Governor of the State shall certify that: (1) the State will request and use funds provided by the Act; and (2) the funds will be used to create jobs and promote economic growth.
- (b) Acceptance by State Legislature – If funds provided to any State in any division of the Recovery Act are not accepted for use by the Governor, then acceptance by the State legislature, by means of the adoption of a concurrent resolution, shall be sufficient to provide funding to such State.
- (c) Distribution – After adoption of a State legislature’s concurrent resolution, funding to the State will be for distribution to local governments, councils of government, public entities, and public-private entities within the State either by formula or at the State’s discretion.

## D. Reporting

### 1. General Reporting Requirements

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the FOA as Appendix 3.

### 2. Submission of Scientific/Technical Reports – Grants

Electronic Submission: Scientific/technical reports must be submitted electronically via the DOE Energy Link System (E-Link) with the appropriate DOE Form 241 (See Federal Assistance Reporting Checklist, DOE F 4600.2). E-Link will allow you to complete the DOE F 241 online and then upload your report. It can be accessed at <http://www.osti.gov/elink-2413>.

DOE Form 241.3, “U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)”: This form and instructions are available on E-Link. If there is any patentable material, protected data, or SBIR/STTR data in the report, the recipient must, consistent with the data protection provisions of the grant, clearly identify patentable or protected data on each page of the report, identify such material on the cover of the report, and mark the appropriate blocks in Section K of the DOE F 241.3. Other than patentable material, protected data, or SBIR/STTR data, reports must not contain any proprietary data (limited rights data), classified information, information subject to export control classification, or other information not subject to release. Protected data is specific technical data, first produced in the performance of the award, that is protected from public release for a period of time by the terms of the award agreement. A scientific/technical report produced under this award will be disseminated on the Internet via the DOE Information Bridge ([www.osti.gov/bridge](http://www.osti.gov/bridge)), except for a report or a part of a report that contains patentable material, protected data or SBIR/STTR data. Citations for journal articles produced under this award will appear on the DOE Energy Citations Database ([www.osti.gov/ecd](http://www.osti.gov/ecd)).

Electronic Format: Reports must be submitted in the ADOBE PORTABLE DOCUMENT FORMAT (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematic, graphs, and charts. E-Link can provide more details about converting a file to PDF. Materials, such as prints, videos, and books, that are essential to the report but cannot be submitted electronically, should be sent to the Contracting Officer at the address listed in Block 12 of the Notice of Financial Assistance Award.

### **3. Quarterly Reporting**

Not later than 10 days after the end of each calendar quarter, each recipient shall submit a report to the Contractor Officer or to an address or website designated by the Contracting Officer that contains:

1. The total amount of Recovery Act covered funds received from that agency;
2. The amount of Recovery Act covered funds received that were expended or obligated to projects or activities;
3. A detailed list of all projects or activities for which Recovery Act covered funds were expended or obligated including:
  - a. Name of project or activity,
  - b. Contract or agreement number,
  - c. Description of project or activity,
  - d. Evaluation of the completion status of project or activity,
  - e. Estimate of number of jobs created and retained by project or activity in the manner and form prescribed,
  - f. Infrastructure investments made by State and local governments, purpose, total cost, rationale of agency for funding infrastructure investment, name of agency contact, and
  - g. Information on subgrants awarded by recipient to include data elements required to comply with the Federal Accountability and Transparency Act of 2006 (Pub. L. 109-282).
  - h. Description of effectiveness data collected to date and during the preceding quarter.

A Reporting Requirements Checklist for the Recovery Act-Performance Progress Report and Instructions will be provided. This information shall be reported to and published on the Internet at [www.Recovery.gov](http://www.Recovery.gov).

### **4. Annual and Final Reporting**

Annual and final reports should include information on accomplishments and progress according to the metrics that apply to the project, as well as on the data that will be used for cost-benefit analysis.

## **PART VII – OTHER INFORMATION**

### **A. Modifications**

Notices of any modifications to this announcement will be posted on FedConnect. You can receive an email when a modification or an announcement message is posted by registering with FedConnect as an interested party for this FOA. It is recommended that you register as soon after release of the FOA as possible to ensure you receive timely notice of any modifications or other announcements. More information is available at <http://www.fedconnect.net>

### **B. Government Right to Reject or Negotiate**

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

### **C. Commitment of Public Funds**

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

### **D. Proprietary Application Information**

An application may include data, including trade secrets and/or privileged or confidential commercial or financial information which the applicant does not want disclosed to the public or used for any purpose other than evaluation of the application (See 10 CFR 600.15). The use and disclosure of such data may be restricted, provided the applicant marks the cover sheet of the application with the following legend and specifies the pages of the application which are to be restricted:

“The data contained in pages \_\_\_\_ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government’s right to use or disclose data obtained without restriction from any source, including the applicant.”

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

“Use or disclosure of the data set forth above is subject to the restriction on the cover page of this application.”

#### **E. Notice Regarding Eligibility of Organizations Described in Section 501(c)(4) of the Internal Revenue Code**

Applicant organizations that are described in section 501(c)(4) of the Internal Revenue Code of 1986 and that have engaged in any lobbying activities after December 31, 1995 are not eligible for an award. As set forth in section 3 of the Lobbying Disclosure Act of 1995, as amended, (2 U.S.C. 1602), lobbying activities are defined broadly to include, among other things, contacts on behalf of an organization with specified employees of the Executive Branch and Congress with regard to Federal legislative, regulatory, and program administrative matters.

#### **F. Evaluation by Non-Federal Reviewers**

In conducting the merit review evaluation, the Government plans to use qualified non-Federal personnel (e.g., DOE management and operating contractors, universities personnel, or other scientific/technical experts) as reviewers or advisors. The applicant, by submitting its application, consents to the use of non-Federal reviewers. Non-Federal reviewers will be required to sign a Conflict-of-Interest/Non-Disclosure Certificate prior to reviewing any application.

#### **G. Notice Regarding Eligible/Ineligible Activities**

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

### **PART VIII – QUESTIONS**

Questions regarding the content of the announcement must be submitted to the following e-mail: [DOESGIGQuestions@HQ.DOE.GOV](mailto:DOESGIGQuestions@HQ.DOE.GOV). Responses to questions will be posted to FedConnect at <http://www.fedconnect.net>. DOE will make its best effort to respond to a question within 5 business days, unless a similar question and answer have already been posted on the website.

Questions relating to the registration process must be directed to FedConnect at [support@fedconnect.net](mailto:support@fedconnect.net). Questions relating to how an application form works must be directed to Grants.gov at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

Questions on the FOA will be accepted through July 16, 2009.

- STRIPES Help Desk: [STRIPES-Helpdesk@hq.doe.gov](mailto:STRIPES-Helpdesk@hq.doe.gov)

### **List of Attachments:**

**Appendix 1: Additional Special Provisions Applicable to SGIG Grants**

**Appendix 2: Cost Share Information**

**Appendix 3: Reporting Requirements Checklist (DOE F. 4600.2)**

**Appendix 4: Central Contractor Registration Language/Instructions**

**Appendix 5: NEPA Questionnaire**

**Appendix 6: 2 CFR Part 176 Requirements for Implementing Sections 1512, 1605, and 1606 of the American Recovery and Reinvestment Act of 2009 for Financial Assistance Awards**

**Appendix 7: Application File Forms and Certification**

**Appendix 8: SF-424A**

**Appendix 9: Financial Assistance Certifications and Assurances**

**Appendix 10: EPACT Representation Form**

**Appendix 11: Third Party Commitment Letter (Template)**