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# Office of Electricity Delivery and Energy Reliability Recovery Program Plan

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June 11, 2010

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*Editor's Notes:*

The updated Program Specific Recovery Plan (PSRP) presented in this document reflects the wealth of experience and information accumulated over the past year. Public comments received in response to the Notice of Intent for the Smart Grid Investment Grant program issued by the Office of Electricity Delivery and Energy Reliability (OE) on May 18, 2009 added important perspective and data. Based on the over 700 applications submitted in response to the seven Funding Opportunity Announcements issued by OE, revisions to each of the programs were also made.

The refinements to OE's largest Recovery Act program, the Smart Grid Investment Grant program, have accelerated development and deployment of smart technologies and the associated economic, consumer, and environmental benefits.

Section 3 of this document provides an expanded description of OE's Recovery Act activities and Section 4 provides an updated list of milestones showing progress towards completion dates. For example, OE's original milestones provided three phases to the Smart Grid Investment Grant program, with phase one being award selections in September. The revised milestones show phase one selections in late October, but phases two and three were cancelled because the number of high quality responsive applications to phase one allowed full allocation of available funds under phase one.

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# Office of Electricity Delivery and Energy Reliability

## Program Specific Recovery Plan

June 11, 2010

### 1 Introduction

The Office of Electricity Delivery and Energy Reliability (OE) is pleased to present the Program Specific Recovery Plan, which summarizes the impact of the American Recovery and Reinvestment Act (ARRA) on the goals, measures, and activities of the Office. OE is pleased to administer ARRA Programs, or Activities, which implement some of the highest priorities of the Administration, including the Smart Grid.

This plan describes how the ARRA activities further the objectives of the Administration and the Nation, support the priorities of the Secretary of Energy, and maximize transparency and efficiency.

#### 1.1 Specific PART and CFDA Information

**Does this program align with an existing PART program?** **Electric System Research and Development.** However, activities funded by ARRA have not been subject to a PART, because they are new.

**Does this program align with an existing CFDA program?** **No.** (Catalog of Federal Domestic Assistance).

### 2 Objectives

#### 2.1 Program Purpose

The Recovery Act of 2009 indicates that the Office of Electricity Delivery and Energy Reliability (OE) shall receive \$4,500,000,000 for expenses necessary for electricity delivery and energy reliability activities to modernize the electric grid to include demand responsive equipment, enhance security and reliability of the energy infrastructure, energy storage research, development, demonstration and deployment, and facilitate recovery from disruptions to the energy supply, and for the implementation of programs authorized under title XXIII of the Energy Independence and Security Act of 2007 (EISA).

These objectives support the following GPRA Units:

- New Program – Grid Modernization

#### 2.2 Public Benefits

The purpose of the Smart Grid technology program is to promote the implementation of digital upgrades to the electric grid that are necessary to enable it to work more efficiently and cost effectively. Modernizing the nation's electric delivery network will enhance operational intelligence and connectivity that will provide the optimal amount of information necessary for customers, distributors and generators to change their behavior in a way that reduces system demands and costs, increases energy efficiency, optimally allocates and matches demand and resources to meet that demand, and increases the reliability of the grid.

The societal benefits of both the Smart Grid Investment Grant and the Smart Grid Regional and Energy Storage Demonstration Program, are to: reduce emissions, improve efficiency, enhance reliability, and provide greater energy security and flexibility to accommodate new energy technologies, including renewable, intermittent and distributed sources. There are four benefits categories: 1) Economic (lowering electricity costs through network efficiencies); 2) Reliability (lowering the occurrence of power outages); 3) Environmental (reducing greenhouse gas emissions); and 4) Energy Security (reducing reliance on oil consumption). The Smart Grid performance measures are designed to measure these goals.

### 3 Projects and Activities

In order to meet the overall goals of the President and to meet the requirements of the Recovery Act, OE is building upon its established program with seven activities designed to support the implementation of “smart grid” systems. In addition to the seven technical activities, program direction is listed as OE’s eighth activity. The eight activities are described below.

#### 3.1 Smart Grid Investment Grant Program (EISA 1306)

OE has allocated approximately \$3.5 billion to create a competitive, merit-based matching grant program that will cover up to fifty percent of investments planned by electric utilities and other entities for the deployment of Smart Grid technology, in accordance with EISA Section 1306. These investments will help implement the necessary digital upgrades to the electric grid enabling it to work more efficiently and securely. Also, these investments will help make the grid capable to effectively integrate renewable and demand management practices and increase system efficiency.

#### 3.2 Smart Grid Regional and Energy Storage Demonstration Projects (EISA 1304)

\$695 million is funding competitively awarded financial assistance projects for 1) regionally unique Smart Grid demonstration projects to quantify Smart Grid costs and benefits, verify Smart Grid technology viability, and validate new Smart Grid business models, 2) electrical energy storage demonstration and development projects and 3) demonstration projects of Smart Grid technologies. This program resulted in selection of 16 Smart Grid and 16 energy storage demonstration projects.

#### 3.3 Workforce Development Program

The Workforce Development Program has been allocated \$100 million to develop a well-trained, highly skilled electric power sector workforce, which is vital to implementing and maintaining the smart grid. Building and maintaining a skilled and knowledgeable workforce will keep pace with evolution of the Smart Grid.

This program is composed of two types of workforce training initiatives:

1. **Developing and Enhancing Workforce Training Programs for the Electric Power Sector (Topic A)** – focuses on developing new training programs, strategies and curricula related to the electric power sector and the smart grid. This will involve universities, community colleges and technical schools that will help serve as models for training/retraining workers across the country. This also includes support for the Strategic Training and Education in Power Systems (STEPS) initiative, which will develop cross-disciplinary electric power system programs at the university and college level.

2. **Smart Grid Workforce Training** (Topic B) – focuses on conducting the training programs for new hires (i.e. displaced workers, military veterans) and retraining programs for electric utility workers and electrical equipment manufacturers to enhance their knowledge of Smart Grid technologies and implementation. This will ensure utilities and manufacturers will have a trained workforce to support the ongoing Smart Grid evolution now re-emphasized through the Smart Grid Investment Grant Program and the Smart Grid Demonstration Program.

### 3.4 Interoperability and Standards Program (EISA 1305)

The Interoperability and Standards Program has been allocated \$10 million to develop a comprehensive framework and first set of standards for the interoperability and security for the Smart Grid electric power system. The National Institute of Standards and Technology (NIST) have primary responsibility to coordinate the development of a framework, which includes protocols and model standards for information management to achieve interoperability of smart grid devices and systems. These interoperability standards are necessary to realize the Smart Grid vision.

This effort will help ensure that software and hardware components from different vendors will work together seamlessly, while securing the grid against disruptions. The scope spans over areas ranging from smart customer meters to distributed power generation components to cyber security. The list of standards is based on the consensus of participants in the (public) Smart Grid Interoperability Standards Interim Roadmap workshop.

### 3.5 Interconnection Transmission Planning

The Interconnection Transmission Planning program has been allocated \$80 million to facilitate the development and strengthening of capabilities for three interconnections serving 48 states in the United States, prepare analyses of transmission requirements, and develop long-term interconnection-wide transmission expansion plans.

Interconnection refers to a geographic area in which the operation of bulk-power system components is synchronized so that the failure of one or more of components may adversely affect the ability of other components (within the system) to remain in operation of the facilities and within their control. The three interconnections are: (1) the Western Interconnection, (2) the Eastern Interconnection, and (3) the Texas Interconnection (ERCOT).

This program has two components:

- Conduct an Interconnection-Level Analysis and develop a plan for each Interconnection that has a balanced portfolio of electricity supply futures to be produced and maintained, and the transmission requirements associated with each future will be determined.
- Cooperation among States on Electric Resource Planning and Priorities. This will promote and facilitate dialogue and collaboration among the state agencies, in the respective interconnections, and enable them to develop more consistent and coordinated input and guidance for interconnection-level analyses and planning.

### 3.6 State Assistance for Recovery Act Related Electricity Policies

The State Assistance on Electricity Policy has been allocated \$50 million to hire new staff and retrain existing employees to ensure States have the capacity to quickly and effectively review proposed ARRA electricity projects. The State public utility commissions (PUCs), which regulate and oversee electricity projects in their states, will receive funding to help the individual state PUCs accelerate reviews of the large number of electric utility requests that are expected under the Recovery Act. State PUCs will review their electric utility investments such as energy efficiency, renewable energy, carbon capture and storage, transmission lines, energy storage, smart grid, demand response equipment, and electric and hybrid-electric vehicles. The anticipated benefit of this initiative is to enhance energy independence by taking advantage of opportunities from state PUCs' review and time consideration of all ARRA-related activities by their jurisdictional electric utilities.

### 3.7 Enhancing State and Local Government Energy Assurance

The Enhancing State and Local Energy Awareness program was allocated \$55 million to develop new or refine existing plans to integrate new energy sources (renewables, bio-fuels, etc.) and new applications into energy assurance and emergency preparedness plans for the state. This will promote the resiliency of the energy sector by focusing on the entire energy supply system (includes refining, storage, and distribution of fossil and renewable fuels) and reduce the impact of energy supply disruptions, should they happen.

These energy assurance and emergency preparedness plans will cover energy assurance planning and resiliency, assessing Smart Grid applications and vulnerabilities, reviewing critical infrastructure interdependencies, supporting cyber security, energy supply systems, energy data analysis, and communications. This will allow cities to better coordinate and communicate regionally, state-wide and with other states, on energy security and reliability and emergency response issues.

Additionally, under this program grantees may:

- Revise appropriate city policies, procedures and practices to reflect the Energy Assurance Plans
- Train appropriate personnel on energy infrastructure and supply systems and the execution of energy assurance plans
- Conduct energy emergency exercises to evaluate the effectiveness of the energy assurance plans
- Assess the readiness of a local jurisdiction to an energy emergency
- Build organization relationships and identifying responsibilities within local and state government, the private sector and the region
- Defining long-term strategies and options for dealing with sustained disruptions or outages
- Elevate the awareness of energy security and energy assurance issues
- Identify steps to work with industry to minimize and resolve the impact of energy supply disruptions;
- Define strategies for implementing new technologies and innovative renewable energy resources, including Smart Grid technologies
- Evaluate financing options to meet energy assurance needs
- Sharing lesson-learned and best practices among other local governments across the country.

### 3.8 Program Direction

The Recovery Act provides an additional \$4.5 billion, which is about 33 times more than OE's annual appropriation. The difference in the order of magnitude of funding is enormous and far exceeds any other DOE Program Offices that received Recovery funds. Because almost all of the \$4.5 billion will support brand new activities, the workload requirement is immense. OE has analyzed the requirements and developed a business plan to address the workload challenges. The plan includes a diverse but balanced resource management portfolio which consists of temporary federal hires, broadening NETL's current contract and project management support, ramp up existing support services contracts, utilizing technical experts from national laboratories and leveraging DOE's corporate systems and staff offices.

\$29.5 million in program direction funds will be spent by OE in order to fully manage, oversee and properly execute the Recovery funds. OE has hired additional federal staff to support Recovery work, ramped up existing support services contracts for the next five to six years to pick up work load throughout the grant period, and provided funds for NETL's additional workload in support of half of OE's solicitations.

#### 4.1 Types of Financial Awards to be Used

The table below provides information on the type of financial awards used by OE in the execution of its portfolio of ARRA activities. The entries in the table are prescriptive, and based on the choices enumerated in the documentation provided by OMB.

• Table 1 "Funding Characteristics of OE ARRA Programs"

	<b>Program / Activity</b>	<b>Financial Award</b>	<b>Potential Type of Recipients</b>	<b>Potential Type of Beneficiary</b>
1	Smart Grid Investment Grant Program (EISA 1306)	Project Grants	Non-Government – General Other Private Institution/Organization	Other Private Institution/Organization
2	Smart Grid Regional and Energy Storage Demonstration Project (EISA 1304)	Project Grants	Non-Government – General Other Private Institution/Organization	Other Private Institution/Organization
3	Workforce Development	Project Grants	Government: - Independent School District - Public Nonprofit Institute Non-Government – General - Private Nonprofit institution	Independent School District Public nonprofit institution Other public institution
4	Interoperability Standards and Framework (EISA 1305)	Project Grants	Government Federal	Federal
5	Interconnection Transmission Planning and Analysis	Project Grants	Government – IntraState Government – State Government – Other Public Institutions	Interstate Intrastate State Local Regional Organization
6	State Assistance on Electricity Policies	Project Grants	Government – IntraState Government – State Government – Other Public Institutions	Interstate Intrastate State Local Regional Organization
7	Enhancing State and Local Governments Energy Assurance	Project Grants	Government – IntraState Government – State Government – Other Public Institutions	Interstate Intrastate State Local Regional Organization
8	Program Direction - OE	Federal Employment Contracts	Non-Government – General Other Private Institution/Organization	Profit Organization Small Business African American Spanish Origin

In summary, a variety of procurement mechanisms will be utilized by OE to distribute the Recovery Act funds.

A Notice of Intent (NOI) and subsequent Funding Opportunity Announcement (FOA) was issued for the Smart Grid Investment Grant Program in May and June 2009, respectively, and 100 grants were made from DOE Headquarters on October 26, 2009. There were over 400 grant proposals submitted. Award sizes range from \$397K to \$200M.

A FOA was issued by NETL for the Smart Grid Demonstration Program in June 2009. Integrated teams of Smart Grid constituent groups (electricity providers and operators, products and services suppliers and end users, and

local/State/ tribal governments, etc) were solicited. Project sizes range from \$1M to \$40M over a performance period averaging 18 months.

Other activities that will run solicitations and grants through NETL include workforce development and all of the activities directed at supporting State and local governments in their responsibilities related to Smart Grid systems. For the workforce development activity, awards will be made to universities and training institutions for a period of performance of 60 months. Solicitations with a 60 day response time were issued in September 2009. For the work done with the States and local governments, a combination of competitive and non-competitive solicitations was done via NETL. Unique institutions such as regional governors associations, regional electricity reliability councils, the North American Electric Reliability Corporation (NERC), the National Association of State Energy Officials (NASEO), the National Conference of State Legislatures (NCSL), the Public Technology Institute (PTI) and other regional planning entities were reached through non-competitive financial agreements. The States were funded through a FOA issued from NETL for a formula based allocation of monies. Competitive solicitations of not-for-profits that can assist in completing work will be made and funds will be provided to national labs that can provide necessary technical support.

An interagency agreement was developed to transfer \$10M to NIST for work on the Interoperability Standards.

## 5 Major Planned Milestones

The table below provides major milestones for the two largest activities in OE's ARRA portfolio. One approach in developing the table was to create higher-order milestones by merging those in the activities. However, the schedule differences in each of these two activities preclude that approach. OE maintains milestones for all of the activities in its ARRA portfolio.

• Table 2 "Major Planned Milestones of OE ARRA Programs/Activities"

	Program	Event	Date
1	Smart Grid Investment Grant Program (EISA 1306)	Issue Federal Opportunity Announcement	6/25/2009
2	Smart Grid Investment Grant Program (EISA 1306)	Close date for all applications	8/6/2009
3	Smart Grid Investment Grant Program (EISA 1306)	86 of the 100 grants awarded	5/10/2010
4	Smart Grid Investment Grant Program (EISA 1306)	All 100 grants awarded	7/30/2010 *
5	Smart Grid Investment Grant Program (EISA 1306)	Annual Project Reports	12/30/2011 *
6	Smart Grid Investment Grant Program (EISA 1306)	Annual Project Reports	12/30/2012 *
7	Smart Grid Investment Grant Program (EISA 1306)	Annual Project Reports	12/30/2013 *
8	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	Issue Federal Opportunity Announcement	6/25/2009
9	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	Close date for all applications	8/26/2009
10	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	27 of the 32 recipients have received Phase I awards	5/10/2010
11	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	All recipients have received final awards	6/15/2010 *
12	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	Annual Reports	12/31/2010 *
13	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	Annual Reports	12/31/2011 *
14	Smart Grid Demonstration and Energy Storage Program (EISA 1304)	Annual Reports	12/31/2012 *
15	Workforce Development Program	Issue Federal Opportunity Announcement	9/21/2009

	Program	Event	Date
16	Workforce Development Program	Close date for all applications	11/30/2009
17	Workforce Development Program	All project award selections announced	4/8/2010
18	Workforce Development Program	All recipients have received awards	6/30/2010 *
19	Workforce Development Program	Annual Project Reports	12/31/2010 *
20	Workforce Development Program	Annual Project Reports	12/31/2011 *
21	Workforce Development Program	Annual Project Reports	12/31/2012 *
22	Interconnection Transmission Planning	ERCOT, WECC, and Western Governors Association have received awards	5/10/2010
23	Interconnection Transmission Planning	Awards issued for all remaining Interconnections	6/30/2010 *
24	Interconnection Transmission Planning	Annual Project Reports	12/31/2010 *
25	Interconnection Transmission Planning	Annual Project Reports	12/31/2011 *
26	Interconnection Transmission Planning	Annual Project Reports	12/31/2012 *
27	State Assistance on Electricity Policy	Issue Federal Opportunity Announcement	6/15/2009
28	State Assistance on Electricity Policy	Close date for all applications	8/31/2009
29	State Assistance on Electricity Policy	All project award selections announced	9/21/2009
30	State Assistance on Electricity Policy	Annual Project Reports	12/31/2010 *
31	State Assistance on Electricity Policy	Annual Project Reports	12/31/2011 *
32	State Assistance on Electricity Policy	Annual Project Reports	12/31/2012 *
33	State Assistance on Electricity Policy	Annual Project Reports	12/31/2012 *
34	Enhancing State and Local Energy Assurance (States)	Issue Federal Opportunity Announcement	6/15/2009
35	Enhancing State and Local Energy Assurance (States)	State awards selected	8/12/2009
36	Enhancing State and Local Energy Assurance (States)	Awards issued to states	8/12/2009
37	Enhancing State and Local Energy Assurance (States)	Annual Project Reports	12/31/2010 *
38	Enhancing State and Local Energy Assurance (States)	Annual Project Reports	12/31/2011 *
39	Enhancing State and Local Energy Assurance (States)	Annual Project Reports	12/31/2012 *
40	Enhancing State and Local Energy Assurance (LEAP)	Issue Federal Opportunity Announcement for LEAP	6/15/2009
41	Enhancing State and Local Energy Assurance (LEAP)	Close date for all applications	7/30/2009
42	Enhancing State and Local Energy Assurance (LEAP)	State awards selected	2/19/2009
43	Enhancing State and Local Energy Assurance (LEAP)	31 of the 43 grants awarded	5/10/2010
44	Enhancing State and Local Energy Assurance (LEAP)	Annual Project Reports	12/31/2010 *
45	Enhancing State and Local Energy Assurance (LEAP)	Annual Project Reports	12/31/2011 *
46	Enhancing State and Local Energy Assurance (LEAP)	Annual Project Reports	12/31/2012 *

\*Estimated completion date

## 6 Monitoring and Evaluation

OE's monitoring and evaluation plan is an adaptation of the one in use for baseline activities, and includes the following key features:

- Uses existing systems to track the performance of grants, augmented to track value associated with milestones and to provide alarms when necessary;
- Leverages data collection capabilities projected to be provided at "recovery.gov" by OMB;
- Employs personnel skilled in grants administration and in the appropriate technical domain areas;
- Provides to OE and Departmental management a quicklook report on a monthly basis and appropriate detailed reports on a quarterly, monthly, or ad-hoc basis;
- Uses modern risk management principles and techniques to continuously address risks and vulnerabilities;
- Provides for site visits and regular communications with awardees to identify and address issues early;
- Uses a NARA-compliant records management system to maintain official agency records; and,
- Supports the ARRA monitoring and reporting requirements for financial, schedule, and performance data;

### 6.1 Tracking Performance

Currently, OE uses the Corporate Planning System (CPS) for budget formulation and execution and project monitoring in its baseline (non-ARRA) activities. In its current form, CPS allows management to predict and schedule obligations and costed, reconcile estimates with actuals, maintain copies of agreements, and track milestones. CPS also supports automated interfaces with the National Labs to export obligations and agreements and import cost and status data. CPS is being enhanced to associate "expected costs" with milestones, provide a quicklook capability through a data warehouse, and interface with Microsoft Project (which, in turn, will interface the Primavera, the Department of Energy's choice for the Departmental rollup of PERT and Gantt charts).

- As grants are planned and awarded, entries in CPS will maintain information about the predicted schedule of obligations and costed and project milestones, along with associated cost information. CPS will be used as a baseline to drive obligations and funding at DOE Headquarters and at the National Labs.
- Grantees will be required to report financial, schedule, and performance information on a monthly information by updating CPS directly. Thus, actual expenditures are tracked and compared with estimates.

### 6.2 Data Collection

Data collection will use the following paths:

- Status reports and financial information will be collected quarterly and/or monthly, through normal procurement channels;
- ARRA-specific reporting, such as job creation/retention reporting will be collected quarterly, through Recovery.gov;
- Detailed programmatic and technical information will be collected regularly, through formal communication channels and using teleconferences and televideo;
- Expert assessments of the progress of an awardee will be collected periodically through site visits.

### 6.3 Skilled Personnel

OE is formulating a cost-effective comprehensive plan for pre-award and post-award support. Key elements of the plan include:

- Augmentation of Federal staff to provide inherently Federal functions, including grant awards, COTR responsibilities, and interventions.
- Contractor support for the enhancement, operations, and maintenance of automated processes and reporting tools to support monitoring and evaluation – these tools include data warehouses, extensions to the CPS, and automated report generation capabilities. The cost-effectiveness of all contractor support is a key measure in any decision to engage.
- Expert support, which may come from other offices, contractors, and consultants, for pre-award and post-award phases. Expert support includes those skilled in: developing and implementing selection programs, work flow analysis, determining the best selection algorithms, developing selection criteria, implementing underlying databases to ease maintenance of selection criteria, ensuring evaluation results become official agency records, managing official agency records, financial and programmatic monitoring, report generation and archiving, and responding to OE-level reporting requirements. The cost-effectiveness of all expert support is a key measure in any decision to engage.

### 6.4 Risk Management

OE has developed and presented to the Inspector General a comprehensive vulnerability assessment, which enumerates corporate and activity-specific vulnerabilities and describes mitigation strategies for each. Other key elements of OE's risk management approach include:

- Continuous identification of current and emerging risks, and for each risk maintaining trigger criteria, mitigation strategy, and mitigation details.
- Identification of external dependencies, and for each dependency maintaining mitigation strategies;
- Enumeration of realized risks – i.e., issues and for each issue, development of a plan of action and tracking to closure;
- Tracking of status of mitigation actions and responsible parties;
- Highlighting those mitigation actions which deviate from schedule and/or budget.

### 6.5 Reporting

Quarterly, monthly, and ad-hoc reports will be available to OE and Department management. All reports will be maintained as official agency records. The reports are designed to highlight potential issues with activities and with specific awards, so that appropriate early intervention occurs.

- CPS will produce reports on a quarterly, monthly, or ad-hoc basis for OE and Department management. The quicklook reports will provide summaries of the major activities, summaries of the performance of each grantee, and notifications, which will help the monitoring and evaluation staff to more closely examine the performance of individual awards and intervene when appropriate. Drilldown reports will provide details about the historical activities and current status of an awardee.
- The quicklook report will consist of a “stop-light” chart, and will be presented at the activity and award level. For a given activity or award, the quicklook report will contain indicators (in black, red, yellow, or green) for major characteristics of the performance of an activity or award. These indicators will include: timeliness of reporting,

schedule performance index, cost performance index, the presence of programmatic issues, and the presence of technical issues.

- The drilldown report, produced periodically and on an ad-hoc basis, will allow OE and Department management to develop any required interventions.

## 7 Measures

OE is currently developing a set of measures that will demonstrate the success of the Recovery Act activities. For the purposes of PART, OE is treated as a single program. It should be noted that OE has been subject to a PART; however, all of the activities in the ARRA portfolio are new, and have not been through a PART.

Some of the columns are:

- The Revised Full Program Target is the year in which the measure will be realized if appropriate ARRA funding is applied. However, if one of the activities described in this Plan do not occur, the Revised Full Program Target may have to be modified, because the activities in OE's portfolio are not-severable – i.e., they are inter-related.
- The Target is the change between the Original Program Target and the Revised Full Program Target. This change is expressed as a delta in terms of time (such as -1 year, which means OE will meet the measure at an accelerated pace).
- Also, the titles of the columns are prescribed.

- Table 3 "Performance Measures for OE"

Office	Program	Metric	Objective	Original Program Target	Revised Full Program Target	Reporting Frequency	Explanation of Measure / Notes
Electricity Delivery and Energy Reliability	Smart Grid Modernization	Number of smart meters deployed.	To determine the number and coverage of smart grid asset investments.	NA	By 2013, 26 million consumers will be equipped with smart meters (compared to 8 million in 2010).	Quarterly	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	Number of automated distribution circuits.	To determine the number and coverage of smart grid asset investments.	NA	By 2013, 23,000 distribution circuits will have automated equipment (compared to approximately 15,000 circuits in 2010).	Quarterly	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected

Office	Program	Metric	Objective	Original Program Target	Revised Full Program Target	Reporting Frequency	Explanation of Measure / Notes
Electricity Delivery and Energy Reliability	Smart Grid Modernization	The portion of transmission system visible with synchrophasor technology.	To determine the number and coverage of smart grid asset investments.	NA	By 2013, 1043 networked phasor measurement units will be installed (compared to 166 in 2010) providing nearly 100% coverage of the transmission system (as measured by the percentage of the power flow visible to synchrophasor technology).	Quarterly	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	% reduction in annual bill for consumers with smart meters, enabling technologies, and dynamic pricing.	To measure economic performance.	NA	By 2015, customers with smart meters, enabling technologies, and dynamic pricing will realize a 5% reduction in their annual electricity bills.	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	% reduction in peak demand from consumers with smart meters, enabling technologies, and dynamic pricing.	To measure economic performance.	NA	By 2015, customers with smart meters, enabling technologies and dynamic pricing will have reduced their peak demand by 5%. (Peak demand reduction will also be stated in terms of an equivalent deferral of generation capacity, in megawatts; consumer cost savings will also be calculated.)	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	% decrease in annual operations and maintenance costs for distribution circuits with automated equipment.	To measure economic performance.	NA	By 2015, utilities will realize a 10% decrease in annual operations and maintenance costs for distribution circuits with automated equipment.	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected

Office	Program	Metric	Objective	Original Program Target	Revised Full Program Target	Reporting Frequency	Explanation of Measure / Notes
Electricity Delivery and Energy Reliability	Smart Grid Modernization	% average reduction in the length of power outages experienced by customers on distribution circuits with distribution automation.	To measure reliability performance.	NA	By 2015, customers on distribution circuits with distribution automation will experience a 5% average reduction in the length of their power outages.	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	Reduction in geographic scope, frequency and duration of power outages caused by problems on the bulk power system (transmission system).	To measure reliability performance.	NA	By 2015, 50% of transmission operators will have planning and/or operating procedures that incorporate synchrophaser measurements.	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	Annual reduction in wasted energy (line losses) in distribution circuits with advanced control technology (as measured in kilowatt hours) and associated reduction in emissions of CO <sub>2</sub> , NO <sub>x</sub> and SO <sub>x</sub> .	To measure environmental performance.	NA	By 2015, the deployment of advanced control technology will result in a 5% reduction in energy wasted (line losses) in distribution circuits. (The reduction in energy wasted will also be stated in terms of an equivalent reduction in the emissions of CO <sub>2</sub> , NO <sub>x</sub> and SO <sub>x</sub> .)	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected
Electricity Delivery and Energy Reliability	Smart Grid Modernization	% reduction in emissions of CO <sub>2</sub> , NO <sub>x</sub> and SO <sub>x</sub> associated with decreased electricity consumption and peak demand by customers with smart meters, enabling technologies, and dynamic pricing.	To measure environmental performance.	NA	By 2015, customers with smart meters, enabling technologies, and dynamic pricing will have reduced emissions of CO <sub>2</sub> , NO <sub>x</sub> and SO <sub>x</sub> associated with their electricity consumption by 1%. (The contribution of peak load shifting and total load reduction will be calculated.)	Semi-Annually	These measures are based on preliminary estimates from Smart Grid projects and from publicly available data that has been collected

## 8 Transparency and Accountability

Program management staff in both OE and NETL will have oversight for the programs listed above and in some cases, OE will partner with other DOE program offices or other Federal agencies to run these programs. These program entities are all well versed in the reporting requirements for the Recovery Act and in the best management practices for overall project management. They are poised to meet all the accountability and transparency needed for Recovery Act compliance.

OE is currently using an in house program management information technology system called the Corporate Planning System (CPS). This system is being enhanced to house in one place all of the technical, budgetary and performance data necessary to comply with all required Recovery Act reporting from the award recipient and potential subcontractor. This system will allow OE to upload information to other internal DOE systems that will ultimately allow reporting to the Recovery.gov website for public review. As a part of complying with monthly Recovery Act reporting requirements and updates, program managers will be provided customized reports from CPS to highlight any program issues such as delayed milestones or budgetary issues.

OE has implemented an electronic Records Management system to support the office's compliance with DOE Order 243.1, presidential initiatives, and the E-Government Act and other related legislation. The system has been leveraged to provide a centralized repository for all OE-developed documents and records associated with the program, all records generated during the grant request evaluation process or other procurement process, and all reports and other essential communications received from funding recipients. The Records Management system provides version control and configuration management for documents under development as well as an auditable trail of the OE decision-making process and management oversight from initial planning through final implementation.

## 9 Federal Infrastructure Investments

Although OE'S activities are not designed to directly impact federal infrastructure or to reduce DOE's environmental impact, they will have direct long term effects on the efficiency and reliability of the Nation's energy infrastructure. Federal leadership in stimulating the overhaul of the electrical grid to utilize Smart Grid technology will have significant effects on increasing reliability, efficiency, and security. The implementation of these activities will allow for clean, renewable sources of energy to be supplied to consumers across the electrical grid in a reliable manner. .

**End of text of PSRP Template to be transmitted to OMB**