
Office of Electricity Delivery and Energy Reliability Recovery Program Plan

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"

	Program / Activity	Financial Award	Potential Type of Recipients	Potential Type of Beneficiary
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 ₂ , NO _x and SO _x .	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 ₂ , NO _x and SO _x .)	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 ₂ , NO _x and SO _x 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 ₂ , NO _x and SO _x 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

American Recovery and Reinvestment Act Program Plan

Office of Energy Efficiency and Renewable Energy
Department of Energy

June 15, 2010

Update to May 15, 2009, published Program Plan

Preface

This report describes how the Office of Energy Efficiency and Renewable Energy (EERE) will manage \$16.8 billion provided in the American Reinvestment and Recovery Act (Recovery Act). The Recovery Act appropriated \$15.55 billion for 10 distinct EERE programs, including five new programs. The remaining \$1.25 billion was provided for other EERE Research and Development (R&D) activities.

This report was originally prepared in response to OMB's Implementing Guidance for the American Recovery and Reinvestment Act of 2009, Section 2.8.* The Guidance requires that 12 data elements be addressed for each program. In some cases, information was not yet available and was to be provided in future updates. These elements have been addressed in the following pages. This update was prepared in response to OMB's Memorandum No. 2010-06.

The previous (May 2009) version of this plan contained milestones representing 14 Recovery Act projects. Of these milestones, over 65% were achieved on time. This updated plan incorporates updated and additional milestones for these 14 projects, as well as milestones for 28 additional projects that had not yet been announced at the time of the previous plan submission, in Section 4. Project or program area descriptions have also been added for all of EERE's Recovery Act activities. The status of the milestones from the May 2009 version is found immediately below.

Modify Integrated Pilot and Demonstration Scale Biorefinery Solicitation Program	Estimated Date	Achieved (Y/N)	Reason/Status
Solicitation Closed	6/30/2009	Yes	
Awards selected and negotiations initiated.	12/31/2009	Yes	
Initial funds obligated in the amount of \$50 million to various awardees.	12/31/2009	Yes	
Remaining \$430 million in Recovery Act funds obligated.	9/30/2010	TBD	Future Milestone
Commercial Scale Biorefinery Projects	Estimated Date	Achieved (Y/N)	Reason/Status
Initiate negotiations for phase 2 awards to first biorefinery demonstration project.	6/30/2009	Yes	
First phase 2 awarded for one biorefinery project.	12/31/2009	Yes	
<ul style="list-style-type: none"> • Remaining project awarded. • 100 percent of Recovery funds obligated. • Initiate construction on a biorefinery demonstration project. 	9/30/2010	TBD	Future Milestone
Hydrogen and Fuel Cell Technologies	Estimated Date	Achieved (Y/N)	Reason/Status
Announce projects and initiate negotiations with new project partners.	6/30/2009	Yes	
Award at least 80 percent of grants based on resolution of negotiations and NEPA issues.	9/30/2009	Yes	

* Available on line at http://www.whitehouse.gov/omb/assets/memoranda_fy2009/m09-15.pdf

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Initial 5 to 20 fuel cell powered forklifts delivered.	12/31/2009	Yes	85 forklifts were delivered before 12/31/09
Fuel cell powered forklift operations initiated.	3/31/2010	Yes	
50 to 100 fuel cell power plants identified for telecommunication backup power applications.	7/30/2010	TBD	Future Milestone
Complete delivery of 200 to 400 fuel cell power plants.	9/30/2010	TBD	Future Milestone
EGS Demonstrations	Estimated Date	Achieved (Y/N)	Reason/Status
Modify the open Funding Opportunity Announcement (FOA).	5/27/2009	Yes	
Select first round projects.	10/2/2009	Yes	
Award first round projects.	2/28/2010	No	Negotiations took longer than expected
Obtain permits and satisfy National Environmental Policy Act (NEPA) requirements for first major EGS project.	3/31/2010	Yes	
Prepare field sites at all awarded locations.	7/30/2010	TBD	Future Milestone
Complete the award of all projects and validate the flow rate of one stimulated reservoir.	9/30/2010	TBD	Future Milestone
EGS Technology Research & Development	Estimated Date	Achieved (Y/N)	Reason/Status
1 st lab call awardees funded; joint definition of R&D topics with Office of Science; modification of FOA#09-GO99018 with new R&D topics and time extension.	7/17/2009	Yes	
Awardees under FOA#09-GO99018 funded.	1/31/2010	No	No all awardees were funded by 1/31/2010
Peer review of projects.	7/30/2010	TBD	Future Milestone
Joint performance review of R&D projects with Office of Science (annual).	9/30/2010	TBD	Future Milestone
Weatherization Assistance Program	Estimated Date	Achieved (Y/N)	Reason/Status
<ul style="list-style-type: none"> Receive full plans from 80 percent of eligible grantees. 	5/12/2009	Yes	Received 96.5% of all eligible grantees plans for review by June 30th, and have obligated at least 10 percent of funds
<ul style="list-style-type: none"> Weatherize a minimum of 12,500 low-income homes. Receive full plans from balance of eligible entities. Process and approve 25 percent of plans received. 	9/30/2009	No	7,409 homes weatherized by 9/30/2009
<ul style="list-style-type: none"> Weatherize a minimum of 37,500 (additional) low-income homes. Process and approve remaining state plans. 	12/31/2009	No	22,170 home weatherized by 12/31/2009 (as of 2/16/2010)
Weatherize a minimum of 52,500 (additional) low-income homes.	3/31/2010	No	51,118 homes weatherized by 3/31/2010 (as of 5/7/2010)
<ul style="list-style-type: none"> Weatherize a minimum of 52,500 (additional) low-income homes. 	7/30/2010	TBD	Future Milestone

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<ul style="list-style-type: none"> • Approve and obligate 25 percent of remaining funds after progress reviews. 			
<ul style="list-style-type: none"> • Weatherize a minimum of 55,000 (additional) low-income homes. • Approve and obligate remaining funds after progress reviews. 	9/30/2010	TBD	Future Milestone
State Energy Program	Estimated Date	Achieved (Y/N)	Reason/Status
Release announcement that SEP is accepting Recovery Act grant applications on http://grants.gov .	3/12/2009	Yes	
Obligate the first phase of the funding (i.e., 10 percent) based upon receipt of governor's letters and initial applications from the states and territories.	6/30/2009	Yes	
Review all state plans submitted prior to July 1, 2009 and obligate 20 percent of allocated funds contingent upon the states' cooperation in resolving issues raised during plan review.	9/30/2009	Yes	
Approve all state plans and obligate 50 percent of allocated funds contingent upon the states' cooperation in resolving issues raised during plan review.	12/31/2009	Yes	All State plans approved and 100% of funds obligated by October 2009
Monitor the implementation of state plans approved prior to September 30, 2009 and implement the corrective action plans as necessary.	3/31/2010	Yes	
Monitor the implementation of state plans approved prior to December 31, 2009, implement the corrective action plans as necessary, and begin to obligate the balance of Recovery Act funding for demonstrated progress.	7/30/2010	TBD	Future Milestone
Monitor the implementation of the state plans, implement the corrective action plans as necessary, and obligate the balance of Recovery Act funds.	9/30/2010	TBD	Future Milestone
Energy Efficiency and Conservation Block Grants	Estimated Date	Achieved (Y/N)	Reason/Status
<ul style="list-style-type: none"> • Issue Funding Opportunity Announcement (FOA) for (EECBG) formula grant applications on http://www.grants.gov for eligible states, local governments, and Indian Tribes. • Begin to receive applications. 	3/26/2009	Yes	
<ul style="list-style-type: none"> • Release Funding Opportunity Announcement for Competitive Grant. • Process applications and review plans submitted by deadlines (May 26 for States and June 26 for Tribes and local governments). • Obligate approximately 30 percent of funds for formula grants. 	12/31/2009	Yes	
<ul style="list-style-type: none"> • Obligate balance of funds for formula grants 	9/30/2010	TBD	Future Milestone

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after progress reviews. <ul style="list-style-type: none"> Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings, job creation, etc. 			
Advanced Battery Manufacturing	Estimated Date	Achieved (Y/N)	Reason/Status
Announce selections.	9/30/2009	Yes	
Complete Round 1 awards.	12/31/2009	Yes	
Complete Round 2 awards.	4/30/2010	Yes	
Transportation Electrification	Estimated Date	Achieved (Y/N)	Reason/Status
Complete Technical Advisory Review of Transportation Electrification Proposals.	6/30/2009	Yes	
Selections are completed and ready for announcement.	7/31/2009	Yes	
<ul style="list-style-type: none"> Awards completed and funds allocated, contingent on National Environmental Policy Act (NEPA) approval. Project kickoff meetings complete. 	12/31/2009	No	One recipient declined the offer for DOE award resulting in an additional project selection on January 4th and funds being provided to 2 other recipients.
Data collection and dissemination plans completed with project partners.	3/31/2010	No	Partially completed, not all awards finalized as of 3/31/2010
Recharging infrastructure installation begins and deployment site visits begin.	7/30/2010	TBD	Future Milestone
Initial electric drive vehicle deployments begin.	9/30/2010	TBD	Future Milestone
Clean Cities Alternative Fuel Vehicles	Estimated Date	Achieved (Y/N)	Reason/Status
Vehicles procured at 10 percent level.	3/31/2009	No	Project re-baselined, expected completion by 3/31/2010
<ul style="list-style-type: none"> Receive and review proposals. Vehicles procured at 25 percent level and infrastructure deployment initiated at 10 percent level. 	6/30/2009	No	Proposal reviewed; project re-baselined and vehicle procurement expected completion by 9/30/2010
<ul style="list-style-type: none"> Negotiate awards. Vehicles deployed at 25 percent level and 25 percent of infrastructure deployment initiated. 	9/30/2009	No	Awards negotiated; project re-baselined and vehicle procurement expected completion by 9/30/2010
Awards completed.	12/31/2009	No	Awards completed for 12 projects. Project finances were more complicated than anticipated
Energy Efficiency Appliance Rebate	Estimated Date	Achieved (Y/N)	Reason/Status
Issue FOA.	7/15/2009	Yes	
Applications due from states and territories.	10/15/2009	Yes	
Document program results.	12/31/2009	Yes	
Wind Energy	Estimated Date	Achieved (Y/N)	Reason/Status
Issue FOA.	6/30/2009	Yes	
<ul style="list-style-type: none"> Complete evaluation of proposals. 	9/30/2009	Yes	

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• Selection committee chairman’s report issued.			
• Select winner and negotiate contract. • Begin National Environmental Policy Act (NEPA) process.	12/31/2009	Yes	
Award grant.	3/31/2010	Yes	
Preliminary facility design complete.	7/30/2010	TBD	Future Milestone
• Critical Design Review complete. • Pre-construction activities complete.	9/30/2010	TBD	Future Milestone
Program Management	Estimated Date	Achieved (Y/N)	Reason/Status
Hire contract support, secure additional office space, hire limited term federal employees; issue funding opportunity announcements for Research, Development, Demonstration, and Deployment (RDD&D) and competitive Energy Efficiency and Conservation Block Grants (EECBG).	6/30/2009	No	Competitive FOA released 10/19/2009
Receive competitive applications; complete evaluation of RDD&D proposals; award EECBG formula block grants.	9/30/2009	No	FOA extended beyond initial plan; applications were not due until 12/14/2009
Expend 47 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	12/31/2009	No	About 34% of management and oversight recovery funds spent by 12/31/2009
Expend 62 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	3/31/2010	No	About 54% of management and oversight recovery funds spent by 3/31/2009
Expend 77 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	7/30/2010	TBD	Future Milestone
Expend 89 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	9/30/2010	TBD	Future Milestone

The previous version also outlined three performance measures, related to the percentage of EERE Recovery Act funds obligated, the number of homes weatherized, and the estimated annual energy savings from Energy Efficiency and Conservation Block Grant (EECBG) projects. By the end of calendar year 2009, EERE’s obligated 76.4% of Recovery Act funds, compared to the target of 76.6%. During this same period, EERE weatherized over 30,000 homes, compared to the target of 50,000 homes. This updated plan adds additional performance measures that tracks the progress of EERE Recovery Act projects.

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PSRP Name: EERE Recovery Program Plan		
PSRP Lead Program Office: The Office of Energy Efficiency and Renewable Energy (EERE)		
PSRP Lead Manager: Steve Chalk, Chief Operating Officer		
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1.0 Objectives

Program Purpose:

The Office of Energy Efficiency and Renewable Energy’s (EERE) Recovery Act projects will stimulate economic development, provide opportunities for new jobs in growing industries, and lay the foundation for a clean energy future. It will do this through investments in three strategic areas: 1) Advanced Transportation; 2) Energy Efficiency; and 3) Renewable Electricity Generation. These investments will reduce U.S. dependence on foreign oil, boost energy efficiency in all sectors, and enhance and diversify our energy supply.

Public Benefits:

EERE Recovery Act funding will broadly benefit Americans by providing more widely available clean energy choices that both increase energy security and help our environment. It will do this through accelerating the rate at which cost-effective clean energy technologies are deployed, bringing them to the market more quickly. A major benefit of these Recovery Act projects will be the creation of specialized green-collar jobs in the clean energy industry, which will be needed for a significant increase in advanced transportation, energy efficiency, and renewable electricity generation activities. These funds will help make the U.S. competitive in a growing industry and lessen our nation’s reliance on other countries to supply our energy needs. Some of the specific public benefits in each of the three core investment areas are outlined below.

Advanced Transportation: Recovery Act projects in this area will focus on reducing U.S. dependence on foreign oil through investments in advanced vehicle technologies, such as plug-in hybrid electric vehicles (PHEV), fuel cells, and advanced biofuel technologies, such as non-food based, or cellulosic ethanol. Investing in new vehicle technologies will expand consumer choices in vehicle models and offer non-petroleum based vehicle options, ultimately driving down petroleum demand. Making steps towards shifting the transportation system to electrification will also help start the U.S. on the path of diversifying away from oil as the primary transportation fuel and towards more steady fuel prices for consumers. On a larger scale, reduction of oil use in the transportation sector greatly adds to U.S. energy and national security. Expansion into next-generation vehicle technologies also might be a pathway for revitalization of the ailing U.S. automotive industry.

Energy Efficiency: Energy efficiency is the cheapest, cleanest, fastest energy source to deploy and the most cost-effective way to reduce greenhouse gas emissions. The Recovery Act provides for unprecedented investments in the weatherization of homes of low-income Americans, state

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and local energy efficiency programs, ENERGY STAR appliance rebates, and buildings and industrial efficiency. Ultimately, the Recovery Act will allow for execution of the largest weatherization program in U.S. history and lay the foundation for an expansion of the program in the future. Reducing electricity demand can also postpone the need to invest in new generation capacity, a cost that is ultimately passed on to rate payers.

Renewable Electricity Generation: While the U.S. has installed the most wind energy of any country in the world over the past four years, wind still only supplies less than 2 percent of U.S. electricity generation. With Recovery Act funds, EERE will make strategic investments in renewable electricity—including geothermal, wind, and solar—that will increase energy security and diversify our energy supply. Because it has little to no emissions, renewable energy's use leads to cleaner air and water and reduced greenhouse gas emissions. The renewable electricity sector has great potential to provide green jobs for both manufacturing and installation, in addition to a variety of support services.

EERE Recovery Act funds are awarded through competitive solicitations whenever possible to that the funds are distributed in a fair and transparent manner to projects that have the greatest potential to transform our energy economy.

2.0 Projects and Activities

EERE Recovery Act project activities aim to accelerate existing EERE program goals, expand programmatic activities, and create new activities in innovative transformational R&D. Many of the projects place emphasis on deploying and funding “shovel ready” projects that demonstrate the feasibility of EERE technologies to meet the President’s energy goals. A select set of projects is outlined below, substantially updating and expanding upon the discussion in the May 2009 report.

Acceleration of Existing EERE Goals: EERE has set aggressive targets in each of its program areas to advance clean energy technologies. Recovery Act funds will provide the resources necessary to support the acceleration of many of these targets. Examples include:

- Through investments beginning in 2007 and 2008, EERE currently supports the construction of five commercial-scale and six demonstration-scale cellulosic biofuels plants. Recovery Act funds will support accelerated validation of one of these existing awards for a commercial scale biorefinery, and also supported a solicitation that selected several other biorefineries for advanced biofuel pathways at the pilot and demonstration scale—to help reach DOE’s goal of making cellulosic ethanol cost-competitive by 2012 as well as improve the cost-competitiveness of other advanced biofuels, such as renewable diesel and jet fuels.
- Recovery Act funds will support the acceleration of next-generation geothermal, or enhanced geothermal systems (EGS), technology development—particularly pilot and demonstration projects, and component technology R&D.
- Recovery Act funds will support the deployment of up to 1,000 fuel cell systems for backup power and material handling applications (e.g., lift trucks), which are key early markets for fuel cells. Expansion of near-term market and manufacturing opportunities will help support the acceleration of fuel cell market transformation.

Expansion of Programmatic Activities: EERE has many ongoing programs that, with the infusion of Recovery Act funds, can grow to impact more of the population and expand into new areas. Examples include:

- Over \$11 billion of EERE’s funds are being used to weatherize homes of low-income Americans and are going to states and local communities to implement high priority energy efficiency projects.
- Approximately \$452 million to “ramp-up” energy efficiency building retrofits in 25 selected communities. This Better Buildings initiative allows communities, governments, private sector companies and non-profit organizations to work together on pioneering and innovative programs for concentrated and broad-based retrofits of neighborhoods and towns—and eventually entire states. The models created through this program are expected to save households and businesses about a \$100 million annually in utility bills, while leveraging private sector resources, to create what funding recipients estimate at about 30,000 jobs across the country during the next three years.

- The development of inexpensive and durable batteries is one of the most important components of building a fleet of hybrid and plug-in hybrid electric vehicles. EERE provided \$2 billion to build domestic battery manufacturing capabilities.
- Almost \$300 million went to state and local governments and transit authorities to bolster the Clean Cities Alternative Fuel Vehicles Program, which supports the reduction of petroleum consumption. Transportation electrification also received nearly \$400 million for demonstrating and evaluating PHEVs and electric infrastructure projects.

New Transformative R&D Activities: Recovery Act funds will allow EERE to remain on the cutting edge of next-generation clean energy technologies by expanding into transformative areas of R&D. For example:

- Funds will accelerate research goals towards achieving net-zero energy homes and buildings through an increased focus on systems design, integration and controls.
- Funds will be invested in high impact solar photovoltaic (PV) technologies that support the PV supply chain, and also help to transition basic science developments into applied research.
- Investments in wind energy R&D will support the construction of a large dynamometer to test the performance and reliability of wind turbine drivetrain systems.

2.0.1 Biomass Program

The Biomass Program works with industry, academia, and our national laboratory partners on a balanced portfolio of research, development, and demonstration (RD&D) of biomass feedstock and conversion technologies. These RD&D efforts are geared toward the deploying environmentally sustainable and commercially viable integrated biorefineries producing biofuels, biopower, and/or bioproducts. Successful integrated biorefinery pilot and demonstration scale projects will reduce the technical and financial risks associated with building first-of-a-kind, commercial-scale facilities.

The Program's Recovery Act projects are intended to accelerate advanced biofuels research, development, and demonstration, and further the U.S. bioindustry through market transformation and creating or saving a range of jobs. Accomplishments to date include awarding Recovery Act funds as follows:

- Up to \$509 million for 18 new integrated R&D scale, pilot scale, and demonstration scale integrated biorefinery projects, as well as independent engineer support;
- \$82 million to increase the ceiling on an existing commercial scale integrated biorefinery project;
- \$107 million for several projects for fundamental research and development in key program areas such as advanced and algal biofuels, sustainability, and demonstration of different advanced biofuel production processes; and
- Up to \$20 million for intermediate blends, engine optimization, and fueling infrastructure projects.

Some funding for existing commercial scale integrated biorefinery projects has been reallocated to other biomass areas since the submission of the previous plan

2.0.2 Building Technologies Program

The Building Technologies Program will conduct research and support activities to make buildings less energy intensive and incorporate renewable energy production technologies as part of the design consideration. This will lead to significant primary energy savings and reductions in peak demand. The technologies and systems developed with Recovery Act funding will enable wide-spread, substantial reductions in energy use in buildings by:

- Addressing research focused on the systems, design, integration, and control of both new and existing buildings by moving beyond component-only driven research to address the interactions among the many different aspects of buildings, approaching them as a whole, in order to progress development of integrated, high performance buildings.
- Supporting energy-efficient retrofits through the Better Buildings initiative (with additional funds from the competitive portion of the Energy Efficiency and Conservation Block grants) that improve the energy performance of existing homes and increase homeowner energy savings while raising consumer awareness of the benefits of increased health, safety, and durability of energy efficiency.
- Training workers and creating jobs, developing a new workforce equipped to improve the nation's homes.
- Accelerating the development of energy-efficient products and increasing testing and validation efforts.
- Accelerating progress towards creating a U.S.-led market for high-efficiency light sources that save more energy, reduce costs, and have less environmental impact than other conventional light sources.
- Implementing model building energy codes that require a 30 percent improvement in energy efficiency over the 2004 commercial building model code in 2010 and over the 2006 residential model code in 2012.

2.0.3 Community Renewable Energy Deployment Project

The Community Renewable Energy Deployment Project will create jobs and stimulate economic growth in communities by construction of infrastructure that incorporates multiple renewable energy technologies. This deployment effort will demonstrate opportunities for large-scale deployment of renewable energy within communities, in partnership with states, utilities (primarily municipal utilities and rural electric cooperatives), and renewable energy project developers. Communities will utilize a cross-section of renewable technologies and applications, including solar, wind, biomass, geothermal and other renewable energy sources. The results of this project will be communities moving towards a low-energy demand, renewable community, with green employment. Project accomplishments to date include:

- Beginning the design and development of a number of bio-digesters

- Beginning the design and development of a 30MW wind farm
- Starting the implementation of a woody biomass CHP district heating system that has been 10 years in the making

2.0.4 Federal Energy Management Program

The Federal Energy Management Program (FEMP) will assist other Federal agencies in making energy investment decisions with Recovery Act funding. Specific FEMP activities will include compliance planning and decision support across the Federal government with a larger, more coordinated team providing resource analysis, technical and business assistance, and compliance assessments. DOE's Recovery funds will also help develop comprehensive greenhouse gas (GHG) tools and resources, ensuring that Federal agencies have the technical expertise they need to manage GHG emissions effectively. To date, the program has used its Recovery Act funding to select 120 projects, 22 of which have been completed.

2.0.5 Fuel Cell Technologies Program

The Fuel Cell Market Transformation Project aims to:

- Further reduce fuel cell system costs
- Establish a domestic manufacturing capability and supplier base
- Preserve and create jobs in manufacturing, warehousing, and the fuel cell industry
- Secure domestic leadership in fuel cell manufacturing

The \$42 million in Recovery Act funds will support immediate deployment of up to 1,000 fuel cell systems for emergency backup power and material handling applications (e.g., lift trucks) that have emerged as key early markets in which fuel cells can compete with conventional power technologies. Additional systems will be used to accelerate the demonstration of stationary fuel cells for combined heat and power in the larger residential and commercial markets. The increase in manufacturing volume in key early markets will also bring costs down and encourage the growth of a domestic supplier base. A variety of technologies will be developed and deployed, including polymer electrolyte, solid oxide, and direct-methanol fuel cells.

2.0.6 Geothermal Technologies Program

The Geothermal Technologies Program (GTP) will use Recovery Act funds to support the commercialization of technologies and the reduction of upfront risk. Enhanced Geothermal Systems (EGS) research and development and demonstration (RD&D) projects will also prove that technology readiness can be achieved by 2015, supporting GTP's mission to conduct RD&D to establish Geothermal as a major contributor for base load electricity generation. Specifically, the funding will help to accelerate GTP's strategic goal of developing the technology base to

create and sustain commercial-scale EGS reservoirs. EGS technology readiness will be supported through technology improvements in site characterization, reservoir creation, and reservoir sustainability.

Low Temperature demonstration projects will show the technical and economic feasibility of energy production through innovative methods. GTP hopes to achieve this objective through promotion of the development and commercial application of energy production from non-conventional geothermal resources.

GTP will increase the deployment of ground source heat pumps, also known as geothermal heat pumps (GHPs), through a new commercialization strategy that incorporates commercial-scale, innovative technology demonstration projects; data-gathering and analysis related to system costs, performance and installation techniques; and a national GHP accreditation and certification program. These initiatives will address market barriers that have prevented the technology from reaching its full market potential, including consumer confidence in GHP benefits, and limitations in design and business planning infrastructure.

Currently underway is an effort to develop the National Geothermal Data System (NGDS) (software) architecture with which existing geothermal related data will be organized and made available to the public. Recovery Act funding will accelerate data system development and population with resource information (e.g., bottom-hole temperatures for wells outside the Western U.S.) from state, national and academic sources, providing funding for state geologists, university professors and graduate students, as well as national laboratories to update and maintain their data collections.

Some funding for EGS demonstration projects has been reallocated to other geothermal areas and other projects since the submission of the previous plan

2.0.7 Industrial Technologies Program

Energy efficiency is the cornerstone of a sustainable energy portfolio. It is the least expensive and most rapidly deployable energy resource available today. The Industrial Technologies Program (ITP) will lead Federal activities to improve industrial energy efficiency and carbon management by installing Combined Heat and Power systems, District Energy Systems (for more than one building or fixed energy-consumer), Waste Energy Recovery systems, and energy efficient industrial equipment. Recovery funds will also be used to develop new technologies for improving energy efficiency in the Information and Communications Technology sector, one of the fastest growing energy consuming sectors in the nation. Other funding includes energy assessments for US manufacturers and R&D in advanced materials, nanomanufacturing, energy intensive processes, combined heat and power, and fuel flexibility.

2.0.8 Weatherization Assistance Program

The Weatherization Assistance Program (WAP) improves residential energy efficiency and supports energy cost reductions for low-income families. The program provides financial and

technical assistance to over 900 local weatherization agencies throughout the United States through state, territorial and tribal governments. This network of weatherization service providers collectively manages one of the largest and most technically advanced residential energy retrofit programs in the country. Funding provided to the WAP Network through the Recovery Act has allowed the program to rapidly expand both the scope and impact of its activities. Weatherization services have now been extended to a greater percentage of the low-income population and the maximum federal funding applied to each home has been increased from \$2,500 to \$6,500.

Through the fourth quarter of calendar year 2009, 30,252 homes were weatherized through Recovery Act funds. In the first quarter of calendar year 2010, the WAP Network is on track to more than double the 22,770 homes weatherized during fourth quarter of calendar year 2009. Production continues to accelerate with a target of weatherizing between 20,000 and 30,000 homes per month.

2.0.9 State Energy Program

The State Energy Program (SEP) provides formula grants to state and territorial governments to facilitate the implementation of energy efficiency and renewable energy projects. SEP objectives include (1) increasing energy efficiency to lower energy consumption by consumers, businesses, and government; (2) reducing reliance on imported oil, (3) improving the reliability of electricity and fuel, and the delivery of energy services, and (4) reducing the harmful impacts of energy consumption on the environment. Recovery Act funds will accelerate the attainment of these goals by rapidly awarding funds for shovel-ready projects using existing off the shelf energy efficiency technologies and practices.

SEP recipients have risen to the challenge represented by the enormous expansion of federal funding through the Recovery Act. By March 30, 2010 SEP recipients had committed over \$1.3 billion of the available \$3.1 billion, exceeding the target of \$1 billion. These contracts represent projects underway and federal funds providing stimulus to local economies.

2.0.10 Energy Efficiency and Conservation Block Grants Program

Through \$3.2 billion in formula and competitive grants to over 2,300 U.S. cities, counties, states, territories, and Indian tribes, the Energy Efficiency and Conservation Block Grant (EECBG) program empowers communities to make strategic investments to meet the nation's long-term goals for energy independence and leadership in climate change. Recovery Act funds will help EECBG recipients to expand energy efficiency programs and projects, expand the workforce to implement these programs and projects, and expand manufacturing of energy efficiency products and services. Some funds from the competitive portion of the EECBG program and the building technologies program are being used to support the Better Buildings initiative.

EECBG recipients have as well risen to the challenge represented by the enormous expansion of federal funding through the Recovery Act. By March 30, 2010, EECBG recipients had

committed over \$622 million of the available \$3.2 billion. These contracts represent projects being implemented and federal funds providing stimulus to local economies.

2.0.11 Energy Efficiency Appliance Rebate Program

Under the Energy Efficiency Appliance Rebate program, DOE will use nearly \$300 million to support consumer rebate and recycling programs for select residential ENERGY STAR appliance products (those that represent significant improvements in efficiency compared to the majority of products in the market). Accomplishments to date include the following:

- Total Number of Programs Launched: 46
- Number of Active Programs: 33
- Number of Closed Programs: 13
- Number of Programs yet to be launched: 10
- Four Programs (IA, IL phase 2, MA and TX) opened and closed within one day; two programs (MN and RI) were completed within two days

2.0.12 Solar Energy Technologies Program

Solar technologies diversify the energy supply, reduce the country's dependence on imported fuels, improve air quality, and offset greenhouse gas emissions. Recovery funds will be used to:

- Fulfill a critical need of the existing solar industry – the ability to independently test and validate performance of the advanced technologies in development.
- Accelerate specific development efforts for critical path photovoltaic technologies.

Accomplishments to date include awarding Recovery Act funds to:

- Develop a prototype next generation concentrating PV module for utility ground-mounted systems.
- Develop a kerfless wafering technology at laboratory scale.
- Create a 25-year life moisture barrier for flexible PV. Since project inception, the awardee has supplied samples to key industry stakeholders.
- Build an advanced Demand Response Inverter that incorporates nano-crystalline magnetics and low-voltage silicon. These materials are contributing to high efficiencies, with a California Energy Commission weighted efficiency of 98%.
- Upgrade the National Solar Thermal Test Facility in New Mexico, allowing Sandia National Labs to test a new group of power tower technology components. This will help the Solar Program achieve electricity cost targets that are more competitive with conventional base load power.

2.0.13 Advanced Battery Manufacturing

The development of inexpensive and durable batteries is one of the most important components of building a fleet of hybrid and plug-in hybrid electric vehicles. EERE awarded nearly \$2 billion in Recovery Act funds to build domestic battery manufacturing capabilities, which will make the manufacturing sector in the U.S. more competitive. Deliverables include establishing the following types of U.S. facilities:

- Advanced vehicle battery manufacturing plants
- Battery material supplier production facilities
- Battery recycling facilities
- Electric-drive component manufacturing facilities
- Electric-drive subcomponent manufacturing facilities

Major accomplishments to date include:

- Awarding 20 Recovery Act contracts to construct and equip Lithium ion battery manufacturing and materials production plants capable of producing 500,000 PHEV batteries per year (assuming an average of 10 kilowatt-hours per battery pack).
- Awarding 10 Recovery Act contracts to construct and equip manufacturing plants to enable production of electric drive components and devices including motors & controls, inverters, and electric drive propulsion units.

2.0.14 Transportation Electrification

The Transportation Electrification program aims to establish widespread demonstration, evaluation, and education projects to support the acceleration of market introduction and penetration of advanced electric drive vehicles. Grants and cooperative agreements have been awarded to state and local governments, private and non-profit entities, and others to conduct demonstration and data collection projects on a wide range of electric drive transportation technologies.

Major accomplishments to date include awarding 18 Recovery Act contracts that will demonstrate and test more than 6,000 electric drive vehicles and more than 13,000 electric charging stations.

2.0.15 Clean Cities Alternative Fuel Vehicles

In almost 100 Clean Cities coalitions across the nation, government and industry stakeholders come together to support local decisions to reduce dependence on imported petroleum. This plan allows Clean Cities coalitions to build on their local support for program goals which include significant gains in the nation's alternative fuel and advanced technology vehicle population and associated fueling infrastructure. Currently, Clean Cities Advanced Fuel Vehicles efforts have reduced the use of petroleum by 16.5 percent per year on projects started or contributed to by the program; and is expected to decrease petroleum use by 2.5 billion gallons by 2020. Funding from the Recovery Act will help to propel achievement of this 2020 petroleum reduction goal.

Deploying these vehicle technologies in more U.S. communities expands the knowledge base, promotes user acceptance, and ultimately leads to increased adoption as these technologies prove their value in meeting petroleum reduction, environmental, and financial goals.

Major accomplishments to date include awarding 24 Recovery Act contracts that will fund the purchase of an estimated 9,200 alternative fuel and advanced technology vehicles and provide more than 2,000 alternative fuel refueling and recharging stations.

2.0.16 Commercial Vehicle Integration (SuperTruck)

This project is to expand the Commercial Vehicle Integration Initiative which aims to demonstrate a Class 8 truck with a 50 percent improvement in freight efficiency and accelerate the goal of improving the fuel economy of passenger vehicles by 25 to 40 percent while allowing for earlier market introduction.

Major accomplishments to date include selecting two heavy-duty Class 8 SuperTruck awards to demonstrate a 50% increase in freight efficiency by 2015. In addition, two light-duty passenger vehicle awards were selected that will demonstrate a 25% increase in fuel economy.

2.0.17 Water Power Technologies

The Hydroelectric Facility Modernization Project will help modernize the existing hydropower infrastructure in the U.S., thereby increasing efficiency and reducing environmental impact. Financial assistance will be provided to a variety of non-Federal hydropower projects that can be developed without significant modifications to dams and with a minimum of regulatory delay. The primary focus is on supporting the deployment of turbines and control technologies to increase system generation and environmental stewardship.

One project has already broken ground and is on track to complete construction and begin operations by the third quarter of 2011. An additional project—the highest funded Recovery Act Hydropower project—has been cleared of all regulatory and contract barriers and will begin spending funds during this quarter.

2.0.18 Wind Energy Technology Program

The Wind Energy Technology Program works with industry, the national laboratories, state and local governments, and other federal agencies to advance wind technology and accelerate the deployment of wind power. The Program's Recovery Act projects will leverage the Department of Energy's national laboratories, universities, and the private sector to help improve reliability and overcome key technical challenges for the wind industry. These projects will create green jobs, promote economic recovery, and provide the investments needed to increase renewable energy generation. Accomplishments to date include awarding Recovery Act funds as follows:

- Up to \$45 million for a Large Drivetrain Test Facility that will create a new 15MW dynamometer testing facility that will service both the U.S. and international wind industry. This project supports the industry goal (and national need) of delivering reliable and cost effective hardware for land-based and offshore utility scale wind turbines with a 20-plus year design life.
- Up to \$25 million for a Large Wind Turbine Blade Test Facility that will provide the wind industry with the capability of testing blades up to 90M in length, suitable for turbines between 10-15 MW. This project will facilitate the domestic design, construction and deployment of large on- and off-shore turbines.
- Up to \$23 million for the Wind University Consortia, which will establish wind technology research centers for testing turbine components in standard commercial-scale deployment conditions, in addition to establishing a joint curriculum for wind power education.
- More than \$13 million for Wind Energy Technology R&D and Testing projects that will improve the reliability and performance of wind energy systems through innovations in wind turbine component design. Technology improvements can translate to lower operating costs and lower energy costs to consumers, and expand the deployment of this domestic

2.0.19 Facilities and Infrastructure

The Department of Energy will use Recovery Act funding to augment a number of ongoing facility projects. Specifically, these funds will be used to:

- Expand the Research Support Facility at the National Renewable Energy Laboratory (NREL) by providing a new wing to relocate additional staff from leased facilities into a highly-energy efficient DOE-owned building to reduce costs and improve NREL operations;
- Construct and/or build-out an existing facility to conduct research on the systems design, integration and control of new and existing buildings, appliances, and commercial equipment at Lawrence Berkeley National Laboratory (LBNL), National Energy Technology Laboratory (NETL), and Oak Ridge National Laboratory (ORNL)
- Construct highly flexible, highly instrumented, pilot-scale facilities needed to support new and enhanced R&D into advanced energy storage technologies (e.g., batteries, ultra-capacitors, asymmetric or hybrid ultra-capacitors) for automotive applications at Idaho National Laboratory (INL), Argonne National Laboratory (ANL), NREL, and Sandia National Laboratories (SNL)
- Construct and operate a highly flexible, highly instrumented low-cost carbon fiber technology demonstration facility at ORNL
- Double EERE's cellulose to ethanol process research capacity at NREL
- Add a 5.0MW NREL dynamometer to supplement the existing 2.5MW machine to test the bigger machines currently in development

2.0.20 Program Management

Management and oversight funding will ensure successful execution of Recovery Act appropriations and responsive fiscal management and reporting. Funding for program management had not been finalized prior to the submission of the previous plan.

2.1 Funding Table

Below are the EERE funding levels. The most up-to-date information can be found on www.doe.gov/recovery. The bulk of changes reflected in the table below relative to the previous plan are due to: 1) project plans finalized subsequent to the submission of the previous plan, which are new lines in the table, 2) funds set-aside from projects for Recovery Act program management, and 3) re-allocation of funds to support the projects with the greatest demand and potential for success. Current funding amounts are as of June 15, 2010, and are subject to change.

Program	Project Activity	Previous Funding Amount (\$M)	Current Funding Amount (\$M)
Biomass	Pilot and Demonstration Scale Biorefineries	\$480	\$509
Biomass	Commercial Scale Biorefinery Projects	\$177	\$95
Biomass	Fundamental Research in Key Program Areas	\$110	\$107
Biomass	Investigation of intermediate ethanol blends, optimization of E-85 engines, and development of transportation infrastructure	\$20	\$20
Buildings	Advanced Building Systems		\$74
Buildings	Residential Buildings (Building America, Builders' Challenge, and Existing Home Retrofits)		\$28
Buildings	National Accounts Acceleration in Support of the Commercial Buildings Initiative		\$52
Buildings	Buildings and Appliance Market Transformation		\$54
Buildings	Better Buildings		\$63
Buildings	Solid State Lighting		\$49
Buildings	EE Appliance Rebate Program	\$300	\$299
Community RE	Community Renewable Energy Deployment		\$22
FEMP	Enhance and Accelerate FEMP Service Functions to the Federal Government		\$16
FEMP	Energy, Water & Emissions Reporting and Tracking System		\$5
Fuel Cells	Fuel Cells: Enabling Market Transformation and Manufacturing	\$43	\$42
Geothermal	Geothermal Demonstrations	\$140	\$74
Geothermal	Enhanced Geothermal Systems (EGS) Technology R&D	\$80	\$116
Geothermal	Validation of Innovative Exploration Technologies	\$100	\$101
Geothermal	National Geothermal Data System, Resource Assessment, and Classification System	\$30	\$35
Geothermal	Ground Source Heat Pumps	\$50	\$64

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Industrial	Combined Heat and Power (CHP), District Energy Systems, Waste Heat Recovery Implementation and Deployment of Efficient Industrial Equipment		\$149
Industrial	Improved Energy Efficiency for Information and Communication Technology		\$49
Industrial	Industrial Assessment Centers and Plant Best Practices		\$10
Industrial	Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies & Energy-Intensive Process R&D		\$47
OWIP	EECBG formula	\$3,200	\$2,794
OWIP	EECBG competitive – Better Buildings		\$390
OWIP	Weatherization Assistance Program	\$5,000	\$4,975
OWIP	State Energy Program	\$3,100	\$3,085
Solar	Concentrating Solar Power		\$25
Solar	PV Systems Development		\$50
Solar	High-Penetration Solar Deployment		\$41
Vehicles	Battery Manufacturing	\$2,000	\$1,990
Vehicles	Transportation Electrification	\$400	\$398
Vehicles	Clean Cities Alternative Fuel Vehicle (AFV) Grant Program	\$300	\$299
Vehicles	Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D		\$109
Water	Hydroelectric Facility Modernization Program		\$31
Wind	Wind Turbine Drivetrain R&D & Testing	\$45	\$45
Wind	Large Wind Turbine Blade Testing Facility	\$25	\$25
Wind	Wind Energy Consortia between Institutions of Higher Learning and Industry	\$24	\$23
Wind	Wind Energy Technology R&D and Testing	\$14	\$13
Facilities	Integrated Biorefinery Research Expansion	\$14	\$13
Facilities	Lab Call for Facilities and Equipment		\$105
Facilities	Renewable Energy and Supporting Site Infrastructure	\$87	\$87
Facilities	NWTC Upgrades	\$10	\$10
Facilities	NREL INGRESS/EGRESS		\$44
	Program Direction/Departmental Administration	\$50	\$107
SBIR	Small Business Innovation Research		\$61
	EERE R&D Projects Under Review	\$1,001	
	Total EERE Recovery Act Funding	\$16,800	\$16,800

3.0 Characteristics

Types of Financial Awards to be used

Type of Financial Award	Type of Recipient	Type of Beneficiary	Estimated Amount of Funding (\$M)
Formula Grants	State Governments	State	\$10,959
	County Governments	County	
	City Governments	City or Township	
	U.S. Territories and Possessions	U.S. Territories	
	Federally Recognized Indian Tribal Governments	Federally Recognized Indian Tribal Governments	
Project Grants Dissemination of Technical Information Cooperative Agreements or Contracts Training	State Governments	State	\$5,647
	County Governments	County	
	City Governments	City or Township	
	Public Nonprofit Institutions	Public Nonprofit Institutions	
	Federally Recognized Indian Tribal Governments	Federally Recognized Indian Tribal Governments	
	U.S. Territories and Possessions	U.S. Territories	
	Small Business	For-Profit Organization	
	For Profit Organization	Student/Trainee	
	Private Nonprofit Institution	Graduate Student	
	Individual	Homeowner	
Student	Low Income		
Quasi-Public Nonprofit Institution/Organization			
Federal Employment	Individual	Individual	\$194
GRAND TOTAL			\$16,800

4.0 Delivery Schedule – Milestones*

4.1 Biomass Program

Modify Integrated Pilot and Demonstration Scale Biorefinery Solicitation Program	Date
Funding Opportunity Announcement (FOA) closes	6/30/2009
Projects selected and negotiations initiated	12/31/2009
Funds conditionally obligated to projects	1/31/2010
Negotiations completed and funds conditions lifted	9/30/2010
Break ground on first project	9/30/2010
First facilities operating with Independent Engineer performance test complete	6/30/2011
Break ground on penultimate project	12/31/2011

Commercial Scale Biorefinery Projects	Date
Initiate negotiations for phase 2 award to biorefinery commercial demonstration project	6/30/2009
Break ground on project	10/31/2010
Phase 2 awarded to project	12/31/2010

Fundamental Research in Key Program Areas	Date
FOA [†] for advanced and algal consortia project closes.	9/15/2009
Consortia, sustainability, and PDU project selections completed and negotiations initiated.	1/15/2010
Funds unconditionally obligated to all projects.	4/30/2010
Kick off meetings for advanced and algal consortia projects.	5/15/2010
Ribbon cutting for process demonstration unit project.	4/1/2011
Technology downselect process through R&D reviews established for algal consortia project.	4/30/2011
Annual peer review of projects.	7/31/2011

Investigation of Intermediate Ethanol Blends, Optimization of E-85 Engines, and Development of Transportation Infrastructure	Date
Funds awarded for intermediate blends projects at two national laboratories.	7/15/2009
FOA [†] closes for refueling infrastructure projects.	10/04/2009
Refueling infrastructure projects selected in December 2009, and announced in January 2010 resulting in funds obligated.	1/31/2010
Engine Optimization testing projects, with additional outcomes made possible through additional Recovery funding, complete.	4/30/2010
Intermediate blends projects complete vehicle testing at full useful life and at altitude.	12/31/2010
Refueling infrastructure projects begin operations.	3/1/2011

* Future milestone dates have not been finalized and may be subject to change

[†]Not all projects in this category were awarded through FOAs.

4.2 Building Technologies Program

Advanced Building Systems	Date
Release Funding Opportunity Announcement	6/29/2009
Make first Selection	5/21/2010
Make final awards	7/30/2010

Solid State Lighting – US Manufacturing	Date
Release Funding Opportunity Announcement	6/29/2009
Make first awards	3/15/2010
Make final awards	5/30/2010
Conduct a Solid State Lighting manufacturing workshop	7/30/2010

Residential Buildings Integration	Date
Complete audit and monitoring protocols for DOE/HUD retrofit pilots	9/30/2009
Complete selection of homes for participation in DOE/HUD retrofit pilots	3/31/2010
Complete retrofits and initiate monitoring of DOE/HUD retrofit pilots	7/30/2010
Complete evaluation of savings outcomes and lessons learned from DOE/HUD retrofit pilots	9/30/2010

National Accounts Acceleration	Date
Release Funding Opportunity Announcement	4/7/2010
Make awards	7/30/2010
Complete write-up for task order Statements of Work	7/12/2010
Complete negotiations of task order with technical teams	9/15/2010

Building and Appliance Market Transformation	Date
Complete draft certification, enforcement and verification standards for appliance standards	3/31/2010
Complete commercial buildings technical review	7/30/2010
Deploy code compliance products and tools	9/30/2010

Better Buildings	Date
Release Funding Opportunity Announcement	10/19/2009
Announce selections	4/21/2010

4.3 Community Renewable Energy Deployment Project

	Date
Post full announcement on FedConnect and Grants.Gov	7/1/2009
Close date for proposals	9/3/2009
Complete proposal reviews	12/14/2009
Select grant(s) for award(s)	12/30/2009
Funds conditionally awarded to projects	1/31/2010
Negotiations commenced to identify allowable budget period 1 tasks to partially lift conditions to release funds for preliminary design and engineering task (environmental work, feasibility studies, design work, etc)	2/1/2010
Budget Period 1 funds (for design, engineering) released	5/31/2010
Budget Period 1 tasks completed	10/31/2010
NEPA requirements complete – final NEPA determination	11/15/2010
Budget Period 2 negotiations complete	1/31/2010
Remainder of conditions lifted and Budget Period 2 funds (for capital expenditures, construction) released	12/31/2010
Ground breaking/construction begins on first project	1/1/2011
Complete at least one project	12/31/2012

4.4 Federal Energy Management Program

Enhance and Accelerate FEMP Service Functions to the Federal Government	Date
Cumulative selection of 120 projects	3/31/2009
Complete 22 technical assistance projects	3/31/2009
Complete 60 technical assistance projects at Federal agencies	9/30/2010

4.5 Fuel Cell Technologies Program

Enabling Market Transformation and Manufacturing	Date
Announced projects and initiated negotiations with new project partners	4/16/2009
Awarded over 80 percent of grants based on resolution of negotiations and NEPA issues	9/30/2009
Delivered initial 14 fuel cell powered forklifts to one project	12/31/2009
Initiated operation of fuel cell powered forklifts for two projects – 14 forklifts at one location and 42 forklifts at the other	1/31/2010
Identify over 150 fuel cell power sites for telecommunication backup power applications	7/30/2010
Initiate operation of fuel cell powered forklifts at 3 additional locations	8/31/2010
Ship 75 fully qualified micro fuel cell power packs to customers for field/market testing	10/31/2010

EERE Recovery Program Plan

Complete delivery of 200 to 400 fuel cell power plants and install up to 180 fuel cell power systems for forklift, back-up power and combined heat and power applications	9/30/2010
Deploy 6 fuel cell powered CHP systems in southern California	12/31/2010

4.6 Geothermal Technologies Program

EGS Demonstrations	Date
Modify the open FOA	5/27/2009
Select EGS demonstration projects	10/2/2009
Award first phase funding for an EGS demonstration project	8/30/2010
Obtain permits and satisfy NEPA requirements for first major EGS project	7/15/2010
Prepare first EGS site	9/30/2010
Validate the flow rate of one stimulated reservoir	10/15/2011

EGS Technology Research & Development	Date
1 st lab call awardees funded; joint definition of R&D topics with Office of Science; modification of FOA with new R&D topics and time extension.	6/30/2009
FOA closes	7/17/2009
Awardees under FOA#09-GO99018 funded	5/31/2010
Peer review of projects	5/20/2010

Validation of Innovative Exploration Technologies	Date
Issue funding opportunity announcement	05/27/2009
Select projects for awards	10/29/2009
Negotiate awards. Make first award	12/31/2009
Begin geophysical characterization of geothermal resources	03/31/2010
Complete making awards with NEPA determination (EF2A) Conduct Annual Peer Review	07/30/2010
Begin validating exploration techniques by drilling wells in explored geothermal fields	09/30/2011

Low Temperature Demonstrations	Date
Modify the open FOA	5/27/2009
Select first round projects	10/2/2009
Award first round projects	5/15/2010
Obtain permits and satisfy NEPA requirements for first major EGS project.	5/31/2010
Prepare field sites at all awarded locations	7/30/2010
Complete the award of all projects and confirm energy production from at least one project site	9/30/2010

EERE Recovery Program Plan

Ground Source Heat Pumps	Date
FOA issued	6/2/2009
FOA closed	8/6/2009
Select projects	9/18/2009
Project selections announced	10/29/2009
Awardees under FOA funded	5/15/2010
Describe project objectives at Annual Geothermal Technologies Program Peer Review	5/18/2010
Obtain final permits and satisfy NEPA requirements for GHP projects	5/31/2010

National Geothermal Data System	Date
Cooperative agreement negotiation completed; award made on NGDS Design, and testing.	9/30/2009
Begin developing data system design parameters	12/31/2009
Develop and implement mechanisms to accommodate the delivery and storage of data, data documents and datasets from DOE-funded Demonstration Projects including implementation of the “Digital Data Library” that will be accessible through the NGDS Catalog listings and directly online through simple search procedures.	3/31/2010
Cooperative agreement negotiation completed and awards made for NGDS Data Development, Collection and Maintenance Projects	7/30/2010
In cooperation with the US Geological Survey, begin developing and implementing mechanisms to systematically prioritize, digitize and provide access to legacy data	7/30/2010
Develop Beta version of Geothermal Desktop	9/30/2010

4.7 Industrial Technologies Program

Combined Heat and Power, District Energy Systems, Waste Heat Recovery, and Deployment of Efficient Industrial Equipment	Date
Release FOA	6/2/2009
Make first awards	3/31/2010
Full system shakedown and startup will be performed on first project	9/30/2011

Improved Energy Efficiency for Information and Communication Technology	Date
Release FOA	6/18/2009
Make first awards	3/31/2010
Complete installation of the initial demonstration technology for ICT	9/30/2010

EERE Recovery Program Plan

Complete all concept definition studies	9/30/2011
Complete all technology demonstrations	9/30/2012

Industrial Assessment Centers and Plant Best Practices	Date
Award all funding	12/31/2009
Completed 20% of planned energy assessments	9/30/2010
Completed 60% of planned energy assessments	3/31/2011
Completed 100% of planned energy assessments	12/31/2011

Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies & Energy-Intensive Process R&D	Date
Award 90% of nanomanufacturing and Energy-Intensive Process R&D projects.	12/31/2009
All national laboratory staffing in place for Advanced Materials R&D	3/31/2010
Conduct two site visits to assess progress.	7/30/2010
All Advanced Materials activities 40% complete.	9/30/2010
About 45% of the nanomanufacturing and Energy-Intensive Process R&D projects completed.	6/30/2011
Complete the process development of the heat treatment process for low temperature graphitization of natural graphite for second generation cathodes for battery technology.	4/30/2011
Complete and install at least one heat exchanger system with cold formed titanium sheets for evaluation at company site for testing and evaluation in a desalination test loop system.	6/30/2011

4.8 Weatherization Assistance Program

	Date
<ul style="list-style-type: none"> • Weatherize a minimum of 165,000 (cumulative) low-income homes • Approve and obligate 25 percent of remaining funds after progress reviews 	7/30/2010
<ul style="list-style-type: none"> • Weatherize a minimum of 237,000 (cumulative) low-income homes • Approve and obligate remaining funds after progress reviews 	9/30/2010
Weatherize a minimum of 304,000 (cumulative) low-income homes	12/31/2010
Weatherize a minimum of 373,000 (cumulative) low-income homes	3/31/2011
Weatherize a minimum of 444,000 (cumulative) low-income homes	6/30/2011
Weatherize a minimum of 508,000 (cumulative) low-income homes	9/30/2011
Weatherize a minimum of 553,000 (cumulative) low-income homes	12/30/2011
Weatherize a minimum of 593,000 (cumulative) low-income homes	3/30/2012

4.9 State Energy Program

	Date
<ul style="list-style-type: none"> • Monitor the implementation of state plans approved prior to December 31, 2009, implement the corrective action plans as necessary. • Recipients obligate \$2.5B in SEP funds 	7/30/2010
Monitor the implementation of the state plans, implement the corrective action plans as necessary, and obligate the balance of Recovery Act funds	9/30/2010
Monitor the implementation of the state plans, implement the corrective action plans as necessary	12/31/2010
Monitor the implementation of the state plans, implement the corrective action plans as necessary	3/31/2011
Monitor the implementation of the state plans, implement the corrective action plans as necessary	6/30/2011
Monitor the implementation of the state plans, implement the corrective action plans as necessary	9/30/2011

4.10 Energy Efficiency and Conservation Block Grants

	Date
<ul style="list-style-type: none"> • Award all Competitive Grant (Topic 1) funds • Formula recipients obligate \$1B in funds 	7/30/2010
<ul style="list-style-type: none"> • Obligate balance of funds for formula grants after progress reviews • Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings and job creation 	9/30/2010
Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings and job creation	12/31/2010
Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings and job creation	3/31/2011
Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings and job creation	6/30/2011
Continue monitoring and oversight including: compiling data regarding performance metrics and calculating projected energy savings and job creation	9/30/2011

4.11 Energy Efficiency Appliance Rebate Program

	Date
Release Funding Opportunity Announcement	7/15/2009
Applications due from states and territories	10/15/2009
Completion of 80% of Awards	12/31/2009

4.12 Solar Energy Technologies Program

Photovoltaics Systems Development	Date
Announce project selections for Supply Chain and Pre-Incubator and begin NEPA review	6/2009
Supply chain grants and national laboratory projects awarded. NEPA reviews complete	9/2009
Kick-off meetings held for all Supply Chain awards	3/2010
Commercial-ready device architecture demonstrated for successfully completed pre-incubator projects	9/2010
Stage-gate reviews completed for National Laboratory Projects to verify progress towards Program goals	12/2010
Stage-gate reviews completed for Pre-Incubator and Incubator Projects to verify progress towards Program goals	3/2011

Concentrating Solar Power Investment	Date
Complete award process for Solar Two decommissioning	9/2009
Decommissioning activities completed for Solar Two site	12/2009
Complete procurement of major equipment for optical characterization and materials laboratories	9/2010

High Penetration Solar Deployment	Date
Complete awards of SEGIS Phase-II projects through the down-selection process	7/2009
Complete award selection for all other sub-activities through merit review processes and begin NEPA review	12/2009
Kick-off meetings held for all Solar Market Transformation projects	6/2010

4.13 Advanced Battery Manufacturing

	Date
Announce selections	9/30/2009
Complete Round 1 awards	12/31/2009
Complete Round 2 awards	4/30/2010
Complete all contract kick-off meetings	7/30/2010
The first battery pack assembly plant operational	9/30/2010
Initiated Construction for 50% of New Construction Projects	12/30/2010

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The first battery cell fabrication plant operational	6/30/2011
Production capacity of 50,000 batteries established	9/30/2011

4.14 Transportation Electrification

	Date
Complete Technical Advisory Review of Transportation Electrification Proposals	6/30/2009
Selections are completed and ready for announcement	7/31/2009
<ul style="list-style-type: none"> • Awards completed and funds allocated, contingent on NEPA approval • Project kickoff meetings complete 	5/4/2010
Data collection and dissemination plans completed with project partners	3/31/2010
Recharging infrastructure installation begins and Deployment site visits begin	7/30/2010
Initial electric drive vehicle deployments begin	9/30/2010
Electric-drive vehicle deployment complete	10/31/2011
Electric-drive vehicle charging infrastructure deployment complete	12/31/2011

4.15 Clean Cities Alternative Fuel Vehicles

	Date
Receive and review proposals	5/29/2009
Awards completed	7/30/2010
Vehicles procured at 10 percent level	9/30/2010
Vehicles procured at 25 percent level and infrastructure deployment initiated at 10 percent level	12/31/2010
1000 Vehicles deployed and 75 refueling stations operational	6/30/2011
Vehicles deployed at 25 percent level and 25 percent of infrastructure deployment initiated	9/30/2011

4.16 Commercial Vehicle Integration (SuperTruck)

	Date
Issue FOA	6/30/2009
Close Funding Opportunity Announcement. By August 1, 2009, complete DNFA for Automotive X Prize	9/30/2009
Complete Technical Advisory Review of Proposals. Selections of awards are completed and ready for announcement	12/31/2009
Complete negotiations of cooperative agreements for selected proposals	3/31/2010
DOE staff conducts site visit to review technical plans, schedule, and barriers to achieving goals set forth in the cooperative agreement	7/30/2010
Selected teams have completed initial truck design to increase freight efficiency	9/30/2010

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by 50 percent and have validated the design with modeling. Complete engine designs to meet fuel economy goals for light-duty vehicles	
Initiate testing of heavy duty engine and vehicle designs to increase freight efficiency by 50 percent	5/31/2011
Demonstrate increased engine efficiency resulting in a 10 percent fuel economy improvement for light-duty vehicles.	9/30/2011

4.17 Water Power Technologies

	Date
Release Funding Opportunity Announcement	6/30/2009
Award grants for all private sector projects	12/31/2009
Complete Regulatory Processes at all projects; Finalize subcontract/vendor awards for 5 or more projects	7/30/2010
Finalize subcontract/vendor awards for all projects; Begin equipment fabrication/procurement at 3 or more projects; Begin construction/installation at 2 or more projects	9/30/2010
Begin equipment fabrication/procurement at 5 or more projects; Begin construction/installation at 3 or more projects	12/31/2010
Begin equipment fabrication/procurement at all projects; Begin construction/installation at 4 or more projects	3/31/2011
Complete equipment fabrication/procurement at 3 or more projects; Complete construction/installation at 1 or more projects	6/30/2011
Complete equipment fabrication/procurement at 4 or more projects; Complete construction/installation at 2 or more projects; Begin operations at 1 or more projects	9/30/2011

4.18 Wind Energy Technology Program

Wind Turbine Drivetrain Testing Facility	Date
Release Funding Opportunity Announcement	6/23/2009
<ul style="list-style-type: none"> • Complete evaluation of proposals • Selection committee chairman's report issued 	10/30/2009
<ul style="list-style-type: none"> • Select winner and negotiate contract • Begin NEPA process 	12/31/2009
Award grant	3/31/2010
Award preliminary design subcontracts for building and equipment	7/30/2010
Complete Preliminary Design Review for building and equipment	9/30/2010
<ul style="list-style-type: none"> • Complete Critical Design Review for building and equipment 	

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	12/31/2010
<ul style="list-style-type: none"> • Break ground for upgrades to the building housing the testing equipment 	3/31/2011
<ul style="list-style-type: none"> • Completion of test-unit transportation rail-spur extension • Completion of transmission line and substation to support facility electrical load • Complete commissioning of crane infrastructure for handling test units within the facility 	6/30/2011
Completion of drivetrain testing data acquisition system	9/30/2011

Large Wind Turbine Blade Test Facility	Date
<ul style="list-style-type: none"> • Complete subsurface foundation construction plan • Break ground on facility subsurface construction 	12/31/2009
<ul style="list-style-type: none"> • Complete Surface Building-Shell Construction Plan • Hire new NREL personnel for project support 	3/31/2010
Complete facility subsurface construction	7/30/2010
<ul style="list-style-type: none"> • Award NREL subcontracts to develop special testing equipment • Begin facility building-shell construction 	9/30/2010
<ul style="list-style-type: none"> • Complete steel work for facility building-shell 	12/31/2010
<ul style="list-style-type: none"> • Complete facility building-shell construction 	3/31/2011
Begin Facility Shell Commissioning	6/30/2011
Complete Facility Shell commissioning	9/30/2011

Wind Energy University Consortia	Date
Select three Wind University Consortium awardees	12/31/2009
Complete two to three University Consortium awards	3/31/2010
<ul style="list-style-type: none"> • University student financial aid program established • NEPA approval or requirements identified in MOU with University Consortia 	7/30/2010
<ul style="list-style-type: none"> • Turbine construction initiated on at 1 University Consortium after awards to University Consortium • Complete Curriculum Development for at least 1 University Awardee • NEPA determination on a CX, EA, or EIS on turbine projects. 	9/30/2010
<ul style="list-style-type: none"> • One recipient develops preliminary platform designs and concept estimates • One recipient conducts MET tower assessment and installation 	12/31/2010
<ul style="list-style-type: none"> • One recipient to complete site plans and documentation • Turbine Construction Project Closeout 	3/31/2011
Initiate Turbine reliability studies	6/30/2011

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<ul style="list-style-type: none"> • Complete coordinated curriculum for all University Awardees • One recipient to initiate Final Design of Floating Platform 	9/30/2011
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Wind Energy Technology R&D and Testing	Date
Release Funding Opportunity Announcement	12/30/2008
Selection of best proposals for award	7/16/2009
<ul style="list-style-type: none"> • Award grants • Complete NEPA reviews 	12/31/2009
First progress report due; verification of realistic grantee timetables and Cost of Energy methodology	3/31/2010
<ul style="list-style-type: none"> • Conduct quarterly project review and assessment • Final awards complete 	7/30/2010
<ul style="list-style-type: none"> • Complete NEPA reviews. • Assess cost of energy through reliability improvements, reduced capital costs, and market deployment barriers • One recipient to conduct lab scale physical property evaluations 	9/30/2010
<ul style="list-style-type: none"> • Conduct quarterly project review and assessment • Installation of tower for monitoring wind resources near Wind Project facility • One recipient to complete test stand gearbox - full scale efficiency test for their selected lubricant 	12/31/2010
<ul style="list-style-type: none"> • Conduct quarterly project review and assessment • Complete development of prototype Wind Integration Simulator (WINS) model. • Demonstration of welding, forming, and coating process for on-site fabricated self-erecting utility scale wind towers. 	3/31/2011
<ul style="list-style-type: none"> • Conduct quarterly project review and assessment • Begin process modeling validation on 9-m blade to identify location and size of defects that occur during the turbine blade fabrication process. 	6/30/2011
<ul style="list-style-type: none"> • Conduct quarterly project review and assessment • One recipient to provide an interim project report detailing the findings and implications of ongoing Condition Based Monitoring research 	9/30/2011

4.19 Facilities and Infrastructure

Lab Call for Facilities and Equipment (Non-NREL)	Date
Release Solicitation	6/30/2009
Final Selections Made	9/30/2009
Awards Made	12/31/2009
Idaho National Laboratory – High Energy Battery Test Facility – Groundbreaking/Start of Renovation	7/30/2010
Argonne National Laboratory – Construction of a Materials Scale-Up Facility – Groundbreaking/Start of Renovation	9/30/2010
Oak Ridge National Laboratory – Carbon Fiber Technology Center (CFTC) – Equipment Procurement Award	11/30/2010

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Oak Ridge National Laboratory – Carbon Fiber Technology Center (CFTC) – Groundbreaking/Start of Renovation	1/31/2011
Argonne National Laboratory – Construction of a Materials Scale-Up Facility – Complete Post-Test Analysis Lab Construction	3/31/2011
Sandia National Laboratory – Construction and upgrade to the Battery Abuse Testing Laboratory – Groundbreaking/Start of Renovation	2/28/2011
National Energy Technologies Laboratory – Performance Verification Laboratory – Start of Construction	5/30/2011
Oak Ridge National Laboratory – Integrated Net-Zero Energy (NZE) Buildings Research – Start of Construction	8/31/2011
Sandia National Laboratory – Construction and Upgrade to the Battery Abuse Testing Laboratory – Complete Facility Renovation	9/30/2011
Lawrence Berkley National Laboratory – National User Facility for Net-Zero Energy Buildings Research – Groundbreaking/Start of Renovation	11/30/2011

NREL Projects (Including Lab Call)	Date
Renewable Energy and Supporting Site Infrastructure – Equipment Purchases and Commissioning of Project Components	9/30/2010
Lab Call Equipment Purchase and Laboratory Renovation	9/30/2010
Integrated Biorefinery Research Expansion (IBRF II) – Complete Construction	9/30/2011
Research Support Facility Expansion (RSF II) – Complete Construction	9/30/2011
NREL Ingress/Egress Road Access and Parking Garage – Complete Construction	9/30/2011
NWTC 5.0 MW Dynamometer Fabrication and Installation – Complete construction	9/30/2012

4.20 Program Management

	Date
Hire contract support, limited term and permanent Federal employees; conduct site visit to ensure grant application/approval process are proper; and conduct technical assistance training sessions	6/30/2009
Secure additional office space for new hires	9/30/2009
Expend 50 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting	12/31/2009
Expend 60 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting	3/31/2010
Expend 75 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting	7/30/2010
Expend 90 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting	9/30/2010

5.0 Monitoring and Evaluation

EERE received and reviewed a historic number of applications for these Recovery funds. EERE's oversight activities will ensure that all outcomes are consistent with and measurable against DOE's goals under the Recovery Act, and qualified staff is available for monitoring performance. To guide this oversight, DOE has prepared Risk Mitigation Plans (RMPs) for each of its Recovery Act projects and appointed qualified Contracting Officers, Contracting Officer Technical Representatives, Technical Project Officers, Technical Monitors, and Program Managers with certification levels appropriate to the unique implementation risks of Recovery Act projects to provide oversight.

EERE is actively monitoring grants, cooperative agreements and contracts to ensure that performance, cost, and schedule goals are being met and that all potential risks are mitigated in accordance with the respective RMPs. For large grant programs such as the Weatherization Assistance Programs, DOE has made technical assistance available from national labs and technical specialists as grantees prepared their applications and during subsequent implementation to help measure and verify results. The monitoring and evaluation efforts described below have been updated to reflect efforts undertaken since the submission of the previous plan.

Monitoring Tools – WAP, SEP, and EECBG

The Weatherization and Intergovernmental Program (WIP) has a Monitoring Plan, Appendix of Compliance Checklists, and a Monitoring Reference Manual for Project Officers that structure and guide monitoring activities for the WAP, SEP, and EECBG Programs. The Monitoring Plan and Appendix of Compliance Checklists are available online to all Grantees across the three WIP grants programs to ensure that they and their respective sub-grantees are aware of the overall vision for oversight grants monitoring at the Federal level, are aware of the goals and expectations of monitoring reviews, and are able to refer back to it as frequently as meets their needs.

The objectives of the Monitoring Plan and Reference Manual are:

- To provide the structure for an oversight monitoring system of Grantee financial, administrative and technical procedures and processes for compliance with relevant statutes and regulations;
- To assure that Grantees and their sub-grantees have and use quality grants management plans, procedures, controls and processes;
- To ensure consistent application of program and reporting standards as promulgated by DOE for data collection, documentation of accomplishments across all grant programs;
- To recognize continual process improvement, best practices and self-monitoring techniques that result in successful grants performance; and
- To provide clear transparent guidelines for Grantee management, monitoring, and communications on sub-grantee's performance.

All WAP, SEP, and EECBG Grantees are monitored via desktop and onsite reviews. Desktop reviews generally refer to examinations of Grantee progress reporting that can be conducted at a Project Officer's desk. These reviews are conducted on a periodic basis, monthly and quarterly

at a minimum. In contrast, Project Officers go to the Grantee and sub-grantee work sites during an onsite review. During this review, Project Officers examine files, systems, policies, and procedures to ensure quality performance and proper management controls and procedures are in place. The frequency of onsite reviews has increased as progress has been made on the three WIP grants programs.

Project Officers utilize compliance checklists to conduct Grantee monitoring. These checklists were developed to provide consistency and ease reporting. The Appendix of Compliance Checklists contains distinct monthly, quarterly, desktop, and onsite checklists for each of the three WIP grants programs. The checklists are periodically refined to incorporate feedback and best practices from each WIP program.

The compliance checklists were developed using the following guidance:

- EERE's Oversight Monitoring Plan
- 10 CFR 600
- Program specific Code of Federal Regulations
- DOE's grants guidance
- Relevant OMB Circulars and guidance documents (M-09-21)
- ARRA reporting provisions
- Single Audits from OMB
- Funding Opportunity Announcements.
- Appropriate Enabling Legislation

The Performance and Accountability for Grants in Energy (PAGE) system^{*} supports the WIP Monitoring Plan, Appendix of Compliance Checklists, and Monitoring Reference Manual. PAGE collects compliance checklist data from Project Officers and provides DOE and Grantees, including state and local governments, and tribal organizations, the ability to electronically submit and manage grant performance and financial information.

DOE has increased the frequency of onsite monitoring from previous years so that each Grantee receiving over \$1M is monitored at least once per grant life. DOE also increased the frequency of worksite monitoring from previous years. In WAP, DOE is hiring independent contractors to visit to over 25,000 ARRA homes weatherized to ensure quality assurance and quality control.

Monitoring Tools – Research, Development, Demonstration, and Deployment Projects and Activities

A monitoring plan and appendix of compliance checklists and project management template for Research, Development, Demonstration, and Deployment (RDD&D) activities will be published in late spring 2010.[†] Per these documents, desktop checklists should be completed on a quarterly basis, and onsite checklists and project plan reviews should be completed at a frequency consistent with a project's complexity and award size.

^{*} <http://www.page.energy.gov/>

[†] A draft of this plan was submitted to DOE's Office of the Chief Financial Officer on January 15, 2010.

Recovery Leadership & Operations

The DOE Recovery Office is the central point for implementation and execution of Recovery Act activities. The Recovery operations team oversees implementation management, coordinates with external entities, and holds monthly performance and review meetings with senior departmental managers.

Recovery Funding Oversight, Performance & Risk Mitigation

In addition to DOE's standard funds control mechanisms, Recovery Act funds are subject to additional process controls to ensure funds are not co-mingled, are tracked to enable reporting, and are spent responsibly.

Office of Internal Review (OIR)

OIR programs ensure the Recovery Act objectives are met and DOE managers and partners are held accountable for successful execution. Programs include coordinating DOE's "Internal Control Acknowledgment" program, conducting agency wide assessments and analyses including initial programmatic risk assessments. Further agency level information can be found here: www.energy.gov/recovery.

EERE, Office of Field Operations and Field Performance Management

This Office manages the Golden Field Office in Colorado, DOE's primary organization for managing renewable energy and energy efficiency projects across the nation. In addition, this office provides leadership for performance management of EERE field operations including procurement actions, financial management, human resources, project management, environmental reviews, monitoring, and resolution of technical and management issues.

6.0 Measures

The following measures are specific to the Recovery Act. In some instances, targets will not be available until additional baseline data have been collected.

Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Percent of EERE funds obligated for Recovery Act projects.</p> <p>Term: Quarterly</p> <p>Type: Output</p> <p>Explanation: A key aspect of the Recovery Act is to assure timely obligations of funds to the intended beneficiaries. EERE plans to make every effort to assure this happens on the plans that it has put forward, which have been designed to also maintain a prudent use of taxpayer funds and provide key research deliverables to the benefit of the public. An obligation of funds means a binding agreement is made with EERE's contractors and grantees that will result in outlays (a payment for the services or goods they provided) immediately or in the future. EERE intends to obligate all its Recovery Act funds by September 30, 2010. EERE will measure its progress towards planned obligations on a quarterly basis.</p> <p>Unit: Percent</p>	76.6% / 76.4%	100% / TBD	TBD	TBD
<p>Measure: Percent of EERE funds outlayed for Recovery Act projects.</p> <p>Term: Quarterly</p> <p>Type: Output</p> <p>Explanation: A key aspect of the Recovery Act is to assure timely outlays of funds to the intended beneficiaries. EERE plans to make every effort to assure this happens on the plan that it has put forward, which has been designed to also maintain a prudent use of taxpayer funds and provide key research deliverables to the benefit of the public. An outlay of funds means a payment that fulfills an obligation and is the measure of Government spending. This is a payment for the services or goods the contractor or grantee provided. EERE will measure its progress towards planned outlays to-date on a quarterly basis.</p> <p>Unit: Percent</p>	3.8% / 3.5%	22% / TBD	TBD	TBD

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Number of homes weatherized.</p> <p>Term: Quarterly</p> <p>Type: Outcome</p> <p>Explanation: The Weatherization Assistance Program (WAP) provides technical and financial assistance in support of state and local weatherization agencies throughout the United States. It increases residential energy efficiency and reduces energy costs for low-income families. Recovery Act funding will be implemented through the same formula grant approach that has been used previously on the WAP. Recovery funds will be used to provide worker training to significantly expand the weatherization workforce and weatherize a total of 525,000 low-income homes by September 30, 2011. Quarterly progress is expected to be:</p> <ul style="list-style-type: none"> • 12,500 homes by 9/30/09 • 50,000 homes by 12/31/09 • 102,500 homes by 3/31/10 • 155,000 homes by 6/30/10 • 210,000 homes by 9/30/10. <p>Unit: Number of homes</p>	50,000 / 30,252	270,000 / TBD	525,000 / TBD	N/A
<p>Measure: Number of plug-in hybrid electric vehicles worth of battery manufacturing capacity brought on-line.</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation: The development of inexpensive and durable batteries is one of the most important components of building a fleet of hybrid and plug-in hybrid electric vehicles. EERE awarded nearly \$2 billion in Recovery Act funds to build domestic battery manufacturing capabilities, which will make the manufacturing sector in the U.S. more competitive. EERE's goal is to assist in the development and deployment of advanced battery manufacturing capacity to support 500,000 plug-in hybrid electric vehicles a year by 2015.</p> <p>Unit: Number of plug-in hybrid electric vehicles per year</p>	N/A	TBD	TBD	TBD

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Gallons of fuel replaced per year</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation: Deploying new vehicle technologies in more U.S. communities expands the knowledge base, promotes user acceptance, and ultimately leads to increased adoption as these technologies prove their value in meeting petroleum reduction, environmental, and financial goals. The Transportation Electrification program aims to establish widespread demonstration, evaluation, and education projects to support the acceleration of market introduction and penetration of advanced electric drive vehicles.</p> <p>Unit: Gallons of fuel per year</p>	N/A	TBD	TBD	TBD
<p>Measure: Estimated annual energy savings (Btus) from formula-grant funded EECBG projects</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation: Term : Annual</p> <p>Explanation : The formula grants provided under the EECBG Program are intended to assist States, U.S. Territories, Indian Tribes, counties, and cities to develop, promote, implement, and manage energy efficiency and conservation programs that</p> <ul style="list-style-type: none"> • Reduce fossil fuel emissions in a manner that is environmentally sustainable and that maximizes cost savings and other benefits for local and regional communities and Indian Tribes • Reduce the total energy use of the eligible entities • Improve energy efficiency in the transportation, building, and other appropriate sectors. <p>Unit: Btus per year</p>	N/A	TBD	TBD	TBD

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Estimated annual energy savings (Btus) from Recovery Act SEP projects</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation :</p> <p>The State Energy Program (SEP) reduces energy use and cost, increases renewable energy capacity and production, and lessens dependence on foreign oil. The program provides technical and financial resources to help States develop and manage a variety of high impact energy programs. These funds allow state energy offices the flexibility to develop energy projects focused on the buildings, electric power, industry, and/or transportation sectors, as well as crosscutting policy initiatives and public information campaigns.</p> <p>Unit: Btus per year</p>	N/A	TBD	TBD	TBD
<p>Measure: Estimated annual energy savings (Btus) from the Recovery Act-funded State Energy Efficient Appliance Rebate Program</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation :</p> <p>Under the State Energy Efficiency Appliance Rebate program, DOE will use nearly \$300 million to support consumer rebate and recycling programs for select residential ENERGY STAR appliance products—those that represent significant improvements in efficiency compared to the majority of products in the market.</p> <p>Unit: Btus per year</p>	N/A	TBD	TBD	TBD

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Estimated annual energy savings (Btus) from the BetterBuildings initiative</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation :</p> <p>Approximately \$452 million will support the BetterBuildings initiative under the Recovery Act, to “ramp-up” energy efficiency building retrofits in 25 selected communities. This initiative allows communities, governments, private sector companies and non-profit organizations to work together on pioneering and innovative programs for concentrated and broad-based retrofits of neighborhoods and towns—and eventually entire states.</p> <p>Unit: Btus per year</p>	N/A	TBD	TBD	TBD
<p>Measure: Estimated annual energy savings (Btus) from installing Combined Heat and Power systems, District Energy Systems, Waste Energy Recovery systems, and energy efficient industrial equipment</p> <p>Term: Annual</p> <p>Type: Outcome</p> <p>Explanation :</p> <p>The Industrial Technologies Program (ITP) will lead Federal activities to improve industrial energy efficiency and carbon management by installing Combined Heat and Power systems, District Energy Systems (for more than one building or fixed energy-consumer), Waste Energy Recovery systems, and energy efficient industrial equipment.</p> <p>Unit: Btus per year</p>	N/A	TBD	TBD	TBD
<p>Measure: Number of Recovery Act-funded pilot- and demonstration-scale biorefineries starting operations</p> <p>Term: Annual</p> <p>Type: Output</p> <p>Explanation:</p> <p>Under the Recovery Act, up to \$509 was made available for pilot- and demonstration-scale biorefineries with the aim of validating integrated biorefinery technologies that could produce advanced biofuels, bioproducts, and heat and power in an integrated system.</p> <p>Units: Number of biorefineries starting operations</p>	N/A	1/TBD	5/TBD	10/TBD

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Number of ground-source heat pumps installed</p> <p>Term: Annual</p> <p>Type: Output</p> <p>Explanation:</p> <p>Under the Recovery Act, nearly \$64 million was made available to increase the deployment of ground source heat pumps, also known as geothermal heat pumps (GHPs). GHPs will increase energy efficiency, thereby decreasing energy use in homes and industry. Up to 37 ground source heat pumps projects are to be deployed.</p> <p>Units: Number of ground source heat pumps</p>	N/A	TBD	TBD	TBD
<p>Measure: Megawatts of renewable energy capacity from Recovery Act-funded SEP projects</p> <p>Term: Annual</p> <p>Type: Output</p> <p>Explanation:</p> <p>The State Energy Program (SEP) reduces energy use and cost, increases renewable energy capacity and production, and lessens dependence on foreign oil. The program provides technical and financial resources to help States develop and manage a variety of high impact energy programs. These funds allow state energy offices the flexibility to develop energy projects focused on the buildings, electric power, industry, and/or transportation sectors, as well as crosscutting policy initiatives and public information campaigns. Currently, EERE is developing a system and methodology to collect these data from recipients. Once this is determined, these recipient-provided data will be reported.</p> <p>Units: Megawatts</p>	N/A	N/A	N/A	N/A

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Measure	Target/Actual			
	CY2009	CY2010	CY2011	CY2012
<p>Measure: Megawatts of renewable energy capacity from Recovery Act-funded EECBG projects</p> <p>Term: Annual</p> <p>Type: Output</p> <p>Explanation:</p> <p>The formula grants provided under the EECBG Program are intended to assist States, U.S. Territories, Indian Tribes, counties, and cities to develop, promote, implement, and manage energy efficiency and conservation programs that</p> <ul style="list-style-type: none"> • Reduce fossil fuel emissions in a manner that is environmentally sustainable and that maximizes cost savings and other benefits for local and regional communities and Indian Tribes • Reduce the total energy use of the eligible entities • Improve energy efficiency in the transportation, building, and other appropriate sectors. <p>Currently, EERE is developing a system and methodology to collect these data from recipients. Once this is determined, these recipient-provided data will be reported.</p> <p>Units: Megawatts</p>	N/A	N/A	N/A	N/A

7.0 Transparency and Accountability

DOE is committed to coordinating and conducting oversight of its Recovery funds to prevent waste, fraud, and abuse. Specifically, EERE will ensure that:

- Funds are awarded and distributed in a prompt, fair, and reasonable manner. DOE contracting officers will comply with the changes to the pre-solicitation and award notice process as mandated by FAR Case 2009-010.
- The recipients and uses of all funds are transparent to the public, and the public benefits of these funds are reported clearly, accurately, and in a timely manner. The standard terms and conditions contained in individual award agreements will provide detailed information on required reporting elements to comply with Section 1512 of the Recovery Act and OMB-specified reporting requirements. DOE will assess the ability of recipients to effectively implement and fulfill reporting requirements as part of the milestone obligation and disbursement process. DOE is standardizing reporting across all projects and will make non-proprietary information available to the public in a transparent and meaningful manner.
- Funds are used for authorized purposes and instances of fraud, waste, error, and abuse are mitigated. Project reports containing detailed information on the use of funds will be required from all awardees, including how the prime recipient is using the funds, and any sub-awards made by the prime recipient. Frequent monitoring of recipients, both announced and unannounced, will ensure that funds are used appropriately.

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- Recovery Act projects avoid unnecessary delays and cost overruns. EERE will require all recipients to submit plans for the use of funds. Final determinations of acceptability of plans will be made by a senior EERE team with advice from DOE Internal Review staff. Recipients will be required to expend funds in a timely manner.
- Program goals are achieved, including specific program outcomes and improved results on broader economic indicators. DOE maintains an oversight capability through its field offices, and Federal Project Directors will be assigned to Recovery Act projects to ensure that cost, scope, and schedule baselines are achieved. Individual projects will be regularly monitored through standard reviews to ensure reporting requirements are being met and that projects are proceeding towards stated objectives. Regular management review meetings will be conducted via teleconference and site visits.

DOE leverages its existing corporate systems to track and report on Recovery Act activities and to ensure effective funds management. The DOE's iManage Data Warehouse (IDW) is a corporate enterprise system integrating financial, budgetary, procurement, and program information to monitor project execution. Each program is tracked using a unique Treasury Appropriation Fund Symbol, and each component project is identified by a unique Project Identification Code.

IDW is a central data warehouse linking common data elements from each of DOE's corporate business systems and serving as a "knowledge bank" of information about portfolios, programs or projects including budget execution, accumulated costs, performance achieved, and critical milestones met. The IDW contains information from multiple corporate systems and will be a tool used to meet information needs for Recovery Act oversight and reporting to Recovery.gov.

The Performance Measure Manager (PMM) is DOE's performance tracking system. PMM tracks high-level budgetary performance and is being expanded to accommodate Recovery Act performance tracking needs. Performance evaluations will be organized and reported along with results from DOE's annual budgetary activities in the Annual Performance Report and posted on: www.energy.gov/recovery. Performance results will be uploaded into the IDW for required agency reporting.

See DOE's Recovery Plan for additional information on DOE's financial and performance tracking mechanisms, found here: www.energy.gov/recovery.

8.0 Federal Infrastructure Investments

EERE Recovery Act federal infrastructure investments prioritize meeting and exceeding the energy efficiency and green building requirements outlined in the Energy Policy Act of 2005 (EPAct 2005), Energy Independence and Security Act of 2007 (EISA), and Executive Order 14324. These infrastructure investments are being made in a way that ensures long-term public benefits, optimization of economic and programmatic results, and promotion of sound labor practices.

The Recovery Act is supporting the construction of the new Research Support Facility (RSF II) at the National Renewable Energy Laboratory (NREL), which will redefine the U.S. standard for energy performance and design. RSF II will significantly exceed energy performance standards (e.g., American Society of Heating, Refrigerating, and Air Conditioning Engineers) for commercial buildings and is designed to achieve Leadership in Energy and Environmental Design (LEED) Platinum status at the same cost as today's low energy performance commercial buildings. DOE is pursuing the possibility of making RSF II a net zero energy building and will be able to share the construction approach with other agencies and the private sector so that they can all use the facility as a model for future design.

Another project supported by the Recovery Act that will optimize programmatic results and provide long-term public benefits is the expansion of the NREL Integrated Biorefinery Research Facility (IBRF), which provides industrial-scale R&D process capability to accelerate the development of advanced cellulosic ethanol processes. Expansion of this facility is critical to the growth of the U.S. ethanol industry, and therefore will help reduce U.S. foreign oil dependence and increase energy security. The IBRF leverages NREL's science and engineering expertise and is designed to achieve LEED Gold status and meet or exceed all applicable energy standards, ensuring long-term energy savings that will benefit U.S. taxpayers.

EERE also made available over \$100 million to the national laboratories to develop new or additional research capability in batteries, carbon fiber, and building technologies; crucial areas of focus for developing the industries and technologies of the future. As a result of a competitive solicitation, Argonne, Idaho, Lawrence Berkeley, Oak Ridge, Sandia, NREL, and the National Energy Technology Laboratory have all won funding to build capacity in one of these areas. These investments will help drive US scientific and technological leadership in these key areas.

An ongoing EERE program supported by the Recovery Act is the Federal Energy Management Program (FEMP). FEMP's mission is to provide technical assistance to DOE and other federal agencies to implement cost-effective energy management and investment practices in their facilities. With Recovery Act funds, FEMP is expanding the scope and scale of its technical assistance and implement a reporting and tracking system to track progress towards efficiency and renewable energy goals and develop a greenhouse gas management and abatement program. This assistance will help the federal government take a leadership role in the utilization of clean low-carbon, energy-saving technologies. Recovery Act funds also allow FEMP to increase its education and outreach to other federal agencies about utilization of these third-party financing tools, and expand the leverage of private capital to improve Federal infrastructure.

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EERE's infrastructure improvements will enable integration of energy efficiency and renewable energy technologies, which ensures long-term life cycle energy savings that demonstrate innovative and emerging green building technologies and design. By reducing the sites' carbon footprints and avoiding significant energy-related costs, many of these infrastructure improvements will also save the U.S. taxpayer dollars on federal energy bills or allow for funds to be redirected into other high priority activities. The advancements will also encourage technology and business model innovation in the private sector.

9.0 Barriers to Effective Implementation

EERE has identified potential implementation barriers that fall within the following six categories:

9.1 Regulatory

- **Federal Energy Regulatory Commission (FERC)** – The primary implementation issue for some hydropower projects is likely to be compliance with FERC licensing regulations and relevant National Environmental Policy Act (NEPA) regulations.
 - Mitigation plans:
 - By focusing on upgrades of existing projects, selected awardees will employ amendments to their existing FERC licenses, which will reduce the duration of applicable NEPA processes.

- **DOE Order 413.3A** - Construction projects are subject to all requirements of DOE Order 413.3A.
 - Mitigation plans: *
 - Federal Project Directors have been assigned to the projects requiring such per DOE Order 413.3A to ensure that cost, scope, and schedule baselines are achieved.
 - EERE Acquisition Executive approved the streamlined NETL design/build Acquisition Strategy to accelerate project performance.
 - The Oak Ridge Office will manage EERE projects at ORNL under the Office of Science’s robust project management system.
 - EERE and the Office of Engineering and Construction Management developed and are implementing a strategy to accelerate External Independent Reviews of the RSF II and IBRF II projects. The RSF II EIR will be completed the week of May 10, 2010. The IBRF II EIR is scheduled the week of June 7, 2010.

- **Bureau of Land Management (BLM) Lease Requirements** – BLM lease requirements could impact a geothermal applicant’s ability to expend funds in a timely manner. BLM administers much of the land with significant geothermal potential, for example, 90% of the total land in Nevada. Current leasing requirements for geothermal projects are difficult to amend for existing oil and gas leases. Under current terms, producers can only use water to power operations within the lease (pumps, separators, etc.). BLM requires a separate and new geothermal lease for a producer to export electricity generated from co-produced water. These negotiations can last from months to years and vary from state to state.
 - Mitigation plans/actions taken:
 - As a result of prior meetings between EERE and BLM senior management, BLM is working with Congressional staffers to draft a statutory provision to create a single lease for oil/gas and co-produced

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geothermal water. A representative from BLM attended an informal interagency geothermal working group meeting where a draft of the *National Geothermal Action Plan* was distributed for input and comment.

- The final “Federal Interagency Geothermal Activities” document was published on the Geothermal Technologies Program website. The site encourages regular feedback from Federal agencies conducting geothermal activities. Feedback is encouraged to reduce policy, grid, land-use, permitting, and other institutional barriers encountered government-wide. DOE and DOI Congressional Affairs staff will work together to request authority for BLM to assign geothermal rights to current oil and gas lease holders, thereby allowing electricity production and sales back to the grid from co-produced water.
- **Local Permitting Processes** – The expenditure of funds could be delayed due to local permitting processes resulting from limited interagency staff and environmental concerns.
 - Mitigation plans/actions taken:
 - DOE is working with other agencies to expedite planning and permitting for geothermal projects. The completion of a BLM Programmatic EIS provides an advanced starting point for Enhanced Geothermal Systems (EGS) risk mitigation. In addition, DOE seeks to work with an unbiased outside organization to address public concerns in areas of greatest concern such as induced seismicity and water use.

9.2 Statutory

- **National Environmental Policy Act (NEPA)** – Schedule slips occurred on some awards because of the time required to complete NEPA reviews.
 - Mitigation plans/actions taken:
 - DOE works with project proponents as they identify sites to ensure selected sites do not pose unusual or unexpected environmental or safety issues based on DOE experience with NEPA site reviews.
 - Additional staffing resources for NEPA review and document management have been placed at the Golden Field Office and National Energy Technology Laboratory to accelerate NEPA determinations and NEPA reviews.
 - DOE is applying project management skills and NEPA lessons learned to complete EAs promptly, given circumstances of individual proposals.
 - Recipients with larger formula awards and with activities expected to meet CX criteria have been prioritized for NEPA determinations.
 - DOE is making CX determinations, where appropriate, for entire subgrant programs instead of requiring NEPA review of each project that may receive a subgrant. DOE is allowing recipients to use federal funds for preliminary activities (e.g., energy audits or drafting plans) before NEPA review of a particular project is complete.

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- State Energy Program (SEP) and Energy Efficiency and Conservation Block Grant (EECBG) Program recipients with applications requiring further information for NEPA determinations have received letters from the OWIP Program Manager detailing the necessary information and specific submission deadlines.
- **Davis Bacon** – Confusion surrounding the applicability of Davis-Bacon Act (DBA) prevailing wage requirements and lack of wage determinations for weatherization workers funded through grants from the Weatherization Assistance Program (WAP), SEP and EECBG led to delays in project execution.
 - Mitigation plans/actions taken:
 - DOE has closely coordinated with Department of Labor (DOL) officials to make updated special project wage determinations for workers funded through the WAP available in fall 2009, and to make prevailing general wage determinations for workers funded through the SEP and EECBG easier to find.
 - Program guidance has been issued to explain DBA requirements to Recovery Act recipients that includes the use of wage determinations for weatherization activities for single and multifamily housing for the WAP, SEP and EECBG Program.
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 - DOE additional staff have been hired or reallocated to lead educational and coordination efforts with State and local recipients of Recovery Act-funded projects regarding DBA compliance requirements.
- **Buy American** – The Buy American provision in the Recovery Act requires, subject to certain conditions, the sourcing of iron, steel, and manufactured goods from US manufacturers. Inability to identify these goods and a lack of information regarding the relevant provisions slows the implementation of Recovery Act funded projects. For example, one hydropower project had applied for a Buy American Waiver, but it was later determined that “substantial transformation” of materials on-site would meet the provision of the Buy American clause, and therefore the Waiver became a non-issue. There have been questions raised on multiple projects about if/how the Buy American provision applies, causing further delays. Another project is in the process of rewriting its RFP to comply with the provision, and other projects are having their legal teams look into the applicability of the Buy American clause to their projects as well.
 - Mitigation plans/actions taken:
 - Issued program guidance outlining the applicability of the Buy American provisions of the Recovery Act to DOE grant activities.
 - Awardees have been made aware of potential Buy American issues as early as possible in the process, reducing the amount of project delay.
 - Via the Federal Register, requested information on the non-availability of products that are not produced or manufactured in the United States to determine if the issuance of individual or categorical waivers is necessary.
 - Via the Federal Register, requested information on the programmatic

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- implementation of the Buy American provisions to inform the content of forthcoming Buy American-specific guidance issued by EERE.
- Issued a nationwide Limited Public Interest Waiver for LED Lighting and HVAC Units.
 - Issued nationwide Categorical Waivers for Electronic Ballasts, LED Traffic Lights, and CFLs.
 - Hired a dedicated Buy American Coordinator to facilitate compliance with the relevant provisions of the Recovery Act.
- **Historic Preservation** – Section 106 of the National Historic Preservation Act mandates a review process for all federally-funded and permitted projects that will impact sites listed on, or eligible for listing on, the National Register of Historic Places. DOE activities under WAP, SEP, and EECBG may trigger this review process and delay project execution.
 - Mitigation plans/actions taken:^{*}
 - Close coordination with the Advisory Council on Historic Preservation (ACHP) and the National Conference of State Historic Preservation Officers (NCSHPO) to specifically detail those activities that will not necessitate a review pursuant to Section 106.
 - Promulgation of a template Standard Programmatic Agreement between recipient, relevant State Historic Preservation Office (SHPO) and DOE to outline those activities in order to streamline project execution.

9.3 State and Local Government Concerns

- **State and Local Government Operations** – The implementation of SEP and Energy Efficiency and EECBG Program projects are highly dependent upon the effective and efficient operation of state and local government programs.
 - Mitigation plans/actions taken:^{*}
 - Weekly engagement with stakeholder organizations such as the National Association of State Energy Officials, U.S. Conference of Mayors, National Association of Counties, and National League of Cities to identify and address these potential barriers to implementation.
 - Recipients receive extensive in-person visits at all management levels (including S-3, ASEE, DOE Recovery Czar) related to preparedness, operations and quality assurance
 - Program targets and projections have been established for WAP, SEP, and EECBG recipients to set clear expectations and benchmark recipient performance.
 - DOE Program leads and Project Officers continue to conduct outreach to grantees on weekly basis to provide assistance and verify performance.
- **Training** – While states have been implementing energy efficiency and renewable energy programs for many years, the scale of the Recovery Act creates additional

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challenges. Furthermore local government and tribal EECBG recipients may not have sufficient capacity to execute projects efficiently and effectively.

- Mitigation plans:
 - To assist the states and units of local government, DOE will provide training and technical assistance to state and local governments through existing programs such as Technical Assistance Project (TAP) and peer-to-peer exchange on a variety of topics including, but not limited to, fiscal management, advanced energy efficiency/renewable energy options for buildings, and industrial energy audits.

9.4 Technical

- **Proposal Quality** – Given that Recovery Act funding is unprecedented on several levels, including significantly increased funding in areas that had received little funding in recent years, the quality of some proposals that DOE will receive may not be acceptable.
 - Mitigation plans:
 - EERE brought on 200 lab personnel to assist block grant recipients with assembling strong proposals.

9.5 Commercial

- **Construction Schedules** – A major barrier could be the reluctance of the private sector to finance construction projects with slightly higher upfront capital costs, given the current risk adverse market, even if the buildings will realize operating cost savings over their lifetimes.
 - Mitigation plans:
 - DOE can assist by working with the private sector to develop a cogent, fact-based business case for high performance buildings, including identification of low-cost measures for achieving energy savings.

9.6 Management

- **Human Resource Constraints** – With the limited currently available procurement staff, it may be difficult to achieve the aggressive Recovery Act milestones.
 - Mitigation plans/actions taken:
 - Laboratory/contractor expertise used to support program initiation and execution.
 - Staffing of Limited Term Federal positions considered necessary to accomplish the projected workload are awaiting approval.
 - Use of direct hiring authority under the Recovery Act to expedite the hiring of procurement staff.
 - Received procurement and NEPA assistance from other field offices and programs to support procurement workload.
 - Streamlined procurement review guidelines to reduce procurement workload and accelerate obligation of award funds.

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- **Reporting** – The nominal quarterly reporting periods drives data latency that leaves program staff incapable of effectively managing an enormous expansion in the scale and scope of grant funds under management.
 - Mitigation plans/actions taken:^{*}
 - DOE has instituted monthly reporting of key financial and performance data for WAP, SEP, and large (>\$2 million) EECBG recipients.

- **Monitoring** – With an unprecedented expansion in the level of grant funding, particularly to grantees with limited capacity and no previous experience with DOE grant programs, proper oversight of grant execution by DOE monitors is exceedingly difficult.
 - Mitigation plans/actions taken:^{*}
 - Developed an online tool to facilitate the submission of WAP, SEP and EECBG monitoring reports to program staff for rapid identification of issues.
 - Promulgated a revised WAP, SEP and EECBG manual to set clear standards for monitoring content and conduct.
 - OWIP hired a national firm to conduct more than 25,000 quality reviews of homes weatherized to validate state and local quality assurance plans and activities
 - Submitted a draft RDD&D Project and Activity Monitoring Plan

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10.0 Environmental Review Compliance

Projects that receive federal funds under the SEP and EECBG programs are typically federal actions subject to NEPA. Therefore, DOE evaluates these projects to determine the level of required NEPA review. The requirement for this environmental review under NEPA presents hurdles for some project applicants, particularly those that are not familiar with the DOE NEPA process. The scope of a project, the degree to which the project is mature, the availability of information, and certain site conditions all factor into the length of time it will take to complete the NEPA process. Some projects may be eligible for categorical exclusions (CX), while others may require Environmental Assessments (EA) or Environmental Impact Statements (EIS). DOE has developed the following expedited NEPA processes and tools to help minimize the time for the NEPA process to be completed. The processes and tools described below have been updated to reflect efforts undertaken since the submission of the previous plan.

DOE reviews applications for NEPA compliance on a rolling basis as applications are received. DOE makes a determination in a timely manner regarding whether the proposed activities may qualify for a CX or require preparation of an EA or an EIS. The preparation of an EA or an EIS may delay the expenditure schedule and result in changes to the recipients' plan. DOE mitigates any delay by making an initial assessment of the plan provisions and by initiating preparation of any required NEPA documentation as quickly as possible.

DOE has created a "Template for Expedited NEPA Review" for optional use by the applicant. The template serves as a tool to help applicants submit clear applications that will likely allow DOE to apply CXs expeditiously to appropriate projects or groups of projects (possibly entire subgrant programs). The goal of the template is to give applicants a straightforward, consistent method for providing information that will help DOE expedite NEPA review for these types of projects.

DOE released NEPA guidance on August 21, 2009, and December 17, 2009, to help the applicants better understand DOE's environmental review process and provide sufficient information to DOE to assist with that review.

DOE is actively working with applicants to obtain adequate project information necessary to conduct a NEPA review. DOE has increased contact with applicants through visits and calls to members of the state energy office and state governor's office.

DOE has created NEPA subject matter expert (SME) Teams, composed of federal employees and contractor support, to expeditiously review applications as they are received. DOE will continue to utilize these teams for the completion of EAs and EISs.