American Recovery and Reinvestment Act Program Plan

for

the Office of Energy Efficiency and Renewable Energy

Department of Energy

May 15, 2009

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 R&D activities. To date, the Administration has announced plans for $15,376 million of these funds in 11 existing programs.

This report was 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. Six of these elements are not program specific and common to all EERE programs. These elements are addressed in Sections 1.0 through 6.0. The remaining six elements are program-specific and addressed in separate program sections. In some cases, information is not yet available and will be provided in future updates to this plan.

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

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1) Objectives

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.

EERE Recovery Act funding will provide Americans with more affordable clean energy choices that both increase energy security and help our environment. It will partly do this through accelerating the rate at which new and cost-effective energy efficiency and renewable energy technologies are deployed, bringing them to the market more quickly. Through these investments, Recovery Act projects will also help create hundreds of thousands of specialized green-collar jobs required to enable significant increases in energy efficiency, renewable energy, and vehicle technology manufacturing, installation, research, and education. These funds will help make the U.S. competitive in the clean energy sector 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 oil through investments in advanced vehicle technologies, such as plug-in hybrid electric vehicles (PHEVs), 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, and achieving the Administration's target of 35.5 miles per gallon average fleet efficiency by 2016 will save 1.8 billion barrels of oil over the lifetime of the vehicles sold in the next five years. Expansion into next-generation vehicle technologies also might be a pathway for revitalization for 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 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, which 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 will be awarded through competitive solicitations whenever possible, which will ensure that the funds are distributed in a fair and transparent manner to the projects that will 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 transformational research and development (R&D). Many of the Recovery Act projects place emphasis on deployment and funding "shovel ready" projects that demonstrate the feasibility of EERE technologies to meet the Presidents energy goals.

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:

- In 2007 and 2008, EERE announced the funding for four commercial-scale and eight demonstration-scale cellulosic ethanol plants. Recovery Act funds will support accelerated validation of multiple advanced biofuel pathways to help reach DOE's goal of making cellulosic ethanol cost-competitive by 2012.
- Recovery Act funds will be used to support for the acceleration of next-generation geothermal, or enhanced geothermal systems (EGS), technology development; particularly pilot and demonstration projects, and component technology R&D. Intensified work on these projects will help to prove the technical feasibility of EGS systems by 2015.
- Expansion of near-term market and manufacturing opportunities, made possible through Recovery Act funding, will help to support the acceleration fuel cell market transformation. It will support the immediate deployment of approximately 1,000 fuel cell systems for backup power and material handling applications (e.g., forklifts), which are key early markets for fuel cells.

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 Recovery Act funds will be used to weatherize homes of low-income Americans through the Weatherization Assistance Program (WAP) and will go to states and local communities through the State Energy Program (SEP) and Energy Efficiency and Conservation Block Grant Program (EECBG) to implement high priority energy efficiency projects.
- 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 will provide $2 billion in Recovery Act funds to build domestic battery manufacturing capabilities.
- Recovery Act funds will bolster the EERE Clean Cities Alternative Fuel Vehicles Program, which supports local programs that contribute to the reduction of petroleum consumption, and $300 million will go to state and local governments and transit authorities to expand advanced vehicle fleets and fueling infrastructure. Transportation electrification will also receive a $400 million boost 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. Examples include:

- EERE will be funding an intensive effort into building technology systems design and integration as well as expanding into new areas of R&D for building system controls.

- Recovery Act funds will be invested in high impact solar photovoltaic (PV) technologies that support the PV supply chain. This funding will 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. This project will boost wind technology development and lower capital costs of wind systems.

2.0.1 Biomass and Biorefinery Systems

The purpose of the Biomass and Biorefinery Systems research and development (R&D) program is to validate integrated biorefinery technologies producing advanced biofuels, bioproducts, and heat and power in an integrated system, thus enabling private financing of commercial scale replications.

2.0.2 Advanced Battery Manufacturing

The Advanced Battery Manufacturing program aims to enhance the domestic supply chain through grants that support the creation and operation of factories that supply, create, and recycle advanced batteries and electric drive-train components in the domestic battery market.

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 will provide $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:

- Advanced vehicle battery manufacturing plants (up to 5 plants that can each produce 20,000 to 100,000 automotive batteries/year)
- Battery material supplier production facilities
- Battery recycling facilities
- Electric drive component manufacturing facilities
- Electric drive subcomponent manufacturing facilities

2.0.3 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, promote user acceptance, and ultimately lead to increased adoption as these technologies prove their value in meeting petroleum reduction, environmental, and financial goals.

2.0.4 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 will be awarded to state and local governments, private and non-profit entities, and others, as specified in Section 131 of EISA, to conduct demonstration and data collection projects on a wide range of electric drive transportation technologies.

2.0.5 Hydrogen and Fuel Cell Technologies

The Hydrogen and Fuel Cell Research and Development (R&D) program 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.

2.0.6 Energy Efficiency and Conservation Block Grants

The Energy Efficiency and Conservation Block Grant (EECBG) program assists state and local governments in reducing their fossil fuel emissions and total energy use, and in improving energy efficiency in the transportation, building, and other sectors. Recovery Act funds will help 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.

2.0.7 Weatherization Assistance Program

The Weatherization Assistance Program (WAP) increases residential energy efficiency and supports energy cost reductions for low-income families. The program provides technical and financial assistance in support of state and local weatherization agencies throughout the United States. These providers manage one of the largest and most technically advanced residential energy retrofit programs in the country.

2.0.8 State Energy Program

The State Energy Program's (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 through the rapid award of funds for identified shovel ready projects using existing off the shelf energy efficiency technologies and practices.

2.0.9 Energy Efficiency Appliance Rebate

Under the Energy Efficiency Appliance Rebate program, DOE will use $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).

2.0.10 Geothermal Technologies

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, development and demonstration projects will also prove that technology readiness can be achieved by 2015, supporting GTP mission to conduct research, development, and demonstration to establish EGS as a major contributor for base load electricity generation.

The plan supports and 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.

2.0.11 Wind Energy

The Wind Turbine Drivetrain Research and Development (R&D) and Testing program ($45 million) is directed toward the creation of a new (5 to 20 megawatt) dynamometer testing capability for the nation. Based on reported premature drivetrain failures across the entire industry, design methods, tools, standards, advanced components, and testing capabilities will be developed to address technology gaps. The nation requires the capability to conduct highly accelerated life testing of current and new larger drive systems. This will support the industry goal (and national need) of delivering reliable and cost effective hardware for utility scale wind turbines with a 20-plus year design life.

2.0.12 Program Management

Management and oversight funding will ensure successful execution of Recovery Act appropriations and responsive fiscal management and reporting.

2.1 Funding Table

The following program activities have either been announced or specified in the Recovery Act.

Program	Tracking Number	Project Activity	Total Funding Amount ($M)
Biomass	B1	Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries	$480
Biomass	B2	Commercial Scale Biorefinery Projects	$177
Biomass	B3	Fundamental Research in Key Program Areas	$110
Biomass	B5	Investigation of intermediate ethanol blends, optimization of E-85 engines, and development of transportation infrastructure	$20

VTP	VTP1	Battery Manufacturing	$2,000
VTP	VTP2	Transportation Electrification	$400
VTP	VTP3	Clean Cities Alternative Fuel Vehicle (AFV) Grant Program	$300
Fuel Cells	FC1	Fuel Cells: Enabling Market Transformation and Manufacturing	$43
OWIP	OWIP1	Energy Efficiency and Conservation Block Grants (EECBG) – Formula Portion	$2,744
OWIP	OWIP1	EECBG – Competitive Portion	$456
OWIP	OWIP2	Weatherization Assistance Program	$5,000
OWIP	OWIP3	State Energy Program	$3,100
OWIP	OWIP4	Appliance Rebate Programs	$300
Geothermal	G1	Geothermal Demonstrations	$140
Geothermal	G2	EGS Technology research and development (R&D)	$80
Geothermal	G3	Validation of Innovative Exploration Technologies	$100
Geothermal	G4	National Geothermal Database Resource Assessment and Classification	$30
Geothermal	G6	Ground Source Heat Pumps	$50
Wind	WIND1	Wind Turbine Drivetrain R&D & Testing	$45
Wind	WIND3	Large Wind Turbine Blade Testing Facility	$25
Wind	WIND4	DOE Wind University R&D Consortium	$24
Wind	WIND5	Wind Energy Technology Partnerships	$14
Facilities	F1	Integrated Biorefinery Research Expansion	$14
Facilities	F2	Renewable Energy and Supporting Site Infrastructure	$87
Facilities	F6	NWTC Upgrades	$10
Program Management		Recovery Program Direction and Support	$50
Unallocated		EERE R&D Projects Under Review*	$1001
		Total EERE Recovery Act Funding	**$16,800**

* This plan will be updated periodically to reflect new funding allocations and specific activities within EERE programs.

3) 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	$8,600
	County Governments	County	$650
	City Governments	City or Township	$1,250
	U.S. Territories and Possessions	U.S. Territories	$200
	Federally Recognized Indian Tribal Governments	Federally Recognized Indian Tribal Governments	$50
	SUBTOTAL – Formula Grants		$10,750
Project Grants	State Governments County Governments City Governments Public Nonprofit Institutions Federally Recognized Indian Tribal Governments U.S. Territories and Possessions Small Business For Profit Organization Private Nonprofit Institution Specialized Group (Student) Quasi-Public Nonprofit Institution/Organization	State County City or Township Public Nonprofit Institutions Federally Recognized Indian Tribal Governments U.S. Territories For-Profit Organization Student/Trainee Graduate Student Homeowner Low Income	$6,050
	SUBTOTAL – Project Grants		$6,050
	GRAND TOTAL		$16,800

4) Delivery Schedule - Milestones

4.1 Biomass and Biorefinery Systems

Modify Integrated Pilot and Demonstration Scale Biorefinery Solicitation Program

	Estimated Date*
Solicitation closed.	6/30/2009
Awards selected and negotiations initiated.	12/31/2009
Initial funds obligated in the amount of $50 million to various awardees.	6/30/2010
Remaining $430 million in Recovery Act funds obligated.	9/30/2010

Commercial Scale Biorefinery Projects

	Estimated Date*
Initiate negotiations for phase 2 awards to first biorefinery demonstration project.	6/30/2009
First phase 2 awarded for one biorefinery project.	12/31/2009
• Remaining project awarded. • 100 percent of Recovery funds obligated. • Initiate construction on a biorefinery demonstration project.	9/30/2010

*All milestone dates have not been finalized and are subject to change

4.2 Advanced Battery Manufacturing

New Grants	Estimated Date*
Announced selections.	9/30/2009
Complete Round 1 awards.	12/31/2009
Complete Round 2 awards.	4/30/2010

* All milestone dates have not been finalized and are subject to change

4.3 Clean Cities Alternative Fuel Vehicles

	Estimated Date*
Vehicles procured at 10 percent level.	3/31/2009
• Receive and review proposals. • Vehicles procured at 25 percent level and infrastructure deployment initiated at 10 percent level.	6/30/2009
• Negotiate awards. • Vehicles deployed at 25 percent level and 25 percent of infrastructure deployment initiated.	9/30/2009
Awards completed.	12/31/2009

* All milestone dates have not been finalized and are subject to change

4.4 Transportation Electrification

	Estimated Date*
Complete Technical Advisory Review of Transportation Electrification Proposals.	6/30/2009
Selections are completed and ready for announcement.	7/31/2009
• Awards completed and funds allocated, contingent on National Environmental Policy Act (NEPA) approval. • Project kickoff meetings complete.	12/31/2009
Data collection and dissemination plans completed with project partners.	3/31/2010
Recharging infrastructure installation begins and deployment site visits begin.	6/30/2010
Initial electric drive vehicle deployments begin.	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.5 Hydrogen and Fuel Cell Technologies

	Estimated Date*
Announce projects and initiate negotiations with new project partners.	6/30/2009
Award at least 80 percent of grants based on resolution of negotiations and NEPA issues.	9/30/2009
Initial 5 to 20 fuel cell powered forklifts delivered.	12/31/2009
Fuel cell powered forklift operations initiated.	3/31/2010
50 to 100 fuel cell power plants identified for telecommunication backup power applications.	6/30/2010
Complete delivery of 200 to 400 fuel cell power plants.	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.6 Energy Efficiency and Conservation Block Grants

	Estimated Date*
• Issue Funding Opportunity Announcement (FOA) for (EECBG) formula grant applications on http://ww.grants.gov for eligible states, local governments, and Indian Tribes. • Begin to receive applications.	3/26/2009
• 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
• 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, job creation, etc.	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.7 Weatherization Assistance Program

	Estimated Date
• Receive full plans from 80 percent of eligible grantees.	5/12/2009
• 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
• Weatherize a minimum of 37,500 (additional) low-income homes. • Process and approve remaining state plans.	12/31/2009
Weatherize a minimum of 52,500 (additional) low-income homes.	3/31/2010
• Weatherize a minimum of 52,500 (additional) low-income homes. • Approve and obligate 25 percent of remaining funds after progress reviews.	6/30/2010
• Weatherize a minimum of 52,500 (additional) low-income homes. • Approve and obligate remaining funds after progress reviews.	9/30/2010

4.8 State Energy Program

	Estimated Date*
Release announcement that SEP is accepting Recovery Act grant applications on http://grants.gov.	3/12/2009
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
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
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
Monitor the implementation of state plans approved prior to September 30, 2009 and implement the corrective action plans as necessary.	3/31/2010
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.	6/30/2010
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

* All milestone dates have not been finalized and are subject to change

4.9 Energy Efficiency Appliance Rebate

	Estimated Date*
Issue FOA.	7/15/2009
Applications due from states and territories.	10/15/2009
Document program results.	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.10 Geothermal Technologies

EGS Demonstrations

	Estimated Date*
Modify the open Funding Opportunity Announcement (FOA).	5/27/2009
Select first round projects.	10/2/2009
Award first round projects.	2/28/2010
Obtain permits and satisfy National Environmental Policy Act (NEPA) requirements for first major EGS project.	3/31/2010
Prepare field sites at all awarded locations.	6/30/2010
Complete the award of all projects and validate the flow rate of one stimulated reservoir.	9/30/2010

EGS Technology Research &Development

	Estimated Date*
1st 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; FOA closes.	7/17/2009
Awardees under FOA#09-GO99018 funded.	1/31/2010
Peer review of projects.	6/30/2010
Joint performance review of R&D projects with Office of Science (annual).	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.11 Wind Energy

	Estimated Date*
Issue FOA.	6/30/2009
• Complete evaluation of proposals. • Selection committee chairman's report issued.	9/30/2009
• Select winner and negotiate contract. • Begin National Environmental Policy Act (NEPA) process.	12/31/2009
Award grant.	3/31/2010
Preliminary facility design complete.	6/30/2010
• Critical Design Review complete. • Pre-construction activities complete.	9/30/2010

* All milestone dates have not been finalized and are subject to change

4.12 Program Management

	Estimated Date*
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
Receive competitive applications; complete evaluation of RDD&D proposals; award EECBG formula block grants.	9/30/2009
Expend 47 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	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
Expend 77 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	6/30/2010
Expend 89 percent of management and oversight recovery funds to support project management and oversight, monitoring of awards, and reporting.	9/30/2010

* All milestone dates have not been finalized and are subject to change

5) Monitoring and Evaluation

EERE will receive an historic number of applications for these Recovery funds, and efforts are being made to secure the necessary number of qualified reviewers for these applications from a variety of DOE organizations. Once applications are reviewed and awards are made, EERE will provide appropriate oversight to ensure that all outcomes are consistent with and measurable against DOE's goals under the Recovery Act, and qualified staff are available for monitoring performance. To guide this oversight, DOE has prepared Risk Mitigation Plans (RMPs) for each of its Recovery Act projects and will appoint qualified Contracting Officers, Contracting Officer Technical Representatives, and Program Managers with certification levels appropriate to the unique implementation risks of Recovery Act projects to provide oversight.

EERE will actively monitor 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 Energy Efficiency and Conservation Block Grant (EECBG), Weatherization Assistance, and State Energy Programs (SEP), DOE will make technical assistance available from national labs as grantees prepare their applications and during implementation to help measure and verify results.

Representative examples of project-specific RMPs are those of the **Weatherization Assistance** and **State Energy Programs (WAP and SEP, respectively)**. To mitigate the risks of not using funding in a timely manner and not using funding for projects that meet Recovery Act objectives, grant recipients will be required to submit a plan of how they will use funds within 18 months and disburse funds within 36 months after receipt of initial funds. Following EERE review, final determinations of the acceptability of plans will be made by a senior-level EERE team with advice from DOE Internal Review staff. Grants will be disbursed on a milestone basis:

- 10 percent at time of initial award.
- 40 percent when recipient's complete plan is approved by EERE.
- 10 to 20 percent when recipients demonstrate that they have obligated funds appropriately and jobs are being created.
- 30 to 40 percent when recipients demonstrate continued progress during EERE reviews.

DOE will increase the frequency of on-site monitoring so that each state is monitored at least once each year. State recipients are expected to ensure that funds are used in an appropriate way that is consistent with the State Energy Conservation Plan approved by DOE. To assist the states with compliance, DOE will allocate up to 20 percent of WAP funds to provide training and technical assistance to state and local governments through existing programs such as Technical Assistance Project and peer-to-peer exchange.

<u>Recovery Leadership & Operations</u>
The DOE Recovery Office is the central point for implementation and execution of Recovery Act activities. A Recovery operations team will oversee implementation management, coordinate with external entities, and hold monthly performance and review meetings with senior departmental managers.

<u>Recovery Funding Oversight, Performance & Risk Mitigation</u>
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. DOE Recovery funds are released for implementation in a staged approach. Programs develop initial project plans which include performance metrics which require management approval.

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.

6) Measures

- **Corporate**: Percent of EERE funds obligated.
  - Target (TBD)

- **Weatherization**: Number of homes weatherized
  - Target (TBD)

- **EECBG**: Estimated annual energy savings (Btus) from EECGB projects
  - Target (TBD, projected based on applications)

Actual: Estimated based on actual work completed

7) 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.
- **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 Recovery Act 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 Agency Wide Recovery Plan for additional information on DOE's financial and performance tracking mechanisms, found here: www.energy.gov/recovery.

8) 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 will be 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 will support 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 research and development (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.

One more 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 will be able to expand 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 will 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.

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) Barriers to Effective Implementation

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

9.1 Regulatory

- **FERC** – The primary implementation issue for hydropower projects is likely to be compliance with all environmental regulations, including Federal Energy Regulatory Commission (FERC) licensing and DOE NEPA review, which can substantially delay the deployment of hydropower technologies.
    - 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 both FERC and DOE 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 per DOE Order 413.3A to ensure that cost, scope, and schedule baselines are achieved.
- **BLM Lease Requirements** – The Bureau of Land Management (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:
        - 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 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 *National Geothermal Action Plan* will be issued and interagency support will be elicited 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:

        - 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

- **NEPA** – Schedule slips may occur on some awards because of the time required to complete National Environmental Policy Act (NEPA) reviews. COMMENT: NEPA compliance does not involve a permit..
    - Mitigation plans:
        - The contracting agency is planning for these contingencies by requesting proposers to provide environmental information as part of their applications. Proposers have also been asked to provide their plans for mitigating any significant environmental impacts that have been identified. Recipients and any entities associated with the performance of work under these awards shall be restricted from taking any action using Federal funds which would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE completing the appropriate NEPA review.
        - Specifically, with respect to Energy Efficiency and Conservation Block Grants and the State Energy Program, DOE will review the state and territory applications for compliance under NEPA on a rolling basis as such applications are received. DOE plans to make a preliminary determination regarding whether the proposed activities may be categorically excluded or require preparation of an environmental assessment or environmental impact statement. The preparation of an environmental impact statement may delay the expenditure schedule and result in changes to the state plan. DOE plans to mitigate any delay by making an initial assessment of the plan provisions and initiating preparation of any required NEPA documentation as quickly as possible.
        - Adding additional staffing resources for NEPA review and document management
        - A portion of the Recovery Act funding will be needed to perform further NEPA review for awards which do not meet CX criteria.

- **"Buy America" Provisions of the Recovery Act** – Lead times for the purchase and installation of specialized domestic equipment could impact some project schedules.
    - Mitigation plans:
        - Funding Opportunity Announcements will require all applicants to identify major pieces of capital equipment and confirm that the required capital equipment will be available within the time goals set by the Recovery Act.

- **Property Title** – DOE lacks statutory authority to vest clear title to equipment and property purchased as part of Recovery Act funding to project recipients. Under current laws, the government retains an interest in property purchased under a cost shared agreement, with the amount based upon the percentage of government cost share. To obtain clear title, the recipient must buy-out the DOE share of the property's value upon completion of the projects. In questions submitted under published Funding Opportunity Announcements, recipients have identified this as a barrier. Without title vesting authority, many private parties will be reluctant to make equity investments in the projects. Similarly, debt financing is significantly more complicated under this scenario because lending institutions are reluctant to make loans for projects without a senior interest in the property. As a result, there is a high risk that project negotiations will be delayed or will fail under the current rules.
    - Mitigation plans**:**
        - Discussions between EERE General Counsel and legislative leadership is ongoing to pursue a legislative proposal to provide DOE authority to vest free and clear title to project property in the recipients.

9.3 State & Local Government Concerns

- **State Capacity** – Fifty percent of the Weatherization Assistance funding can be obligated prior to the end of calendar year 2009, but it will take states many months to ramp up to the capacity envisioned at these funding levels. Implementation challenges include: 1) overcoming state and local weatherization agency hesitation to ramp up caused by uncertain out year funding; 2) training a sufficiently large workforce to handle such a large ramp up in funding; and, 3) the awarding of grants by DOE and subgrants by the states in a short time period after funding becomes available. Slippage in the schedule could result in funds not being fully obligated by 9/30/2010, as required.
    - Mitigation plans:
        - EERE is implementing a number of measures to address these issues. These include merit review criteria that emphasize the timely use of funding, adding substantial personnel and monetary resources to minimize schedule slippage, and a ramp up in training and technical assistance.
- **State & Local Government Operations** – The implementation of State Energy Program projects is highly reliant upon the effective and efficient operation of state and local government programs.
    - Mitigation plans:
        - In order to address these potential barriers to implementation, DOE has instituted phased distribution of funding.
- **Training** – While states have been implementing energy efficiency and renewable energy programs under the State Energy Program for many years, the scale of the Recovery Act creates additional challenges. Two of these are the absence of sufficient trained workers to implement the many efficiency projects expected under the program and the need to develop effective systems for metrics related to reporting, since uniform methodologies do not currently exist.
    - Mitigation plans:

        - To assist the states with compliance, 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 has 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:
        - Laboratory/contractor expertise would be used to support program initiation and execution.
        - Staffing requests to hire the Limited Term Federal and Contractor positions considered necessary to accomplish the projected workload are awaiting approval.

10) Environmental Review Compliance

DOE will determine the appropriate level of NEPA review pursuant to NEPA and its implementing regulations (40 CFR Parts 1500-1508 and 10 CFR Part 1021) for individual projects, which will be proposed predominantly by applicants in response to DOE funding opportunity announcements. DOE will similarly comply with other environmental requirements with respect to particular proposals.