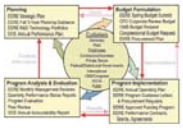
Chapter 1 Background



1.1 About the U.S. Department of Energy

The U.S. Department of Energy (DOE) conducts programs relating to energy resources, national nuclear security, environmental quality, and science. In each of these areas, the United States is facing significant challenges. Our economic well-being depends on the continuing availability of reliable and affordable supplies of clean energy with less dependence on foreign sources of oil. The nation's security is threatened by the proliferation of weapons of mass destruction. Our environment is under threat from the demands of a more populated planet and the legacies of 20th Century activities.

The DOE homepage may be accessed at: http://www.energy.gov .

Today, DOE stands at the forefront in helping the nation meet our energy, scientific, environmental, and national security goals. These include developing and deploying new energy technologies, reducing our dependence on foreign energy sources, protecting our nuclear weapons stockpile, and ensuring that America remains competitive in the global marketplace. Science, and the technology derived from it, offers the promise to improve the nation's health and well-being and broadly expand human knowledge.

In conducting its programs, DOE employs unique scientific and technical experts, including 30,000 scientists, engineers, and other technical staff, in a complex of outstanding national laboratories that have a capital value of more than $45 billion. Through its multidisciplinary research and development (R&D) activities and its formidable assembly of scientific and engineering talent, DOE focuses its efforts on engaging four programmatic Priority Areas:

- Energy Security—promoting the development and deployment of systems and practices that provide energy that is clean, efficient, reasonably priced, and reliable.
- Nuclear Security—enhancing national security through military application of nuclear technology and threat prevention, and by reducing global danger from the potential spread of weapons of mass destruction.

- Environmental Stewardship—cleaning up the legacy of nuclear weapons and research activities, safely managing nuclear materials, and disposing of radioactive wastes.
- Scientific and Technological Innovation—advancing science and scientific tools to provide the foundation for major scientific discoveries that will drive U.S. competitiveness, and revolutionize current approaches to the nation's energy, national security, and environmental quality challenges.

In support of the above four priorities, DOE provides management services to ensure that the technical programs can run efficiently. The Corporate Management area deals with organizational and management challenges that the Department must address to better serve our customers, and ultimately, U.S. taxpayers, in an effective and efficient manner. Corporate Management strives for excellence in the Department's environment, safety, and health practices, together with effective management systems and efficient business practices.

1.1.1 Mission and Strategic Plan

DOE's overarching mission is to "discover the solutions to power and secure America's future." DOE's mission and efforts to ensure America's energy safety and security are guided by the framework of the DOE Strategic Plan. Building upon the previously mentioned DOE Priority Areas, the DOE Strategic Plan highlights five Strategic Themes and sixteen Strategic Goals that are designed to help DOE successfully achieve its ongoing mission.

1) **Energy Security Strategic Theme:** Promoting America's energy security through reliable, clean, and affordable energy.

   Goal 1.1 Energy Diversity

   Increase our energy options and reduce dependence on foreign oil, thereby reducing vulnerability to disruptions and increasing the flexibility of the market to meet U.S. needs.

   Goal 1.2 Environmental Impacts of Energy

   Improve the quality of the environment by reducing greenhouse gas emissions and environmental impacts to land, water, and air from energy productions and use.

Goal 1.3 Energy Infrastructure

Create a more flexible, more reliable, and higher capacity U.S. energy infrastructure.

Goal 1.4 Energy Productivity

Cost-effectively improve the energy efficiency of the U.S. economy.

2) **Nuclear Security Strategic Theme:** Ensuring America's nuclear security.

Goal 2.1 Nuclear Deterrent

Transform the nation's nuclear weapons stockpile and supporting infrastructure to be more responsive to the threats of the 21st Century.

Goal 2.2 Weapons of Mass Destruction

Prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and in other acts of terrorism.

Goal 2.3 Nuclear Propulsion Plants

Provide safe, military-effective nuclear propulsion plants to the U.S. Navy**.**

3) **Scientific Discovery & Innovation Strategic Theme**: Strengthening U.S. scientific discovery, economic competitiveness, and improving quality of life through innovations in science and technology.

Goal 3.1 Scientific Breakthroughs

Achieve the major scientific discoveries that will drive U.S. competitiveness; inspire America; and revolutionize our approaches to the nation's energy, national security, and environmental quality challenges.

Goal 3.2 Foundations of Science

Deliver the scientific facilities, train the next generation of scientists and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.

Goal 3.3 Research Integration

Integrate basic and applied research to accelerate innovation and to create transformational solutions for energy and other U.S. needs.

4) **Environmental Responsibility Strategic Theme:** Protecting the environment by providing a responsible resolution to the environmental legacy of nuclear weapons production.

   Goal 4.1 Environmental Cleanup

   Complete cleanup of the contaminated nuclear weapons manufacturing and testing sites across the United States.

   Goal 4.2 Managing the Legacy

   Manage the Department's post-closure environmental responsibilities and ensure the future protection of human health and the environment.

5) **Management Excellence Strategic Theme**: Enabling the mission through sound management.

   Goal 5.1 Integrated Management

   Institute an integrated business management approach throughout DOE with clear roles and responsibilities and accountability to include effective line management oversight by both federal and contractor organizations.

   Goal 5.2 Human Capital

   Ensure that the DOE workforce is capable of meeting the challenges of the 21st Century by attracting, motivating, and retaining a highly skilled and diverse workforce to do the best job.

   Goal 5.3 Infrastructure

   Build, modernize, and maintain facilities and infrastructure to achieve mission goals and ensure a safe and secure workplace.

   Goal 5.4 Resources

   Institutionalize a fully integrated resource management strategy that supports mission needs and postures the Department for continuous business process improvement.

1.1.2 Vision

DOE's Vision is to *"achieve results in our lifetime ensuring: Energy Security; Nuclear Security; Science-Driven Technology Revolutions; and one Department of Energy—Keeping our commitments."* DOE, through its leadership in the sciences and technology, will continue to meet the nation's needs in energy, environmental quality, and nuclear security by being:

- A partner with Congress, other agencies, and stakeholders to develop and implement policies, legislation, and regulations that promote national security and address our energy and environmental needs in a balanced manner;
- A key contributor to ensure that the United States has a flexible, clean, efficient, accessible, and affordable system of energy supply with minimal vulnerability to disruption;
- A vital contributor to reducing the global nuclear danger through our national nuclear security, nuclear safety, and nonproliferation activities;
- A responsible steward of nuclear weapons and materials, cleaning up DOE sites, decommissioning our facilities, stabilizing nuclear materials, managing and disposing of waste, and preventing pollution;
- A major partner in world-class sciences and technology through our national laboratories, research centers, university research, and our educational and information dissemination programs; and
- An employer noted for providing a safe and secure workplace, recognized for management excellence, and acknowledged for delivering results.

1.1.3 Operating Principles

The Department will succeed only through the efforts of its employees. Our beliefs and values motivate our behavior and set standards for our individual and collective performance. The Operating Principles of DOE guide our activities as we strive to fulfill our mission.

1) Ensure safe, and environmentally responsible operations;
2) Act with a sense of urgency;
3) Work together;
4) Treat people with dignity and respect;
5) Make the tough choices;

6) Keep our commitments;

7) Embrace innovation

8) Always tell the truth; and

7) Do the right thing.

1.1.4 The Department's Background

DOE has its roots in the Manhattan Project of the U.S. Army Corps of Engineers, which was established in 1942 to manage development of the atomic bomb. After World War II, Congress created the Atomic Energy Commission in 1946 to direct the design, development, and production of nuclear reactors and, beginning in 1954, for regulating the commercial nuclear power industry.

In 1974, Congress replaced the Atomic Energy Commission with two new agencies: the Nuclear Regulatory Commission (NRC) and the Energy Research and Development Administration (ERDA). The latter was created to manage the nuclear weapons, naval reactors, and energy development programs, and to research the environmental, biomedical, and safety aspects of energy technologies.

In 1977, Congress created DOE, which brought together functions and responsibilities of the ERDA, the Federal Power Commission, and the Power Marketing Administrations under one cabinet-level department.

DOE develops and implements energy policy and manages a vast array of technical programs. The Department's nationwide complex consists of headquarters and field organizations, national laboratories, nuclear weapons production plants, power marketing administration, and special-purpose offices. DOE has almost 16,000 federal employees and more than 100,000 contractor employees working at more than 50 major installations in 35 states.

A chart of the DOE organization is shown in Figure 1.1-1. The major DOE laboratories and field facilities are shown in Figure 1.1-2.

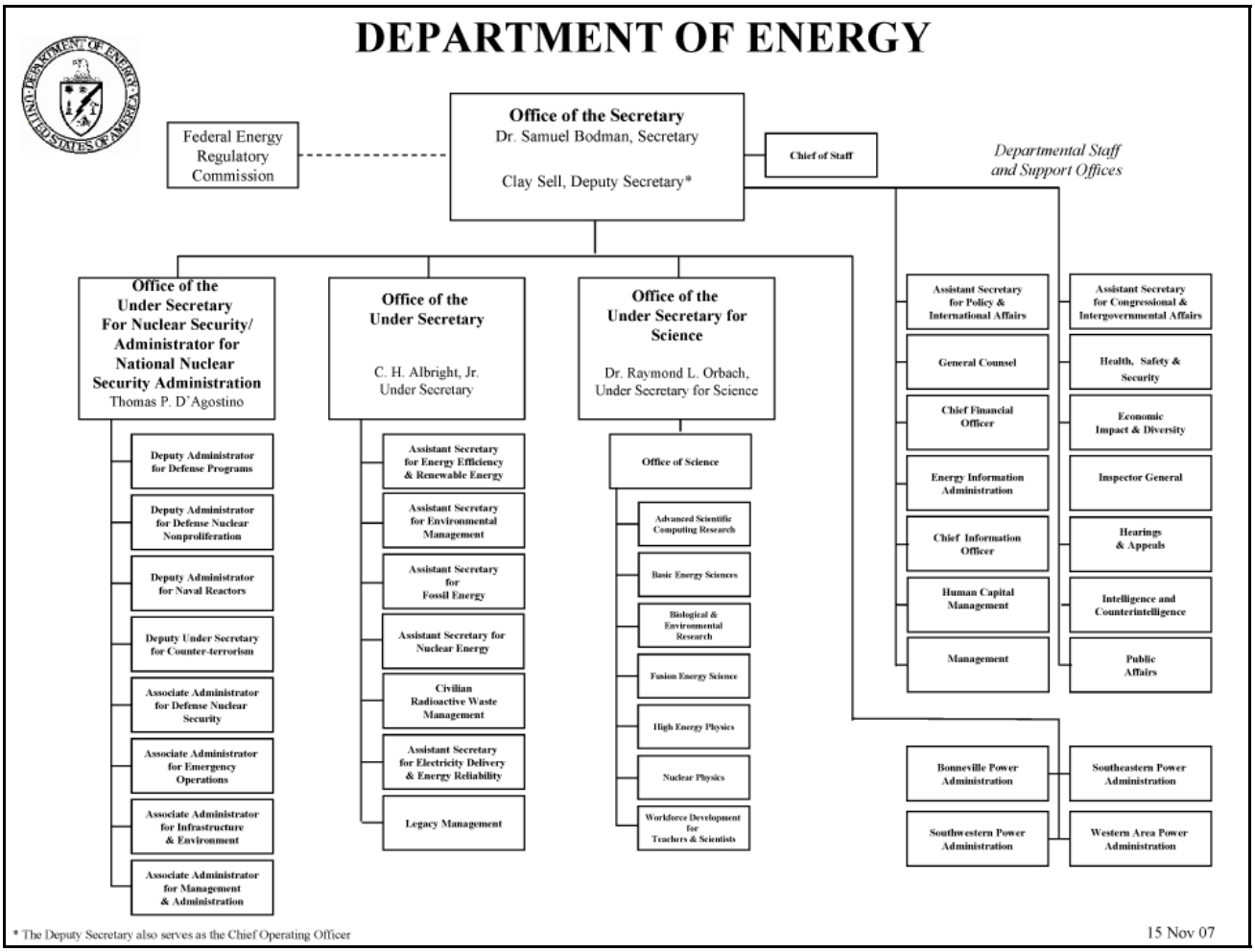


Figure 1.1-1 DOE Organization Chart

The latest version of the DOE organizational chart may be accessed at:
http://www.energy.gov/organization/orgchart.htm

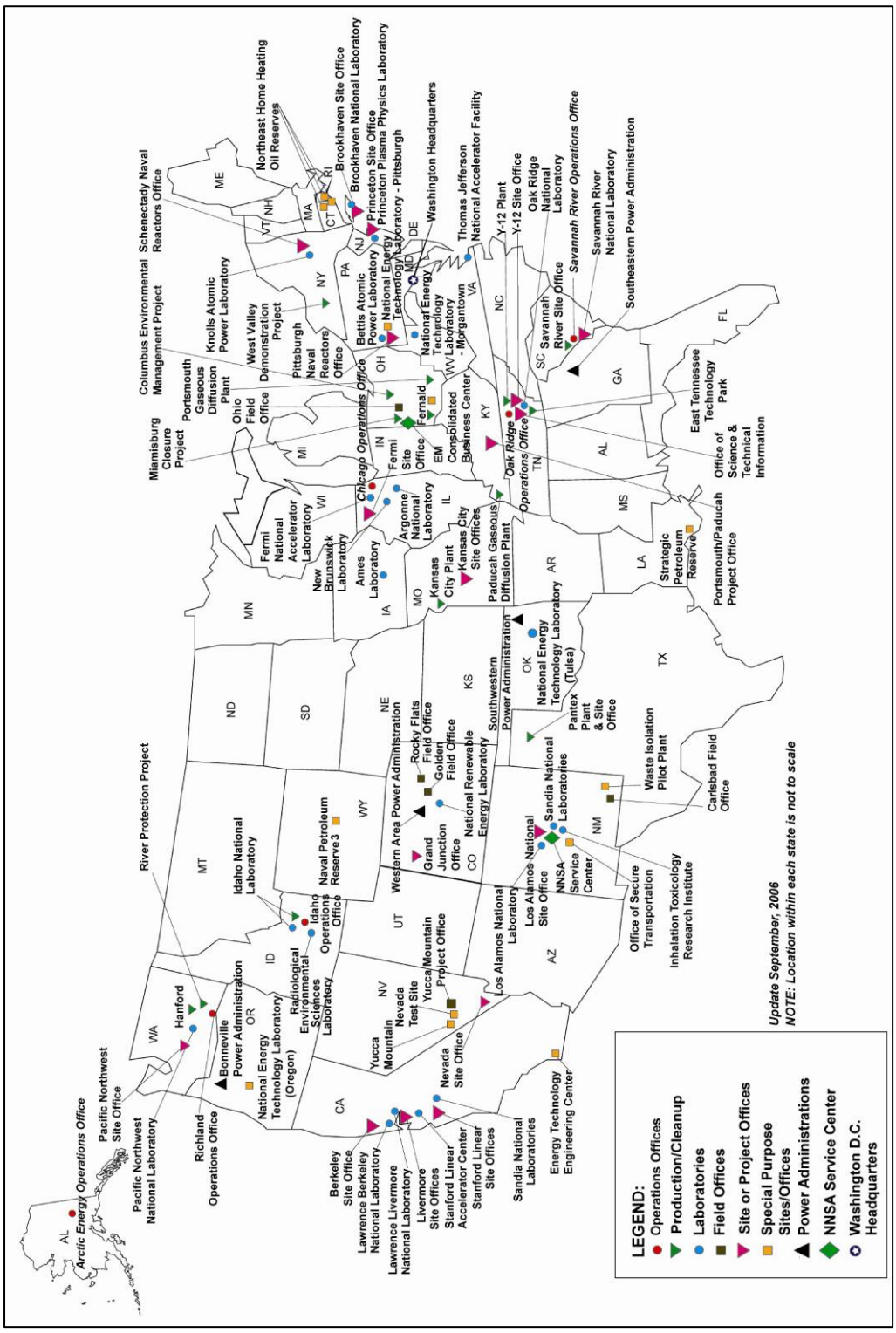


Figure 1.1-2. Major DOE Laboratories and Field Facilities

The latest version of the map may be accessed at: http://www.cfo.doe.gov/strategicplan/doelabs.htm

The DOE complex includes unique capabilities in science and engineering that are applied to meet the Department's goals in energy resources, national nuclear security, environmental quality, and science. Powerful accelerators, light sources, neutron beam facilities, plasma and fusion science facilities, genome centers, hydrodynamic testing facilities, and advanced computational centers are just some of the major instruments of science that distinguish DOE's capabilities and enhance the nation's science base.

References

The DOE Organization Chart may be found at:
http://www.energy.gov/organization/orgchart.htm

The DOE national laboratories and field facilities may be found at:
http://www.cfo.doe.gov/strategicplan/doelabs.htm

United States Department of Energy (2006). *U.S. Department of Energy Strategic Plan.* United States Federal Government, USA. Retrieved from:
http://www.energy.gov/about/strategicplan.htm

More information about the history of DOE may be accessed at:
http://www.doe.gov/about/history.htm

1.2 About the Office of Energy Efficiency and Renewable Energy

1.2.1 Brief History of Energy Efficiency and Renewable Energy and Its Predecessor

EERE's Homepage may be accessed at: http://www1.eere.energy.gov.

The U.S. energy policy has remained consistent over 30 years of legislative, administrative, and market decisions and six Presidential Administrations: to ensure clean, affordable, and diverse energy supplies and to use them efficiently.

In 1971, the Nixon Administration created the Office of Energy Conservation to supplement the U.S. Department of the Interior's (DOI) coal, oil, and natural gas R&D programs. The Administration also initiated federal programs for solar heating, solar cooling, and geothermal research in the National Science Foundation. Two years later, during the energy "crisis" of 1973, President Nixon's "Project Independence" engendered a multi-agency wind energy program involving, among others, the Federal Energy Administration, the National Aeronautics and Space Administration, and the Department of Agriculture.

In January 1975, the Ford Administration created ERDA to focus the federal government's energy R&D activities within a unified agency that could promote the speedy development of various energy technologies. Congress supported this with the Energy Policy and Conservation Act of 1975. In 1977, President Carter merged ERDA and the Federal Energy Administration and placed it within DOE to unify the government's energy R&D functions with its energy policy and regulation functions. The National Energy Conservation Policy Act of 1978 strengthened the new agency's efforts.

After abandoning an initial plan to abolish DOE, the Reagan Administration scaled back the energy applied R&D efforts, and narrowed the scope of EERE's predecessor organization (Office of Conservation and Solar Energy) to basic, long-term, very high-risk energy R&D. The Reagan Administration also eliminated the remaining energy regulation programs.

Applied research, development, and deployment (RD&D) activities were revived early in the George H.W. Bush Administration. A detailed, top-down and bottom-up process consisting of public hearings, energy modeling, departmental task forces, and involvement of other governmental bodies yielded a new comprehensive national energy strategy in 1991. The loudest messages heard were to increase productivity in every program office and to view energy supply and use as a system. Through the Energy Policy Act of

1992, Congress supported the return to applied RD&D, using partnerships with non-federal stakeholders.

The Clinton Administration continued to increase the level of the applied RD&D activities. It promoted industry-government-consumer partnerships to accelerate demonstration and deployment of advanced technologies. Such partnerships incorporate individual technologies in a systems approach. For example, the Partnership for a New Generation of Vehicles, Bioenergy, and Million Solar Roofs received special emphasis.

Over EERE's lifetime, program funding levels (see Figure 1.2-1) have risen and fallen with each President's and/or Congress' view of the federal government's role in energy technology development and deployment. Funding grew from fiscal years 1973 through 1981 during periods of "energy crisis," emphasis on national security, and an activist government role. Program funding decreased significantly during fiscal years 1982 – 1989 with the Reagan Administration's emphasis on a hands-off government role. Funding growth returned after 1991 during stable energy markets, only to decline again in the 1994 – 1995 period. Funding since then has increased steadily; in light of the current energy crisis, Congress will most likely continue to fund EERE to improve energy efficiency and renewable energy technology.

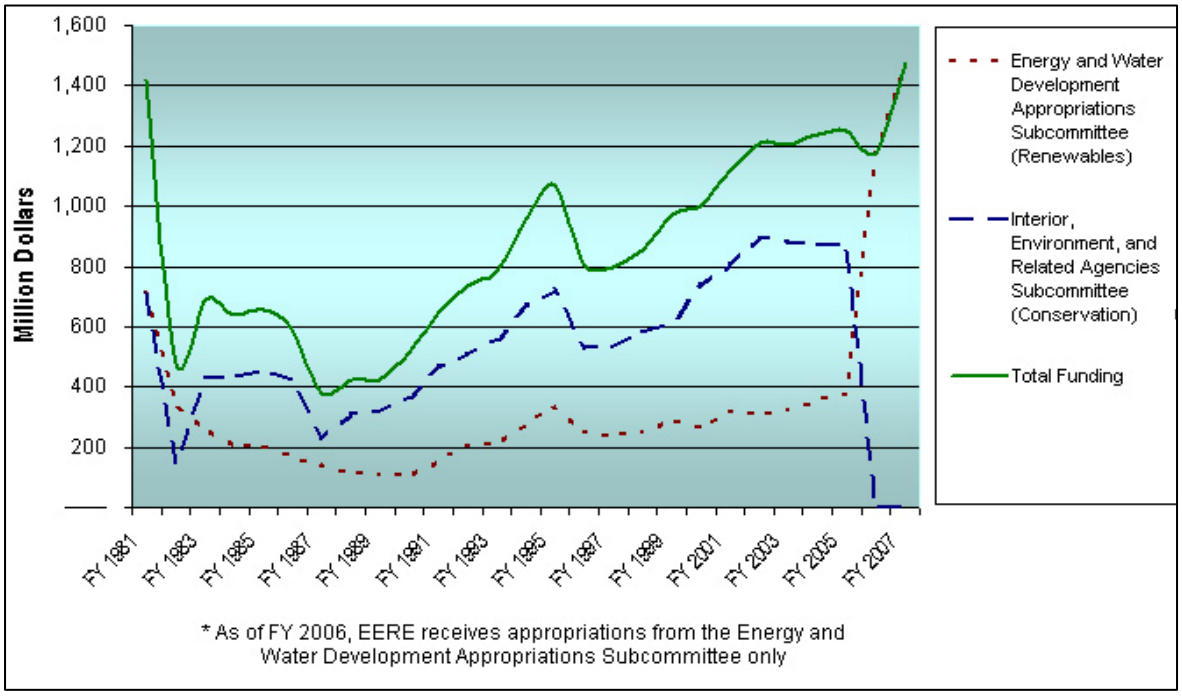


Figure 1.2-1 EERE Funding From FY 1981 – 2007

1.2.2 Mission, Vision, Priorities, and Strategies

Recent EERE Funding and Budget Requests may be accessed at: http://www1.eere.energy.gov/ba/pba/budget_archives.html

EERE leads the nation in the RD&D of affordable, advanced clean energy. The term "clean energy" describes energy-efficient technologies and practices that use less energy, and alternative power and delivery technologies that produce and transport power and heat more cleanly than conventional sources.

This leadership is provided by a federal workforce of more than 500 individuals and is principally organized around 10 programs. EERE's FY 2007 budget request of $1.18 billion comprises approximately 5 percent of the DOE budget request. EERE's mission is advanced through a strong and balanced RD&D portfolio of clean energy technologies and practices, along with support for critical policies and markets.

The core EERE family consists of the Headquarters staff, its Project Management Center (PMC) which includes the Golden Field Office (GO) and the National Energy Technology Laboratory (NETL) and its dedicated National Renewable Energy Laboratory (NREL). In addition, the Department avails itself of collaborative opportunities with other national laboratories, other federal agencies, state energy offices, industry, universities, non-government organizations, and other stakeholders. The objective in each case is to pursue research and develop advanced energy technologies and practices that will lead to successful deployment and market penetration. These activities, combined with private sector efforts, play a critical role in providing clean, abundant, reliable, and affordable energy for all our citizens.

1.2.2.1 Mission and Vision

EERE's mission is to strengthen America's energy security, environmental quality, and economic vitality through public-private partnerships that:

- Enhance Energy Efficiency and Productivity
- Bring Clean, Reliable, and Affordable Energy Technologies to the Marketplace; and
- Make a Difference in the Everyday Lives of Americans by Enhancing their Energy Choices and their Quality of Life

This mission is consistent with the federal government's role of investing in technologies and practices that are critical to the nation's strategic interests, but that do not receive adequate R&D investment from the private sector. EERE also works with stakeholders to develop policies and programs to facilitate the deployment of advanced clean energy technologies and practices.

Energy plays a vital role in sustaining and improving our quality of life, and will do so in the years and decades to come. The energy choices we make today can help us continue our nation's progress toward realizing a **vision** for:

- A prosperous future where energy is clean, abundant, reliable, and affordable.

Specifically, we envision an energy future where:

- ***Our cars and trucks*** will be more efficient and will be powered by a variety of clean domestic fuels and technologies that free us from dependence on foreign supplies of energy;
- ***Low-income Americans*** will pay less for the energy they use to heat, cool, and power the energy-efficient buildings they call home;
- ***Our industry*** will run on a diverse portfolio of clean, domestic energy sources, and American companies will be the technology leaders that bring these advancements to the world;
- ***Our homes, businesses, and communities*** will generate much of their own power from renewable resources and sell excess energy back to local generators;
- ***Our factories*** will become energy parks that both use and make energy, while our most energy intensive industries will become cleaner, consume fewer resources, and become more competitive;
- ***Rural America*** will be revitalized through the sustainable production of biomass feedstocks for biorefineries that produce power, fuels, chemicals, and other valuable products; and
- ***The federal government*** will lead the nation in conserving energy and using renewable energy resources.

1.2.2.2 Priorities and Strategies

Realizing our vision of "a prosperous future where energy is clean, abundant, reliable, and affordable" will require a concerted effort in both the public and private sectors, including all levels of government. EERE will play a limited, but essential, role in moving the nation towards this energy vision and has identified nine priorities to help ensure that its resources are well-focused (see Table 1.2-1). Eight of the priorities address recommendations made in the President's National Energy Policy (NEP), while the ninth priority addresses elements contained in the President's Management Agenda. Taken together, these priorities and strategies provide the basis for realizing EERE's vision.

Priorities	Situation	Strategies	Success Indicators
1. Dramatically reduce, or even end, dependence on foreign oil	Our transportation sector is nearly 97 percent dependent on oil and more than 50 percent of the oil is being imported, much of it from the Middle East. At predicted levels of oil production and consumption, America will be even more dependent on foreign oil imports in the years ahead, making the nation even more vulnerable to oil disruptions and price spikes.	▪ Reduce petroleum consumption in cars and trucks by developing technologies that economically increase their efficiency without sacrificing performance; ▪ Develop non-petroleum fuels and related infrastructure technologies through innovative R&D investments; and ▪ Develop a clean and affordable path to a hydrogen energy future by working with industry and other federal agencies to identify and research hydrogen technology pathways.	By 2020, vehicles are available that double fuel economy at an incremental cost that is paid back within three years through fuel cost savings; by 2030, affordable hydrogen vehicle technology options are widely available for Americans.
2. Reduce the burden of energy prices on the disadvantaged	Low-income families spend a disproportionately high percentage of their income on energy, which impacts their spending on food, housing, medical care, and education, and also increases their vulnerability to high and volatile energy prices.	▪ Increase the impact and cost-effectiveness of the Weatherization Program by implementing the Weatherization Plus Strategic Plan; and ▪ Achieve greater energy savings by expanding the scope of the Weatherization Program to include a whole-house approach that incorporates advanced energy efficiency technologies.	Weatherize 1.25 million houses during the next 10 years.
3. Increase the viability and deployment of renewable energy technologies	Renewable energy technologies currently account for about 10 percent of the nation's energy production. Domestic renewable energy resources (i.e., solar, wind, geothermal, biomass, and hydro) are vast and provide a significant opportunity for the United States to enhance and diversify its energy supplies.	▪ Improve performance and reduce the costs of renewable energy technologies by investing in R&D and conducting field tests; and ▪ Facilitate market adoption of renewable energy technologies by partnering with private companies to demonstrate technologies in commercial energy systems.	Renewable energy is widely cost-competitive within the next 20 years.
4. Increase the reliability and efficiency of electricity generation, delivery, and use	The importance of reliable and secure electricity is growing in our increasingly information-based economy. New technologies and system designs will be needed to modernize our electricity infrastructure and to provide more reliable power, especially during periods of peak demand.	▪ Complete development and testing of a portfolio of distributed generation and thermally-activated technologies that show an average 25 percent increase in efficiency (over technology available in 2000) by 2008; ▪ Demonstrate the capability to double the power carrying capacity of transmission and distribution wires by 2008, compared to that available in 2000; ▪ Develop a portfolio of technologies and software tools by 2012 that allows real-time monitoring, understanding, and control of the transmission and distribution system by identifying more than 90 percent of incipient system disturbances and cueing the operator for action as necessary to mitigate disturbances; and ▪ Demonstrate the feasibility of integrated systems in three new customer classes, which would achieve 70 percent efficiency and customer payback in less than four years (by 2008), assuming commercial-scale production.	A significant portion of the nation's industrial, commercial, and residential heat and power needs can be served by 2030 with clean, reliable, and efficient distributed power systems that also provide strength and stability to the national transmission grid.

Table 1.2-1 EERE Priorities and Strategies

Priorities	Situation	Strategies	Success Indicators
5. Increase the energy efficiency of buildings and appliances	Although significantly more efficient than in the past, appliances and buildings still account for about two-thirds of U.S. electricity use, and an even greater portion of peak electricity consumption. Advanced energy-efficiency technologies provide an opportunity for consumers to enhance the comfort and quality of their homes and workplaces, yet use less energy.	▪ Improve the performance and reduce the costs of buildings by investing in R&D that advances the energy efficiency of building component technologies; ▪ Improve the performance and reduce the costs of buildings by investing in R&D that improves whole-building energy efficiency through improved design strategies, tools and technologies, and practices for new and existing homes and buildings; ▪ Integrate renewable and efficiency technologies to enable construction of marketable net zero-energy buildings; ▪ Increase the energy efficiency of buildings, equipment, and appliances through prioritized, collaborative development of test procedures and energy efficiency standard rulemakings; and ▪ Improve the energy efficiency of new buildings through development and certification of model energy building codes, and provision of tools, training, and technical assistance to building code officials and builders.	Cost-competitive new buildings, which create as much energy as they use, are widely available within the next 20 years.
6. Increase the energy efficiency of industry	The competitiveness of our most energy-intensive industries is particularly sensitive to energy prices. Advanced energy-efficient technologies help mitigate the impacts of price swings on industry, thereby increasing their economic competitiveness in global markets. At the same time, industry provides unique opportunities to cogenerate heat and electricity, thus reducing the need for new electric power plants.	▪ Facilitate broader market adoption of energy-efficiency technologies and practices by conducting energy assessments, developing software to analyze and optimize plant systems, and demonstrating advanced energy-saving technologies; ▪ Support high-risk, high-return R&D identified in the technology roadmap to reduce manufacturing energy intensity in U.S. industry by working with industry partners and other federal programs; and ▪ Support leading-edge R&D in crosscutting technologies, such as advanced materials and intelligent sensors and controls that can enable efficiency improvement in multiple industries.	Energy-efficient technologies are widely available within the next 20 years, due to EERE's private-public partnerships, that enable America's energy-intensive industries to significantly increase their productivity without increasing their energy consumption.
7. Create a new domestic bioindustry	America possesses vast agricultural and forest resources that offer the nation a tremendous opportunity to use domestic, sustainable resources to provide fuel, power, and chemical needs from plants and plant-derived materials. The integrated industrial biorefineries of the future have the potential to be an integral part of America's energy economy.	▪ Advance technologies for converting biomass to fuels, power, and products (chemicals and materials) through R&D involving industry partners; ▪ Advance technology for biomass harvesting, storage, and handling to support viable industrial biorefineries through R&D partnerships; and ▪ Condition markets for significant penetration of biomass-based technologies by working with appropriate entities to encourage innovative state and local incentives, increased consumer acceptance, and increased support from farmers and industry.	By 2020, the multiple benefits of coproducing bio-based products, fuels, heat, and power, result in a growing number of industrial biorefineries that are part of a thriving bioindustry.

Table 1.2-1 EERE Priorities and Strategies (continued)

Priorities	Situation	Strategies	Success Indicators
8. Lead by example through the government's own actions	The U.S. government is the world's largest single user of energy. With about 500,000 buildings and locations throughout the country, it also provides an ideal venue for showcasing and documenting energy opportunities.	▪ Reduce energy intensity in federal buildings by providing information, training, technical assistance, and alternative financing for efficiency improvements in new construction, building retrofits, operations and maintenance, and utility load management; ▪ Increase the use of renewables by promoting renewable technologies at federal sites, enabling the procurement of renewable power and alternative fuels, and facilitating the siting of renewable generation on federal lands; and ▪ Promote the procurement of highly efficient energy-consuming equipment and appliances by developing and promoting federal product efficiency guidelines and labeling.	By 2005, federal agencies obtain 2.5 percent of their electricity from new renewable resources; by 2010, energy intensity in standard federal buildings is reduced by 35 percent relative to the 1985 baseline.
9. Change the way EERE does business	Excellence in business management is essential to accomplishing the EERE mission and goals. Clear guidance on business management has been provided by the National Academy of Public Administration, by EERE's *Strategic Program Review*, and by the *President's Management Agenda*. EERE's management challenges include the strategic management of human capital, competitive sourcing, improved financial performance, expanded electronic government, budget and performance integration, and a focus on program management.	▪ Full implementation of EERE's Strategic Management System, which provides an integrated corporate approach toward planning, performance budget formulation, program implementation, and program evaluation across the entire organization; ▪ Implementation of the EERE Program Management Initiative, which is a management curriculum that provides knowledge-based systems for all Program Managers, resulting in a fully certified and trained program management corps; ▪ Complete implementation of a comprehensive reorganization that focuses on performance, reduces organizational layers, and eliminates inefficient operational redundancies; and ▪ Implementation of the Office of Management and Budget's (OMB) Applied R&D Investment Criteria, a set of objective, performance-based metrics that will help ensure that EERE program dollars are used effectively and efficiently with clear program "off-ramp" or termination points.	EERE more effectively implements its budget and aligns its workforce with programmatic needs; EERE is recognized by external stakeholders, such as the OMB and Congress, as a model for operating efficiency and effectiveness.

Table 1.2-1 EERE Priorities and Strategies (continued)

References

Clean, Abundant, Reliable, and Affordable Energy, *Office of Energy Efficiency and Renewable Energy Strategic Plan*, DOE/GO-102002-1649, Washington, D.C., Oct. 2002. Retrieved from: http://www.nrel.gov/docs/fy03osti/32988.pdf

EERE's Mission, Vision, and Priorities may be accessed on the EERE Intranet at: http://eere-intranet.ee.doe.gov/Front_Office/index.html

1.2.3 The National Energy Policy and Energy Policy Act of 2005

1.2.3.1 The Role of the Office of Energy Efficiency and Renewable Energy

NEP published in May 2001, sets forth the framework for the nation's energy policy. The NEP goals, objectives, and recommended actions form a blueprint for the specific programs, projects, initiatives, investments, and other actions that the federal government will develop and undertake in the area of energy. NEP includes actions toward increasing the diversity of U.S. energy supply and fuel choices and improving energy productivity. These include bringing renewable energy sources into the market, strengthening domestic production of oil and gas, and increasing the efficiency of both power and end-use technologies. EERE has developed priorities that track with the DOE Strategic Energy Objectives and NEP goals. See Table 1.2-2 below for details.

NEP Goals	FY 2006 DOE Strategic Energy Objectives	FY 2002 EERE Strategic Objectives
Increase energy supplies	Develop technologies that foster a diverse supply of affordable and environmentally sound energy.	Develop improved and lower-cost wind, solar, bioenergy, and other domestic renewable energy sources.
Modernize our energy infrastructure	Develop technologies that improve energy efficiency and provide for reliable delivery of energy.	Address opportunities to improve the overall efficiency of energy systems, reduce peak load stress on these infrastructures, foster improvements in our electricity and bioenergy infrastructures, and explore hydrogen infrastructure options.
Modernize conservation	Explore advanced technologies that make a fundamental change in our mix of energy options and guard against energy emergencies.	Constitute the majority of federal R&D efforts to improve the energy performance and energy productivity of the American economy.
Accelerate the protection and improvement of the environment	Protect the environment by providing a responsible resolution to the environmental legacy of the Cold War and by providing for the permanent disposal of the nation's high-level radioactive waste.	Provide innovative means to improve the environment, both by reducing the amount of energy and resources needed by our economy and by developing cleaner energy sources.
Increase our nation's energy security	Protect our national and economic security by promoting a diverse supply of reliable, affordable, and environmentally sound energy.	Reduce transportation oil needs, help improve infrastructure reliability, and help dampen fluctuating energy process and energy trade deficits that can harm the economic vitality of our nation.

Table 1.2-2 EERE Priorities Track with DOE Strategic Objectives and NEP Goals

Within DOE, working under the framework of these goals EERE and the Offices of Fossil Energy, Nuclear Energy, and Science and Technology, lead Departmental efforts. These offices manage the RD&D of advanced energy technologies in their respective areas primarily through partnerships with industry, federal and non-federal laboratories, universities, and state and local

government agencies. DOE also leads federal agencies in helping bring competition to the electricity industry.

Other support for NEP and DOE goals comes from the Energy Information Administration, which publishes energy-related information necessary for informed consumer, market, and policy decisions. The Power Marketing Administration sells and distributes more than $3 billion of electric power generated at federal hydroelectric plants. DOE's Office of Policy and International Affairs leads many policy-related activities supporting the energy goals. In addition, the Office of Security and Emergency Operations provides support in the prevention of energy disruption and infrastructure failure.

To ensure further that its R&D remains focused on its goals, the Department developed an Energy Resources R&D Portfolio, released in February 2000. The portfolio helps DOE to align its technology investments with broader national policy goals and plan for future investments through technology "roadmapping." The portfolio integrates activities of EERE and DOE's Offices of Fossil Energy, Nuclear Energy, Science and Technology, and Security and Emergency Operations to support NEP and DOE goals. EERE supports all of the portfolio's R&D areas.

In addition, planning efforts outside DOE helped set the context for EERE and other DOE programs. The report *Energy R&D: Shaping Our Nation's Future in a Competitive World,* conducted by leading energy experts from industry, academia, and research and commissioned by the Secretary of Energy's Advisory Board, was published in 1995. A copy of the report may be accessed at: http://www.seab.energy.gov/sub/ytfcont.html. The experts recommended that DOE manage a diverse energy R&D investment portfolio through:

1) A balance of basic research and applied R&D (including industry co-funded demonstrations),

2) Near- and long-term R&D to provide continuing return on investment and to contribute to the health and vitality of domestic energy industries, and

3) A continuing commitment to support energy efficiency and renewable energy. DOE has aligned its Energy Resources R&D Portfolio with the key program recommendations of this report.

   Also, a study conducted by an expert panel appointed by the President's Council of Advisors on Science and Technology, *The Federal Energy Research and Development for the Challenges of the Twenty-First Century*, was published in June 1999. This study can be accessed at:

http://www.ostp.gov/Energy. The committee recommended specific initiatives to bolster federal efforts on international energy cooperation under four broad headings.

Three of the four areas specifically relate to EERE programs and include:

1) Foundations of energy innovation and cooperation, with emphasis on capacity building, energy sector reform, clean energy technology demonstrations and cost buy-down, and financing.

2) Technologies for increased efficiency of energy end use, with emphasis on buildings and appliances, small vehicles and buses, energy-intensive industries, and cogeneration of electricity and other energy forms.

3) Technologies for cleaner and more efficient energy supply with emphasis on biomass and other renewable energy forms, fossil-fuel decarbonization, and carbon sequestration technologies.

This study, in combination with the National Academy of Public Administration (NAPA) Report entitled, *A Review of Management in the Office of Energy Efficiency and Renewable Energy (March 2000),* along with the "top-to-bottom" *Strategic Program Review* published in March 2002, encouraged EERE to completely rethink and overhaul its management and business model. A copy of the March 2000 NAPA report may be accessed on the EERE intranet site at: http://eere-intranet.ee.doe.gov/BA/IBMS/NAPA_0300.pdf; and the March 2002 Strategic Program Review at: http://eere-intranet.ee.doe.gov/BA/OPBA/bfppa.html.

1.2.3.2 Energy Policy Act of 2005

On August 8, 2005, President George W. Bush signed into law the Energy Policy Act of 2005 (EPAct), which promotes dependable, affordable, and environmentally sound production and distribution of energy for America's future. The President's national energy plan will encourage energy efficiency and conservation, promote alternative and renewable energy sources, reduce our dependence on foreign sources of energy, increase domestic production, modernize the electricity grid, and encourage the expansion of nuclear energy. The recent natural catastrophes revealed weaknesses in our energy infrastructure and supply. By supporting new energy-efficient technologies, the government can offer every American better energy security at lower costs. More money is being spent on energy efficiency research today than ever before. To help meet the nation's energy needs, the EPAct lays out a solid plan and direction in the following ways:

- Promoting Residential Efficiency. Technology offers the possibility of a "zero-energy" home. The average American home loses between 10 and 50 percent of its energy through inadequate insulation and inefficient lights and appliances. President Bush is committed to supporting research that promotes advances in energy efficiency, and the energy bill offers consumers tax credits for making energy efficiency improvements in their homes.
- Increasing the Efficiency of Appliances and Commercial Products. The energy bill sets new minimum energy efficiency standards for a range of consumer and commercial products, including heaters, refrigerators, and lighting units. It also encourages the sale and production of energy-efficient products, which increases the supply of available energy, helping families meet their bottom lines. Tax credits are available for highly efficient central air conditioners, heat pumps, and water heaters, as well as to upgrade thermostats, install exterior windows, and stop energy waste.
- Reducing Federal Government Energy Usage. The federal government is the largest user of energy, and the energy bill calls on federal agencies to lead by example and improve their energy efficiency. The energy bill reauthorizes the Energy Savings Performance Contract program, which allows private contractors to help federal agencies improve the energy efficiency of their facilities. The bill also sets aggressive new goals for federal energy efficiency and requires agencies to purchase EnergyStar™ products.
- Modernizing Domestic Energy Infrastructure. The energy bill will help modernize our aging energy infrastructure to help reduce the risk of large-scale blackouts and minimize transmission bottlenecks. This will be accomplished by repealing outdated rules that discourage investment in new infrastructure, offering tax incentives for new transmission construction, and encouraging the development of new technologies, such as superconducting power lines, to make the grid more efficient.
- Diversifying the Nation's Energy Supply with Renewable Sources. The energy bill will promote the use of renewable energy sources with tax credits for wind, solar, and biomass energy, including the first-ever tax credit for residential solar energy systems. The bill also expands research into developing hydrogen technologies and establishes a

flexible, national Renewable Fuels Standard to encourage greater use of renewable fuels such as ethanol and biodiesel.

- Supporting a New Generation Of Energy-Efficient Vehicles. In his FY 2006 Budget, President Bush called for new consumer tax credits for energy-efficient hybrid, clean-diesel, and fuel-cell vehicles. The energy bill will provide up to $3,400 per vehicle in tax credits to consumers for purchase of these cars, based on their fuel savings potential. Some of these cars can travel twice as far as conventional vehicles on one gallon of fuel, reducing U.S. dependence on foreign energy sources while producing lower emissions.

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1.2.4 The Office of Energy Efficiency and Renewable Energy's Organization

The EERE organization consists of two main entities: its Headquarters location in Washington, D.C., and its full-service field element, the PMC. EERE Headquarters, which is located in the DOE Forrestal Building and the 950 L'Enfant Plaza Building, is responsible for program planning, program management, resource management, budgeting, and evaluation. EERE's field element, the PMC, comprises two independent facilities: the GO and the NETL. The PMC is responsible for carrying out project management activities associated with EERE's 10 program offices. In addition, the EERE portfolio also consists of renewable energy and energy efficiency R&D facilities in the Denver, CO, metropolitan region at the NREL.

1.2.4.1 President's Management Agenda

In the summer of 2001, the Administration released the *President's Management Agenda* for FY 2002, which laid out the blueprint for management improvements throughout the federal government. It essentially called for:

- Agencies to become flatter and more responsive;
- The emphasis on process to be replaced by a focus on results;
- The elimination of overlapping functions, inefficiencies, and turf battles; and
- A strengthening of the knowledge, skills, and abilities of federal workers to meet the needs and expectations of their ultimate clients—the American people.

This agenda, in combination with the NAPA Report titled, *A Review of Management in the Office of Energy Efficiency and Renewable Energy* (March 2000) and the *EERE Strategic Program Review* (March 2002), provided EERE with findings and recommendations that assisted in the redesign of EERE's management and business model.

1.2.4.2 Management Structure

On July 1, 2002, EERE replaced its old "stovepiped" and fragmented management structure with a streamlined, integrated, and focused one, which emphasizes strong program management for better performance. The structure is built on 10 programs that are the means by which EERE accomplishes its goals, and a business administration office that supports the programs. The organizational structure streamlined previously fragmented functions and reduced the layers between Program Managers and top management, thereby increasing the authority and accountability of the Program Managers. This has resulted in fewer high- and mid-level managers in EERE, as well as fewer offices and programs.

The organization was created in partnership with the employees' union, and with service to stakeholders and the public in mind. The goal was to create efficient program delivery with maximum accountability of personnel and transparency in budget accountability.

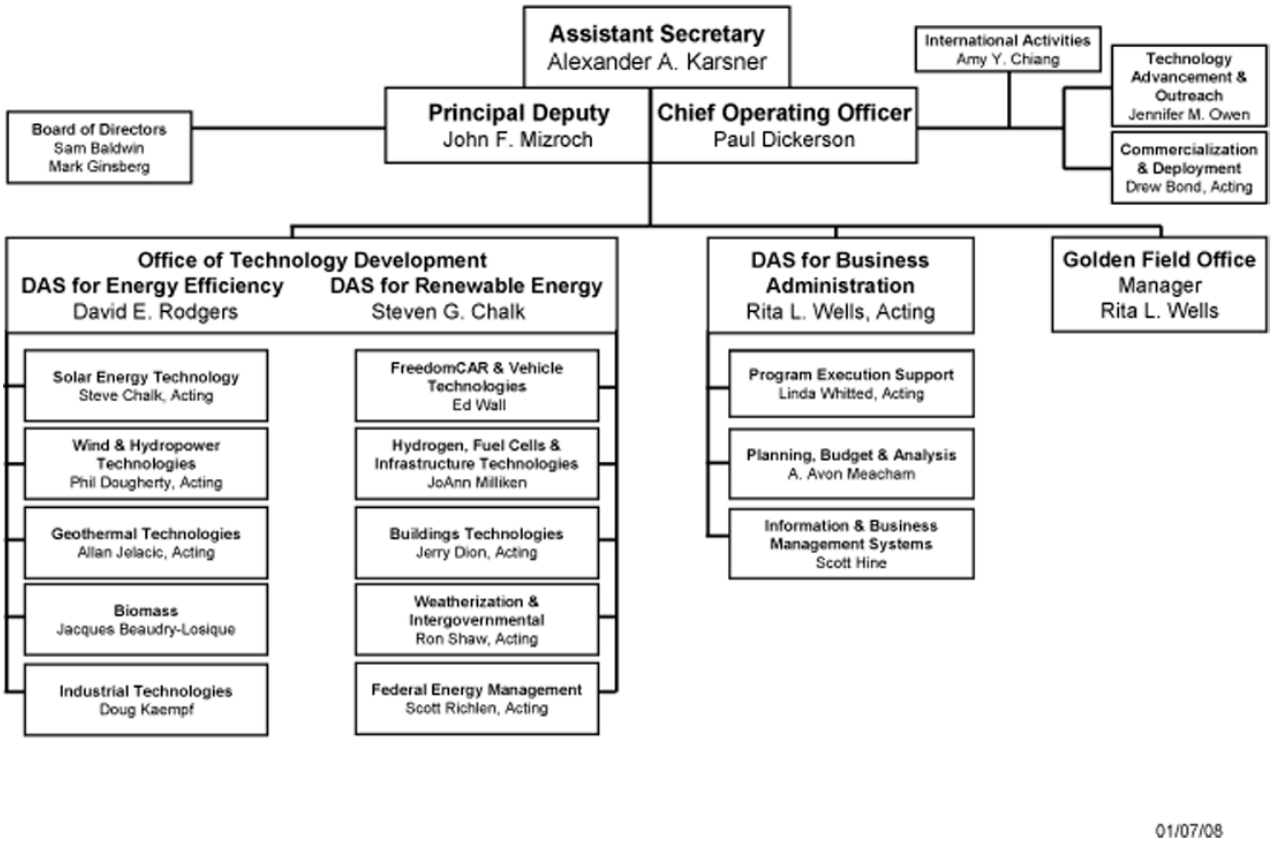
A unique feature of the structure is the Board of Directors, which oversees EERE initiatives and strengthens public-private partnerships. In addition to providing expert advice and counsel to the Assistant Secretary, the Board helps shape EERE corporate policy, strategy, and budget development; advises the Assistant Secretary on all energy-related U.S. and international technical, economic, and policy issues; represents EERE to stakeholders and others in an outreach capacity; and provides advice to ensure senior technical and peer review of EERE's programs.

EERE's structure—shown in Figure 1.2-2—is being recognized as a front-runner for implementing the *President's Management Agenda*. This structure allows EERE to implement needed changes, enabling EERE to:

- Improve organizational efficiency;
- Remove artificial organizational layers;
- Enhance competitive sourcing, fiscal accountability, and information technology services;
- Focus on programs and empower the Program Manager, resulting in greater accountability;
- Focus the Program Manager on results rather than processes;
- Integrate performance planning and budgeting; and
- Allow the Assistant Secretary to better oversee program and business operations.

Figure 1.2-2. EERE Organization Chart

The latest version of the EERE organizational chart may be accessed at:
http://www1.eere.energy.gov/office_eere/pdfs/eere_orgchart.pdf



1.2.4.3 Budget and Staffing

The U.S. Congress funds EERE in order to promote energy security through reduced dependence on foreign oil, to create environmentally benign alternative energy sources, and to increase the economic competitiveness of U.S. energy technology exports. Although funding levels have fluctuated over the past two decades, congressional appropriators have recognized, to varying degrees, EERE's strong and balanced RD&D efforts to developing clean and efficient energy technologies and practices, as well as its support for critical policies and markets. This work is a critical part of the federal government's responsibility for investing in high-risk, high-value RD&D that is essential to the nation's future and that would not be independently conducted by the private sector.

1.2.4.4. Energy and Water Development Appropriations

EERE receives appropriations from the Energy and Water Development Appropriations Subcommittee. EERE is within the jurisdiction of the following congressional authorizing committees: Senate Energy and Natural Resources Committee, House Science Committee (all research, development, and selected deployment activities), and House Energy and Commerce Committee (State Energy Program [SEP], Weatherization Assistance Program, Federal Management Program, and selected deployment activities). See Figure 1.2-3 for congressional committees that are interested in EERE.

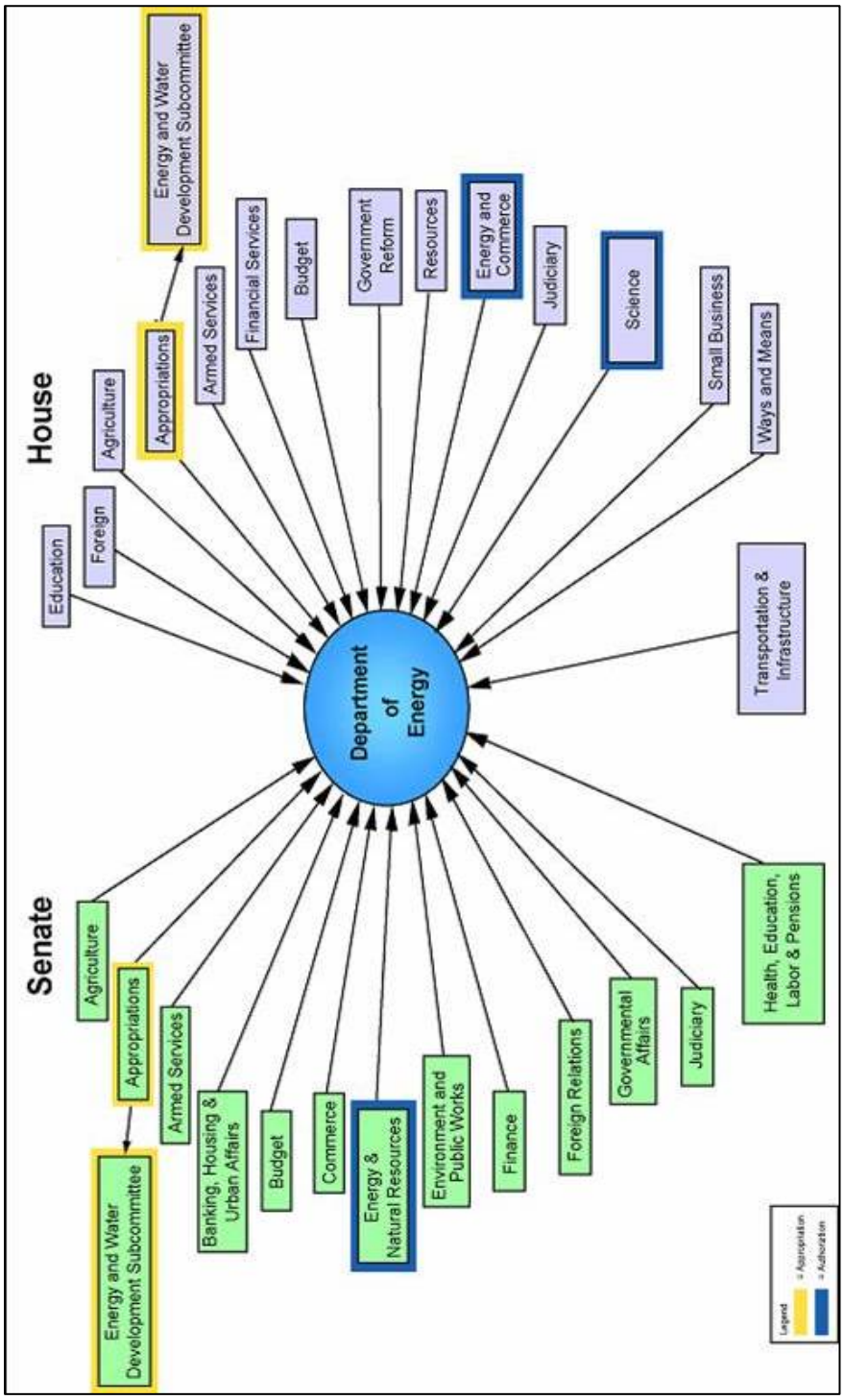


Figure 1.2-3 EERE Authorization and Appropriation Committees

1.2.5 Headquarters Corporate Offices

1.2.5.1 Office of the Assistant Secretary

The mission of the Office of the Assistant Secretary is to formulate and direct programs designed to increase the production and utilization of renewable energy and improve energy efficiency through support of research, development, and technology transfer. It also has the responsibility for administering statutorily mandated assistance programs. In addition, the office brings an outside focus to bear in renewable energy and energy efficiency issues by involving external constituencies. The Assistant Secretary exercises executive direction over the Principal Deputy Assistant Secretary, the Chief Operating Officer; the EERE Board of Directors, the Office of Technology Advancement & Outreach, the Office of Technology Development, and the Office of Business Administration. The office is responsible for achieving proper coordination with other DOE principals, offices, and administrations directly concerned with the activities or effects of activities undertaken by EERE.

1.2.5.2 EERE Board of Directors

The mission of the EERE Board of Directors is to provide expert advice and counsel to the Assistant Secretary with respect to the full range of EERE issues and activities. The Board provides guidance for the policy development process, for budget development and execution processes, for procurement and contracting processes, for resource management, and for the technology programs. The Board also provides corporate leadership in working with the private sector and other government entities to develop and improve public-private partnerships. At the direction of the Assistant Secretary, members represent EERE and the Assistant Secretary in dealing with senior officials in the Executive Branch of the federal government; members of Congress and their staffs; senior officials of state governments, regional authorities, and other government entities; industry and association executives; and foreign government officials.

1.2.5.3 EERE Office of Technology Advancement and Outreach

The mission of the Office of Technology Advancement and Outreach (TAO) is to convey to the public, stakeholders, and other governmental entities, the progress, benefits, and contributions of EERE R&D. The office provides long-term strategic planning and performance measurement capability for outreach and public affairs programs, develops and disseminates information about the budget and EERE polices and programs, gathers market information of high relevance to EERE decision-making, coordinates corporate-level stakeholder

interactions, conducts corporate-level customer surveys on EERE performance, and coordinates the controlled correspondence process and the EERE Web sites.

1.2.5.4 EERE Commercialization and Deployment

The mission of the EERE Commercialization and Deployment team is to accelerate the deployment of emerging energy technologies into the marketplace. The team works closely with various EERE program offices, national research laboratories, and private industry to increase our nation's energy security and enhance our economic prosperity.

Current initiatives include:

- The development of the EERE Commercialization and Deployment Fund to assist in bridging the "commercialization valley of death" between the laboratory and the marketplace; and,
- Establishing an Entrepreneur in Residence program at the NREL, Oak Ridge National Laboratory, and Sandia National Laboratories.

The team also assists the Assistant Secretary in developing innovative proposals to stimulate investment in emerging energy technologies.

1.2.5.5 EERE Legislative Affairs

EERE Legislative Affairs provides advice on legislative initiatives and proposals under review by the Department specific to EERE. For congressional affairs and activities, EERE Legislative Affairs serves as the primary point of contact for EERE programs to the Congress; reduces legislative burdens; assures a clear and consistent voice to the Congress; increases the awareness of EERE program goals and benefits to the Congress; and, enhances agency awareness of congressional activity relative to its impact on EERE programs.

1.2.6 Headquarters Program and Business Management Offices

1.2.6.1 Office of Technology Development

The mission of the Office of Technology Development is to provide effective program management leadership for all of EERE's energy efficiency and renewable energy programs. The office's executive functions are currently shared by two Deputy Assistant Secretaries: the Deputy Assistant Secretary for Renewable Energy, and the Deputy Assistant Secretary for Energy Efficiency. Together, they oversee the technology development and deployment of the nation's applied portfolio for clean, domestic, and affordable technologies. Their efforts to accomplish the Office of Technology

Development's mission are aligned with the NEP, DOE's Strategic Plan, EERE's Strategic Plan, and congressional appropriations. The two Deputy Assistant Secretaries are supported by EERE's 10 program offices. These program offices change as new programs are added and current programs are ended. The Deputy Assistant Secretaries also are supported by senior staff members, who provide expert technical and program management advice and a quality review of each program's planning and performance. For more information please access: http://eere-intranet.ee.doe.gov/td/td.html.

1.2.6.1.1 Ten Program Offices

Biomass Program

Biomass offers America a tremendous opportunity to use domestic and sustainable resources to provide its fuel, power, and chemical needs from plants and plant-derived materials. The Biomass Program includes major programs for developing and improving technology for biomass power; for making biofuels such as ethanol (from biomass residues as well as grain) and renewable diesel; and for making plastics and chemicals from renewable, biobased materials. The Biomass Program is also the lead agency in the multi-agency Biomass Research and Development Initiative working to coordinate and accelerate all federal biobased products and bioenergy R&D in accordance with the Biomass Research and Development Act of 2000.

The mission of the Office of the Biomass Program (OBP) is to foster R&D on advanced technologies to transform our abundant biomass resources into clean, affordable, and domestically produced biofuels, biopower, and high-value bioproducts for improving the economic development and enhancing the energy supply options of the United States.

Further, OBP builds its investment portfolio on detailed market and technology analysis, in collaborations with leaders and technology experts from industry, academia, and the national laboratories; and in union with the other programs within EERE. For more information please access: http://www1.eere.energy.gov/biomass

Building Technologies Program

The mission of the Office of the Building Technologies Program (BTP) is to provide the overall policy, management, and direction necessary for a balanced program of technology planning, R&D, regulatory, deployment, analysis, evaluation, and practices that will make both residential and commercial buildings more efficient and affordable, and communities more livable.

BTP responsibilities include building envelope and systems, appliances and equipment, and zero-net-energy buildings. BTP represents and provides the national leadership in building technologies for the formulation and execution of national energy policies and programs, and is responsible for establishing priorities and maintaining program balance among subprograms within the office. BTP works closely in partnership with the U.S. building equipment and appliance industries to advance technology and deployment, reduce development and operating costs, and maintain a competitive position in domestic and international markets for more energy-efficient and cleaner buildings. For more information please access: http://www.eere.energy.gov/buildings/

Federal Energy Management Program

DOE's Federal Energy Management Program (FEMP) works to reduce energy use at federal facilities. FEMP helps agencies save energy and taxpayer dollars by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites. Energy management—using energy efficiently, ensuring reliable supplies, and reducing costs—is one of the most challenging tasks facing federal facility managers. Now, more than ever, the federal government, as the nation's largest single energy consumer, has a tremendous opportunity and a clear responsibility to save energy and lead by example.

The mission of FEMP is to provide federal leadership to increase the energy security and decrease the environmental impact and cost of government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at federal sites. For more information please access: http://www.eere.energy.gov/femp/

Vehicle Technologies Program

The mission of the Office of Vehicle Technologies Program (VT) is to provide the overall policy, management, and direction necessary for a balanced program of technology planning, R&D, test, analysis, evaluation, and communication that will reduce critical fuel consumption and/or allow substitution of non-petroleum based fuels in the transportation end-use sector. VT responsibilities include R&D for hybrid systems, advanced combustion engines, electric vehicles, materials, heavy vehicles systems, fuels utilization, and related public or private sector elements of technology utilization. Hybrid

systems R&D includes propulsion subsystems, ancillary subsystems, high power energy storage, advanced power electronics, and electric machines; while advanced combustion R&D includes combustion, emissions control, advanced engine R&D, and emissions health impacts.

VT represents and provides national leadership in advanced vehicle technologies for the formulation and execution of national energy policies and programs, and is responsible for establishing priorities and maintaining program balance among subprograms within the office. VT works closely with other Departmental offices to monitor, coordinate, and integrate closely related efforts such as those encompassed in the FreedomCAR Partnership. VT works closely in partnership with the U.S. domestic transportation industry, and with other government and private organizations, with the goal of eliminating the transportation sector's impact on requirements for imported oil while significantly reducing the generation of greenhouse gases and criteria pollutants. For more information please access: http://www1.eere.energy.gov/vehiclesandfuels/

Geothermal Technologies Program

The mission of the Office of the Geothermal Technologies Program (GTP) is to increase the viability of geothermal technologies. The outcome of these efforts will be to provide clean, competitive, reliable power options for use in all energy supply and end-use sectors of the economy. GTP works closely in partnership with the U.S. geothermal energy industry to advance technology, reduce development and operating costs, and maintain a competitive position in domestic and international markets for renewable energy.

In the previous EERE structure, the geothermal and wind programs were combined. In the new structure, the GTP has been made a stand-alone program to reflect its increasing contribution to the goals of the NEP. For more information please access: http://www1.eere.energy.gov/geothermal/

Hydrogen, Fuel Cells and Infrastructure Technologies Program

The mission of the Office of the Hydrogen, Fuel Cells and Infrastructure Technologies Program (HFCIT) is to integrate hydrogen technologies, including transportation and distributed energy fuel cells, into the energy infrastructure. HFCIT works closely in partnership with U.S. industry, academia, and national laboratories to advance technology and to meet market and policy needs to create and maintain a robust industry for development of hydrogen, fuel cells, and infrastructure technologies.

The Hydrogen Program has been expanded to include fuel cells and infrastructure R&D efforts, in addition to the hydrogen system-specific R&D work already underway. For more information please access: http://www.eere.energy.gov/hydrogenandfuelcells/

Industrial Technologies Program

The mission of the Office of the Industrial Technologies Program (ITP) is to partner with key, energy-intensive industries to conduct a balanced program of technology investigation, validation, and dissemination that will lead to the increased use of energy efficiency and pollution prevention technologies, as well as renewable energy resources, in the U.S. industrial sector. These efforts assist in reducing the nation's dependence on foreign energy resources, the energy intensity of our economy, and the environmental impact of our industrial processes, while achieving cost-effective product quality enhancements and improving our competitiveness in the global marketplace. For more information please access: http://www.eere.energy.gov/industry/

Solar Energy Technology Program

The mission of the Office of the Solar Energy Technology Program (SETP) is to increase the viability of solar energy technologies, including photovoltaic, concentrated solar power, and low temperature solar collectors as clean, competitive, reliable power options for use in end-use sectors of the economy. SETP accelerates the development of solar technologies as energy sources for the nation and world, and educates the public about the value of solar as a secure, reliable, and clean energy choice. For more information please access: http://www.eere.energy.gov/solar/

Weatherization and Intergovernmental Program

The mission of the Office of the Weatherization and Intergovernmental Program (OWIP) is to promote and coordinate the adoption of energy efficiency and renewable energy technologies by a wide range of customers and stakeholders, including states, communities, institutions, companies, and private citizens. The OWIP has overall responsibilities for providing national representation and facilitation of energy efficiency and renewable technologies in the United States and across the world; coordinating and assisting with EERE's technology programs to meet long-term technology adoption goals; and establishing overall policy direction and budgets for the subprograms assigned to this office. OWIP's responsibilities include Weatherization assistance, SEP, Tribal Energy activities, and Renewable

Energy Production Incentives (REPI). The execution of the Weatherization and SEP programs will be conducted in partnership with the PMC located in the GO and the NETL. For more information please access: http://www.eere.energy.gov/wip/

Wind and Hydropower Technologies Program

The mission of the Office of the Wind and Hydropower Technologies Program (WHTP) is to increase the viability of wind and hydropower technologies, as well as all other fluid dynamics-related renewables such as ocean current. The outcome of these efforts will be to provide clean, competitive, reliable power options for use in all energy supply and end-use sectors of the economy.

WHTP works closely in partnership with the U.S. wind and hydropower energy industries to advance technology, reduce development and operating costs, and maintain a competitive position in domestic and international markets for renewable energy. For more information, please access: http://www1.eere.energy.gov/windandhydro/

1.2.6.2 Office of Business Administration

The mission of the Office of Business Administration is to provide effective corporate management leadership based on clear communication, open information systems, prudent human resource management, and thorough analysis in the areas of planning, budget, and operations to facilitate the accomplishment of EERE's goals. The office is managed by the Deputy Assistant Secretary for Business Administration, who reports to the Assistant Secretary through the Principal Deputy Assistant Secretary and the Chief Operating Officer. The Office of Business Administration provides services to EERE's Assistant Secretary and the 10 program offices, and is the central organization for all EERE business products and systems. The office serves as the exclusive source for all EERE business products, processes, and systems, and provides a full suite of business services to EERE's Assistant Secretary, Board of Directors, Office of Technology Advancement and Outreach, the Deputy Assistant Secretaries for Technology Development, and program management offices.

The Deputy Assistant Secretary for Business Administration is supported by three offices—the Office of Program Execution Support (OPES), the Office of Planning, Budget and Analysis (PBA), and the Office of Information and Business Management Systems (OIBMS). See the Office of Business Administration web site for more details at: http://www1.eere.energy.gov/ba/.

1.2.6.2.1 Office of Program Execution Support

The mission of the OPES is to provide a full spectrum of program execution business support services for EERE's Program Managers and for other EERE organizations. These support services include all of the business activities associated with program implementation, i.e., everything following the enactment of budget appropriations. OPES provides a "one-stop shop" directly supporting Program Managers for program execution functions, including: creating and processing funding action documents; providing data entry support for EERE systems; developing presentation materials; assisting the PM to analyze budget and performance data from contractors, EERE, and Departmental systems and reports; human resources; travel; and other management operations. The office is organized around three functional areas: Program Implementation, Human Resource Management, and Operations and Logistic Support. For more information please access: http://www1.eere.energy.gov/ba/prog_exec_support.html

1.2.6.2.2 Office of Planning, Budget & Analysis

The mission of the PBA is to provide analysis, information, and decision support for EERE Program Managers and other EERE management for planning, performance budget formulation, and budget defense to facilitate meeting EERE's corporate mission and goals. This support includes all of the business activities associated with planning and performance budget formulation, i.e., everything prior to the enactment of budget appropriations. The office is organized around four functional areas: Budget and Program Performance Assessment, Portfolio Analysis and Strategic Planning, Budget Execution, and Legislation. For more information please access: http://www1.eere.energy.gov/ba/pba/

1.2.6.2.3 Office of Information & Business Management Systems

The mission of the OIBMS is to support the Assistant Secretary of EERE by facilitating the effective and efficient delivery of EERE information and business management systems services at Headquarters and in the field. The office reports to the Deputy Assistant Secretary for Business Administration. The office develops and manages corporate-level information and business management systems to ensure consistent, efficient, and effective business policies and practices for EERE's Headquarters and Field organizations. These systems include all of the business activities associated with planning and performance budget formulation, program implementation, and analyses and evaluation. The office provides services in five areas: Headquarters and Field business systems; information technology and associated cyber security; environment, safety, and health; the coordination of audit activities; and the

coordination of national laboratory evaluations and facility needs. The office also provides Information and Business Management Systems services to the Office of the Assistant Secretary, the EERE Board of Directors, the Office of Technology Advancement and Outreach, the Deputy Assistant Secretaries for the Office of Technology Development, the GO, and the NETL. For more information please access: http://eere-intranet.ee.doe.gov/BA/IBMS/.

1.2.7 Field Implementation Offices – Project Management Center

1.2.7.1 Project Management Center

The PMC is a full-service project management entity that serves as a "virtual hub" for the project management duties associated with all of EERE's programs. More details may be accessed at https://www.eere-pmc.energy.gov/. The PMC is composed of two independent facilities: GO in Golden, CO; and NETL, whose primary offices are in Morgantown, WV, and Pittsburgh, PA. In June 2006, EERE's six regional offices were consolidated and absorbed by the PMC, further increasing the PMC's efficiency and effectiveness in managing EERE's market transformation and outreach activities. Each of EERE's 10 programs is managed by a Program Manager located at DOE Headquarters in Washington, DC (Forrestal Building and 950 L'Enfant Plaza Building). The different program offices' activities are broken down into different subprograms and projects, which are simply subtasks of the actual program office, each containing a specific and unique set of deliverables. The projects themselves are managed by a PMC Project Manager located at either the GO or the NETL, with each facility handling the project management responsibilities of their respective EERE program offices. The basic lines of communication between the EERE organizations and subsequent stakeholders are reflected in Figure 1.2-4 on the following page. The GO is responsible for the project management activities of seven different program offices (SETP, WHTP, GTP, ITP, HFCIT, OBP, and FEMP). The NETL is responsible for the project management activities of the remaining two programs (BTP and VT). The only exception is the Office of Weatherization and Intergovernmental Program (OWIP); project management duties for its two subprograms will be split between the two offices based on regional activity (see Figure 1.2-5). GO reports directly to the Assistant Secretary of EERE.

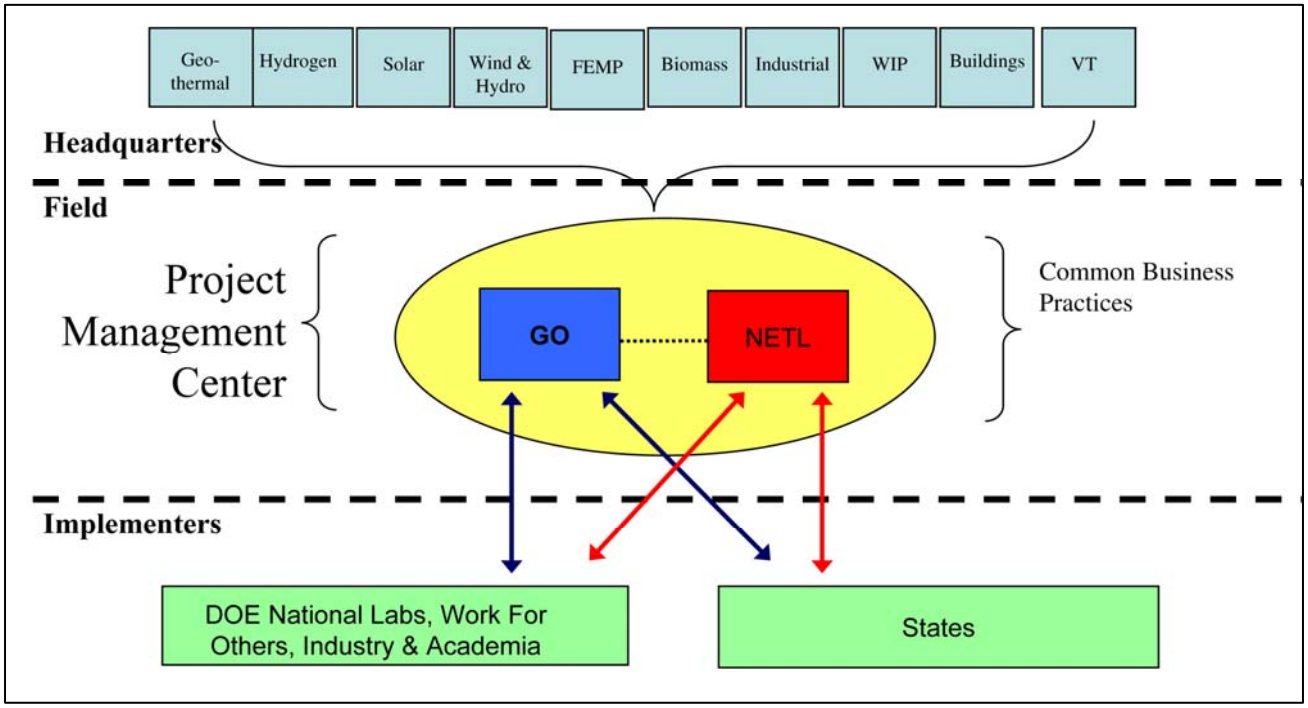


Figure 1.2-4 PMC Lines of Communication

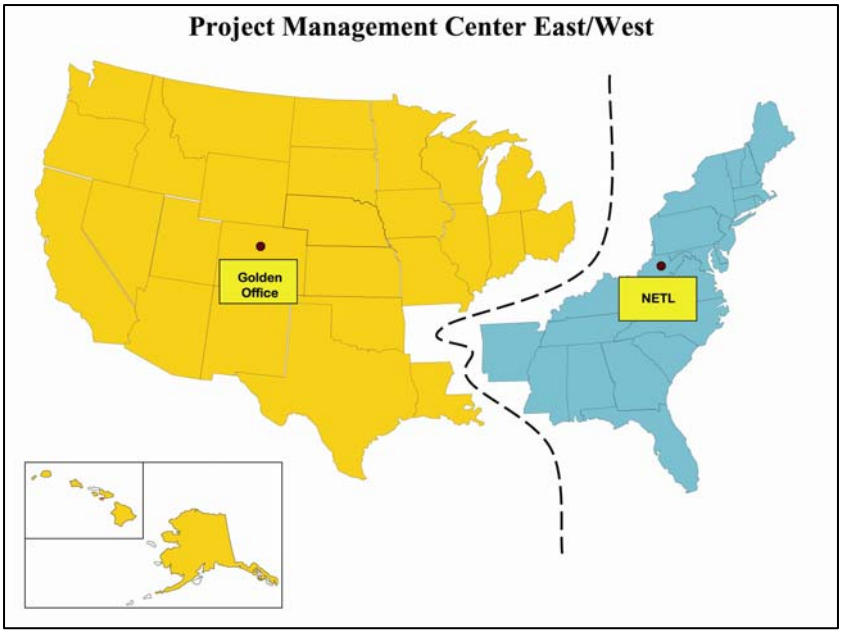


Figure 1.2-5 PMC State-Funding Regions

Table 1.2-3 below represents the breakdown of the PMC's program and subprogram responsibilities:

Table 1.2-3 Program Implementation Responsibilities	
Golden Office • Solar Energy • Wind & Hydropower • Geothermal Energy • Biomass • Industrial Technologies Program (ITP) • Hydrogen, Fuel Cells, and Infrastructure • Federal Energy Management Program (FEMP) • *Native American Program (OWIP)	NETL • Building Technologies • Vehicle Technologies • **Weatherization and Intergovernmental Program (OWIP) • *Mining (ITP) • *Biomass and Alternative Methane Fuels (FEMP) • *Black Liquor Gasification (Biomass)

* *The Weatherization Assistance Program and the State Energy Program are split between the two offices, with NETL being the project office for the Eastern states (consolidating the Southeast, Mid-Atlantic, and Northeast regional offices) and GO handling the Western states.*

** *Subprograms where Program responsibility resides at the other PMC entity.*

With the global market for energy and environmental technologies estimated at $425 billion, the PMC works to assist public and private U.S. entities in deploying the technologies produced by EERE R&D. To accomplish this, the PMC collaborates with small and large companies, universities, public agencies, and non-profit organizations in cost-shared R&D to develop and then to move proven technologies into the marketplace. The PMC has active agreements with commercial organizations, educational institutions, state/local governments, and non-profit organizations in every state and several foreign countries. These agreements are funded through direct DOE financial assistance instruments such as grants or cooperative agreements. The total value of these projects is in the billions of dollars, including the cost share by recipients and other parties.

1.2.7.2 Golden Field Office

The Golden Field Office homepage may be accessed at: http://www.energy.gov/golden

GO is DOE's only field element completely devoted to R&D into renewable energy and energy efficiency technologies, and to developing partnerships to encourage their use. Therefore, a major part of GO's work involves managing clean energy projects across the nation, jointly funded with industry, to bring cutting-edge technologies to the marketplace.

GO carries out this important work as one of two organizations, along with the NETL, under EERE's PMC. GO has roughly a thousand cost-shared agreements with companies, educational institutions, state and local

governments, and non-profit organizations across the country. GO reports directly to the Assistant Secretary for EERE.

GO specializes in managing projects in the following areas:

- Hydrogen
- Wind
- Biomass energy & fuels
- Solar
- Industrial technologies
- Geothermal
- Native American energy
- Federal Energy Management Program

The Golden Field Office also shares project management responsibility for the State Energy and Weatherization Programs with the NETL.

While many of GO's projects are small and require little government oversight during the course of the project, others represent significant investments of taxpayer dollars and have a great deal riding on their success or failure. Projects under the hydrogen program, for example, offer the possibility of unlimited energy with virtually no impact on the environment. A considerable amount of work needs to be done to move our nation to a hydrogen economy, including the development of cost-effective hydrogen production, delivery, storage, and conversion systems.

As part of this effort, GO provides critical support to a partnership among the major auto makers, including General Motors, Ford Motor Company, and Chrysler LLC, and the major energy companies, such as BP, Shell, and Chevron Texaco, to evaluate the performance of hydrogen fuel-cell vehicles (cars, light-duty trucks, and transit buses) and the supporting infrastructure (fueling stations, storage, and distribution). Known as the Hydrogen Fleet and Infrastructure Demonstration, these projects will provide the real-world data necessary to advance hydrogen and fuel cell technologies and create viable markets for their use.

Another important part of GO's mission is to oversee NREL, the nation's only laboratory dedicated to R&D of renewable energy and energy efficiency technologies. NREL's staff of more than 1,200 develops cutting-edge technological solutions to energy challenges and transfers valuable knowledge to U.S. industry.

1.2.7.3 National Energy Technology Laboratory

The National Energy Technology Laboratory, part of DOE's national laboratory system, is owned and operated by DOE. NETL supports DOE's mission to advance the national, economic, and energy security of the United States.

The only U.S. national laboratory devoted to fossil energy research, NETL implements a broad spectrum of energy and environmental R&D programs that will return benefits for generations to come—enabling domestic coal, natural gas, and oil to economically power America's homes, industries, businesses, and transportation while protecting the environment and enhancing energy independence.

NETL has expertise in coal, natural gas, and oil technologies; contract and project management; analysis of energy systems; and international energy issues. NETL has sites in Morgantown, WV; Pittsburgh, PA; Tulsa, OK; Albany, OR; and Fairbanks, AK. In total, these sites include 81 buildings and 14 major research facilities on nearly 200 acres. More than 1,100 employees work at NETL's five sites; roughly half are federal employees and half are site support contractors.

For more detail on the organization of NETL see http://www.netl.doe.gov/about/organization.html.

Mission: NETL implements research, development, and demonstration programs to resolve the environmental, supply, and reliability constraints of producing and using fossil resources.

NETL is committed to addressing the challenges put forth by the National Energy Policy:

- Enhance America's energy security;
- Improve the environmental acceptability of energy production and use;
- Increase the competitiveness and reliability of U.S. energy systems; and
- Ensure a robust U.S. energy future.

Business Relations: In addition to research conducted onsite, NETL's project portfolio includes R&D conducted through partnerships, cooperative R&D agreements, financial assistance, and contractual arrangements with universities and the private sector. Together, these efforts focus a wealth of scientific and engineering talent on creating commercially viable solutions to national energy and environmental problems.

NETL offers many business opportunities, using a variety of contract and funding vehicles.

- Financial Assistance for R&D
  - — Grants are used when there is no need for substantial involvement between the recipient and agency during performance of the grant.
  - — Cooperative agreements are used when substantial involvement is needed between the recipient and agency during performance.
- Acquisitions
  - — Simplified acquisition contracts are used to acquire goods and services for the direct use of the federal government.
- Cooperative Research and Development Agreements (CRADA), Patents, and Licenses
  - — Under CRADAs, several parties agree to collaborate on a specific research project. No money changes hands with this type of agreement. NETL actively seeks opportunities to partner with the private sector and academia to develop and commercialize new energy and environmental technologies using CRADAs.
  - — NETL makes some inventions available to the private sector for licensing.

1.2.8 EERE's R&D Facilities

Throughout the DOE complex, there are many large-scale R&D facilities that are "government-owned/contractor-operated." Each DOE laboratory is under the stewardship of a specifically recognized program office responsible for the facilities and equipment at these centers of excellence. DOE delegated the government-owned stewardship responsibilities for NREL to EERE. In other words, the NREL is EERE's only dedicated R&D institution. The Assistant Secretary, as Program Senior Official, is responsible for NREL's long-term viability including development and maintenance of NREL's physical infrastructure, scientific equipment, and scientific core competencies. NREL is operated for EERE under a management and operating contract by the

Midwest Research Institute (MRI) as prime contractor. MRI is assisted in this task by subcontractors Battelle Memorial Institute and Bechtel National, Inc. to operate NREL. DOE also has assigned stewardship responsibilities to other DOE program offices for other national laboratories (Oak Ridge, Sandia, Pacific Northwest, and NETL) that conduct EERE energy efficiency R&D.

NREL's facilities are located at three principal sites in the Denver Metropolitan Region:

- Denver West. NREL's headquarters offices in Golden, CO, consist of four rented buildings used primarily for administrative purposes and some "dry" lab work. The GO also shares space with NREL in these offices.
- South Table Mountain. NREL has a 300-acre campus located at the foot of South Table Mountain in Golden, CO, which consists of multiple research labs:
  - Solar Energy Research Facility (photovoltaics, superconductivity, and materials science, housing the National Center for Photovoltaics);
  - Field Test Laboratory Building (alternative fuels, biomass-derived chemicals, and genetic engineering);
  - Thermal Test Facility (buildings research and energy efficiency, including the Battery Thermal Test Facility);
  - Photovoltaic Outdoor Test Facility;
  - Alternative Fuels User Facility and Process Development Unit;
  - Solar Radiation Research Laboratory; and
  - Thermochemical User Facility.
- National Wind Technology Center. Sits on more than 280 acres adjacent to DOE's Rocky Flats cleanup area (north of Golden). The National Wind Technology Center features:
  - Sixteen test stands for wind turbines;
  - Industrial User Facility;
  - Hybrid Power Test Facility;
  - Advanced Turbine Research Facility; and
  - Dynamometer and Spin Test Facility.
- Science and Technology Facility. The Science and Technology Facility is the latest addition to the DOE's state-of-the-art research

buildings on the NREL campus. Opened in July 2006, the new facility's primary mission is to accelerate the development and commercialization of promising new energy alternatives—technologies that will cleanly and economically meet future demand for energy while reducing America's reliance on imported oil. The Science and Technology Facility will provide significant advantages for state-of-the-art energy research. Research groups sharing common interests will be co-located in the same building and will have the ability to pursue process integration research that will ultimately reduce the time it takes to move a technology from the laboratory to the marketplace. Designed for the purpose of fostering strong collaborations among government, industry, and academia, the facility is a critical resource for:

— Advancing the energy priorities of the President's Advanced Energy Initiative;

— Next-generation solar energy technologies R&D; and

— Hydrogen and fuel cells R&D.

EERE also conducts R&D activities at other DOE national laboratories including: Oak Ridge National Laboratory, Lawrence Berkeley National Laboratory, Pacific Northwest National Laboratory, Sandia National Laboratories, Argonne National Laboratory, Brookhaven National Laboratory, Idaho National Engineering and Environmental Laboratory, Los Alamos National Laboratory, and the NETL.

1.2.9 National Renewable Energy Laboratory

1.2.9.1 Background

Mission—NREL leads the nation toward a sustainable energy future by developing renewable energy technologies, improving energy efficiency, advancing related science and engineering, and facilitating commercialization.

NREL is the world leader in developing renewable energy technologies and a primary laboratory for developing energy-efficient technologies. Originally called the Solar Energy Research Institute, NREL was established by the Solar Energy Research, Development, and Demonstration Act of 1974 as a national center for federally sponsored solar energy R&D. President George Bush designated the Solar Energy Research Institute a national laboratory on September 16, 1991, and changed the name to the National Renewable Energy Laboratory. NREL is a federally funded R&D center. As such, it is a strategic advisor to and partner with DOE, assisting the Department with a full range of activities from R&D through technology demonstration to facilitating deployment of these technologies into global markets.

NREL is responsible for integrating the expertise and viewpoints of industry, academia, and DOE, and collaborates with many different organizations in accomplishing its mission. A contractor-operated laboratory owned by DOE, NREL is managed by Midwest Research Institute of Kansas City, MO (prime); Battelle Memorial Laboratory of Columbus, OH; and Bechtel Corporation of San Francisco, CA. NREL FY 2007 funding is shown in Figure 1.2-6.

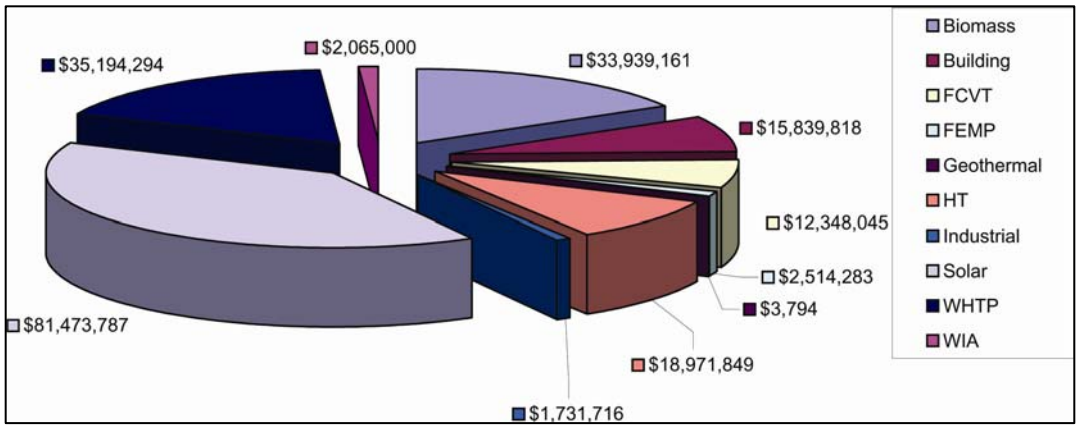


Figure 1.2-6 NREL FY 2007 Funding *FY 2007 Total Funding of $204,081,747*

EERE has the primary responsibility for NREL's activities and stewardship responsibilities for NREL's long-term development. Locally, the laboratory's contract is managed by GO. NREL's organization is shown in Figure 1.2-7.

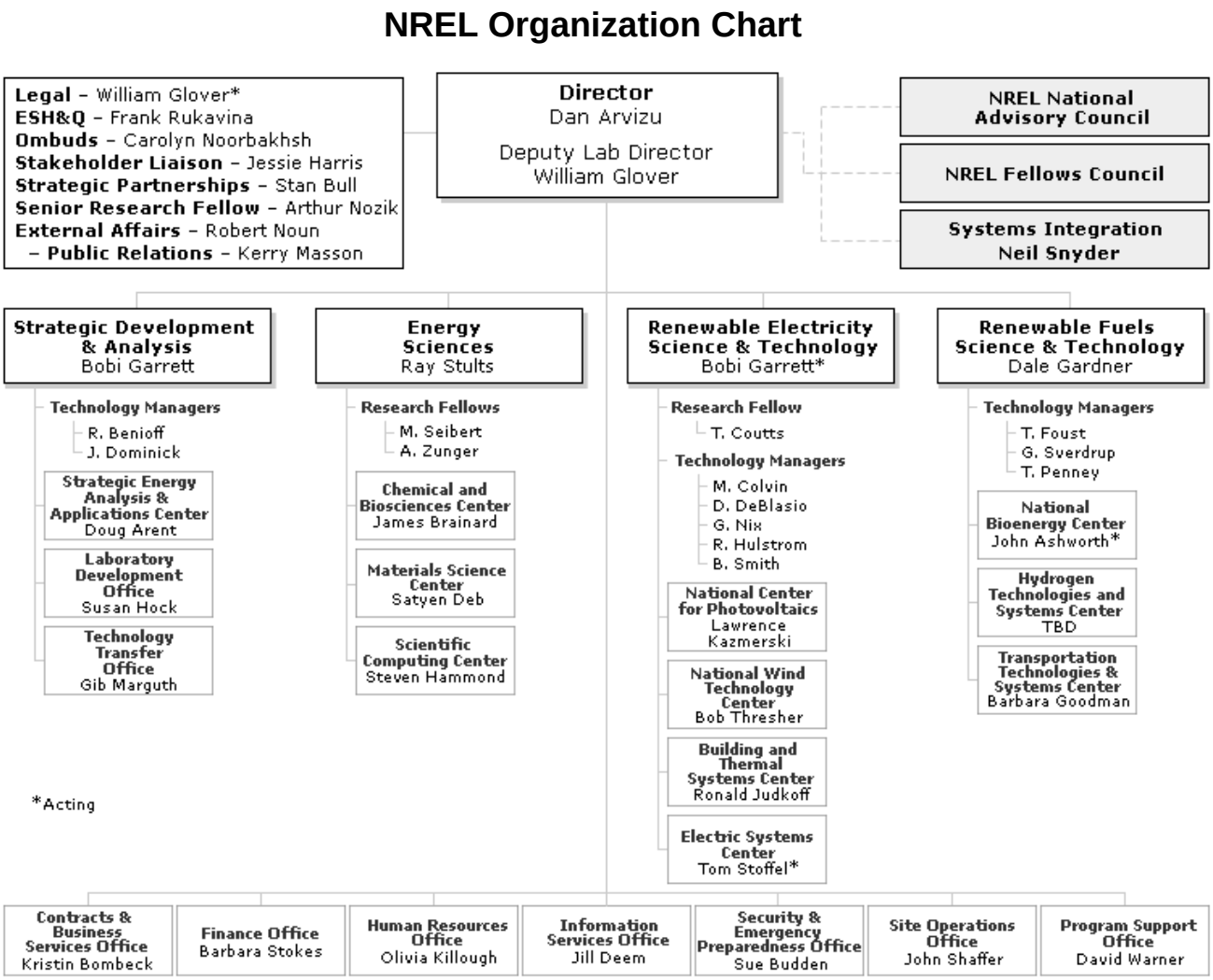


Figure 1.2-7 NREL Organization Chart

The latest version of the NREL organizational chart may be accessed at:
http://www.nrel.gov/orgchart.html

Areas of Expertise

NREL's highly skilled technical staff of about 850 scientists, engineers, analysts, and support personnel is internationally known and respected. NREL represents the world's largest collection of renewable energy and energy efficiency experts in areas that include:

- Fundamental science related to renewable energy and energy efficiency technologies. NREL expertise includes condensed-matter physics, quantum theory, solid-state spectroscopy, photoelectrochemistry, computer modeling of complex systems, photosynthesis, catalysis and photocatalysis, crystal growth, electrochromics, quantum dot and nanostructured materials, bioconversion, genetic engineering, and high-temperature superconductivity.
- Development and characterization of renewable energy, energy efficiency, and industrial conversion processes and technologies. NREL expertise covers fundamental and applied science in the areas of photovoltaics, wind energy, biofuels, buildings, biopower, concentrating solar power, hydrogen, advanced automotive technology, superconductivity, industrial technologies, resource assessment, distributed power, and more.
- Systems and process engineering and integration for renewable energy and energy efficiency technologies. Using engineering disciplines that span the range from structural dynamics, electrical and electronic engineering, chemical processing, heat and mass transfer, aerodynamics, and more, NREL integrates individual technologies into complete conversion or energy-saving systems.
- Integration of efficiency and renewable technologies with conventional fuel supply sources. NREL is developing ways to diversify the nation's energy supply options, using its expertise to integrate renewable and energy-efficient technologies with conventional energy technologies. Examples include using alternative fuels to augment conventional transportation fuels; using photovoltaics, wind energy, and hydrogen in distributed electricity systems to offset demand on conventional electricity-generating technologies; combining engine technologies into hybrid vehicles that use multiple sources of power; and integrating passive solar, electrochromics,

photovoltaics, fuel cells, and heat pumps with conventional systems to heat and cool buildings.

- Formation of partnerships for market and technology development for renewables and energy-efficient technologies. NREL creates and coordinates innovative partnerships with clients ranging from small businesses and Fortune 500 companies to entire industries. NREL assists in developing policies and identifying and lowering market barriers to encourage development of self-sustaining businesses and markets.
- Analysis. NREL conducts analyses of energy technologies, applications, markets, and policies to support program planning, policy formulation, and technology deployment efforts. The laboratory applies its deep understanding of renewable technologies and markets to analyze issues, such as the role of renewables in addressing climate change and air quality, the potential to deploy renewable technologies in developing economies, and green energy markets. In addition, the laboratory has strong capabilities in life-cycle analysis and in modeling advanced energy efficiency and renewable technologies in energy economic models.

Centers of Excellence and User Facilities

NREL's capabilities include a number of laboratories, user facilities, and centers of excellence:

- National Wind Technology Center. A national center for designing and testing improved wind turbine technology, with user facilities for industry.
- National Center for Photovoltaics. A national center, managed jointly by NREL and Sandia National Laboratories, supporting DOE and the photovoltaic industry by conducting R&D, testing components, and designing modules and systems.
- Solar Radiation Research Laboratory. A facility to test, calibrate, and compare radiometers and other solar radiation measuring equipment using world radiation reference standards.
- High-Flux Solar Furnace. A national user facility providing highly concentrated sunlight for material and surface processing; of interest to automotive, aerospace, defense, electronic, and other industries.

- Alternative Fuels User Facility and Process Development Unit. A 1-ton-per-day pilot plant for converting biomass to ethanol, available to industry to pilot processes intended for larger, commercial-scale facilities.
- Thermochemical User Facility. A process development facility that converts biomass feedstocks and other renewable fuels into a variety of products, such as electricity, high-value chemicals, and transportation fuels.
- Battery Thermal Test Facility. A user facility available to industry to design and test advanced batteries for electric and hybrid-electric vehicles.

1.2.10 EERE's Commitments and Requirements

EERE has many near- and long-term commitments derived primarily from Presidential Initiatives, Secretary of Energy Initiatives, and Executive Orders. These commitments take the form of programs, activities, projects, reports, or individual tasks. EERE's principal commitments and requirements from the various sources are as follows. Activities and funding levels identified for these initiatives cut across EERE programs, and often DOE programs, many of which pre-date these initiatives. Many of the initiatives are interagency efforts.

1.2.10.1 Presidential Initiatives

Twenty in Ten: Strengthening America's Energy Security

At the 2007 state of the Union Address, President Bush introduced the Twenty in Ten initiative which calls for a 20 percent reduction of U.S. gasoline consumption by the year 2017. The plan, which calls for an immediate increase in the usage of renewable and alternative fuels, is believed to increase national security by reducing America's dependence on foreign sources of oil, and also limiting America's vulnerability to rising fuel costs and potential terrorist attacks that could ultimately affect disruptions in oil shipments.

The United States will reach the President's Twenty in Ten goal by:

- Increasing the Supply of Renewable and Alternative Fuels by Setting a Mandatory Fuels Standard to Require 35 Billion Gallons of Renewable and Alternative Fuels In 2017—an increase of nearly five times the 2012 target now in law.

- Reforming and Modernizing Corporate Average Fuel Economy (CAFE) Standards for Cars and Extending the Current Light Truck Rule. By 2017, this effort is expected to reduce annual gasoline usage by up to 8.5 billion gallons. In combination with increasing the supply of renewable and alternative fuels, this measure will bring the total reduction in projected annual gasoline use to 20 percent, and will help confront climate change by stopping the projected growth of carbon dioxide emissions from automobiles, light trucks and Sport Utility Vehicles (SUV).

The President's plan to strengthen American's national security also includes:

- Increasing domestic oil production in environmentally sensitive ways;
- Doubling the current capacity of the Strategic Petroleum Reserve to 1.5 billion barrels by the tear 2027; and
- Reducing America's dependence on foreign sources of oil by increasing the growth of renewable and alternative fuel sources.

Increasing the Supply of Renewable and Alternative Fuels

President Bush believes firmly that our scientists, farmers, entrepreneurs, and industry leaders can and will continue to lead the world in developing and investing in cutting-edge technology, infrastructure, and farming methods. The scientific advances in many fields will play an important role, such as continued improvement in crop yields, optimization of crops and cellulosic materials as fuel feedstock, and cost reduction in the production of cellulosic ethanol and other alternative fuels. The increased and expanded fuel standard creates a tremendous incentive for research, development, and private investment into alternatives to oil.

The Renewable Fuel Standard, established by the President and Congress in EPAct of 2005, has contributed to the rapid acceleration of the development and use of renewable fuels. Significant ongoing technological advances have made it possible to increase and expand the standard to displace even larger volumes of gasoline.

Under current law, fuel blenders must use 7.5 billion gallons of renewable fuels in 2012. The President's proposed fuel standard will be set at 35 billion gallons of renewable and alternative fuels in 2017. This will displace 15 percent of projected annual gasoline use in 2017.

Reducing Gasoline Consumption Through Increasing Vehicle Efficiency

The President's CAFE Plan will reduce gasoline consumption by up to 8.5 billion gallons per year by 2017. The President's plan calls for reforming and increasing CAFE standards for automobiles, light trucks and SUVs. The President believes new technologies can be deployed to significantly improve fuel economy without impacting safety. The reduction of up to 8.5 billion gallons in 2017 will result in a 5 percent reduction in projected gasoline consumption in that year. In addition, fuel efficiency standards will have even larger benefits in the future, when consumers replace more gas-powered automobiles with more efficient new vehicles. These amounts are based on an assumption that on average, fuel efficiency standards for both light trucks and passenger cars are increased 4 percent per year, beginning in Model Year 2010 for cars and Model Year 2012 for light trucks. Given the changing nature of the marketplace for both cars and light trucks, the Secretary of Transportation will determine the actual standard and fuel savings in a flexible rulemaking process.

Strengthening National Security

Increasing Domestic Oil Production in Environmentally Sensitive Ways*:* The President supports congressional action that authorizes environmentally responsible oil and gas exploration in a small area of the Arctic National Wildlife Refuge located in northern Alaska. It is believed that this region could produce as much as 1 million barrels of oil per day, and was initially reserved to help prevent oil shocks after the 1970s. The President also pledges to work with Congress to develop legislation that encourages investments in refinery capacity, and to resolve any remaining issues regarding the Alaska Natural Gas Pipeline.

Doubling the Current Strategic Petroleum Reserve*:* Under this proposal, the President suggests doubling the current capacity of the Strategic Petroleum Reserve to 1.5 billion barrels by 2027. This would act as an "insurance policy," and provide approximately 97 days of net oil import protection in the event of a severe supply disruption—such as a natural disaster or a terrorist attack.

Reducing America's Dependence on Foreign Sources of Oil by Increasing the Growth of Renewable and Alternative Fuel Sources*:* Including the 2008 Budget, the federal government will have spent $15 billion since 2001 to develop cleaner, cheaper, and more efficient and reliable energy sources. With America on the verge of developing technological breakthroughs that will decrease our oil dependency, protect our environment, and help us confront the serious challenge of global climate change, the President's new proposals

set a goal of increasing renewable and alternative fuels used in automobiles from 3 percent in 2006 to 15 percent in 2017**.**

Advanced Energy Initiative

In the 2006 Presidential State of the Union Address, President Bush introduced the Advanced Energy Initiative, which outlined his strategy for decreasing America's dependence on foreign sources of energy. The plan sets a national goal for replacing 75 percent of the United States' oil imports from the Middle East by 2025, and also calls for increased spending in the field of clean-energy research at DOE.

The President believes that one way to maintain America's competitive edge in the world market place is to make energy more affordable for its citizens. Since 2001, the United States has spent nearly $10 billion to develop cheaper, cleaner, and more reliable energy resources. This new initiative calls for a 22 percent increase in spending for clean energy research programs and will, in essence, greatly accelerate breakthroughs in the following two areas: how we power homes and businesses; and how we power our automobiles.

Changing the Way America Powers Homes and Businesses

EERE is responsible for several new initiatives that focus on accelerating the R&D of cleaner and more affordable energy, enabling breakthroughs in advanced solar and wind technologies that will reduce America's overall demand for natural gas, eventually leading to lower energy costs.

- **The Solar America Initiative**. This Initiative will accelerate the development of semiconductor materials that convert sunlight directly to electricity. These solar photovoltaic cells can be used to deliver energy services to rural areas, and can also be incorporated directly into building materials. With this new technology in place, it is believed that in the future homes can become "zero energy" homes, and will have ability to produce more energy than they consume.
- **Expanding Clean Energy from Wind Initiative**. This initiative will help improve the efficiency and lower the costs of new wind technologies for use in "low-speed" wind environments. In combination with the ongoing efforts to expand the access of federal lands for wind energy development, this additional funding will help to dramatically increase the use of wind energy in the United States.

Changing the Way America Powers Automobiles

The President seeks to accelerate the development of domestic, renewable alternatives to gasoline and diesel fuels in attempts to move America beyond

its current petroleum-based economy. The goal is to accelerate research in cutting-edge methods of producing "cellulosic ethanol," setting the stage for making the use of such ethanol practical and competitive within the next 6 years. This initiative will enable EERE to step up the nation's research in better batteries for use in hybrid and electric cars, as well as pollution-free cars that run on hydrogen.

- **The Biorefinery Initiative**. This initiative will help develop biobased transportation fuels from agricultural waste products, such as wood chips, stalks, or grass. The initiative seeks to achieve greater use of "homegrown" renewable fuels in the United States. Advanced technologies need to be perfected to make fuel ethanol from cellulosic (plant fiber) biomass, which is frequently discarded as waste. Many researchers and scientists believe that by accelerating research into this area, "cellulosic ethanol" could become a cost-competitive fuel alternative by as early as 2012, potentially displacing up to 30% of the nation's current fuel consumption.
- **Developing More Efficient Vehicles Initiative**. This initiative will accelerate the development of advanced battery technology, and extend the range of hybrid vehicles. The battery design that powers the current hybrid vehicles that travel on America's roadways was developed by DOE. Current hybrids can only use the gasoline engine to charge the on-board battery. However, this initiative will encourage accelerated research in the next generation of battery technology for hybrid vehicles and "plug-in hybrids." A "plug-in" hybrid can run either on electricity or on gasoline, and can be plugged into the wall at night to recharge its battery. The development of these advanced battery technologies will offer the potential to significantly reduce oil consumption in the near future, and will enable drivers to meet most of their urban commuting needs with very little gasoline usage.
- **The Hydrogen Fuel Initiative**. In 2003, President Bush announced a $1.2 billion Hydrogen Fuel Initiative to develop technology for commercially viable hydrogen-powered fuel cells. These fuel cells would have the ability to power cars, trucks, homes, and businesses with no pollution or greenhouse gas emissions. Through private-sector partnerships, the Initiative and related FreedomCAR programs will make it practical and cost-effective for Americans to use clean, affordable, hydrogen fuel cell vehicles by 2020.

- **Bioenergy/Bioproducts**. The goal of this initiative, described in Executive Order 13134, Developing and Promoting Biobased Products and Bioenergy Today (1999), is a tripling of U.S. use of biobased products and bioenergy by 2010. The order established three supporting groups: (1) An Interagency Council on Biobased Products and Bioenergy, with representatives from the U.S. Department of Agriculture (co-chair), DOE (co-chair), Congress, DOI, Environmental Protection Agency (EPA), OMB, and the National Science Foundation to develop and present a biomass research program annually as part of the federal budget, and to review major agency programs and activities to ensure that they effectively advance the initiative; (2) A joint USDA-DOE National Biobased Products and Bioenergy Coordination Office to ensure effective day-to-day coordination of actions implementing the initiative; and (3) An outside advisory group with representatives from biobased industries, farm and forestry program offices, universities, and environmental groups. EERE supports the initiative with integrated R&D in transportation biofuels, biomass power (Biomass Program Office), and forest products and agriculture industry technologies (Industrial Technologies Program Office). This initiative will result in technologies for producing different combinations of fuels, power, chemicals, and other products from different feedstocks in different areas of the country.
- **Climate Change Technology**. The Climate Change Technology Initiative (CCTI), begun in 1998, comprises domestic climate-related activities and policies, including those that promote energy efficiency, the development of low-carbon energy sources, sequestration of carbon, and climate science. At DOE, the initiative primarily covers R&D (EERE, the Office of Fossil Energy, and the Office of Science). It also includes tax credits designed to encourage purchases of energy-efficient and renewable energy products, voluntary information programs to encourage businesses and others to conserve energy, and research into ways to sequester carbon in agriculture, in some cases as renewable fuels. R&D relating to energy efficiency and renewable energy sources is largely an evolutionary step from earlier programs, initiated in the late 1970s and early 1980s to reduce dependency on oil imports. Most of the other initiatives addressed here are either included in the CCTI programs, or overlap with them. DOE is required to submit an annual Report to Congress with the budget request

outlining those budget elements included in the CCTI. DOE also provides input to OMB on their annual Report to Congress. EERE has headed up both efforts for DOE for the last several years.

- **Clean Energy for the 21st Century**. The multi-agency Clean Energy for the 21st Century Initiative (a.k.a., International Clean Energy/International Energy Efficiency), begun in January 2000, helps lay a technical and policy foundation in developing and transitioning countries (e.g., ex-Soviet Union) to build a clean energy future while building competitive markets that are open to U.S. firms. DOE, the U.S. Agency for International Development, the Export-Import Bank, the U.S. Trade Development Agency, and the Department of Commerce are the main participants. EERE participates in a variety of areas, for example, appliance standards and EnergyStar™ (Building Technologies Program Office), industrial best practices and assistance (Industrial Technologies Program Office). FY 2006 programs continue and expand support for international solar energy programs, such as the U.S. Initiative on Joint Implementation, renewable energy outreach information, and technical assistance.
- **Environmental Justice**. The goal of this initiative is to ensure fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, directs federal agencies to develop strategies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The EPA's Office of Environmental Justice oversees the initiative. In support, EERE focuses on helping communities populated with minorities or low income residents attain their economic development and environmental objectives through the incorporation of energy-efficient and renewable energy technologies. A number of EERE competitive solicitations include environmental justice as one of the "Program Policy Factors." Participation in related interagency task forces provides EERE an excellent forum for identifying potential partners at the community level. Such task forces include the Brownfields Interagency Task Force, American Heritage Rivers Initiative, Brightfields Initiative, and Brownfields Showcase Communities.

- **Livable Communities**. The Livable Communities Initiative, begun in 1999, aligns and dedicates new and existing federal resources to strengthen the federal government's role as a partner with the growing number of state and local efforts to build "livable communities" for the 21st century. EERE's SEP helps fund states designing and carrying out their own energy efficiency and renewable energy programs. The VT Program Office programs for high efficiency and alternative fueled vehicles contribute to increasing community transportation choices and reducing air pollution. DOE staff participates in an interagency New Initiatives Working Group that is developing a package of new livable communities initiatives.
- **Million Solar Roofs**. The Million Solar Roofs Initiative's goal is to facilitate one million solar roof installations (a mixture of solar heat/hot water and photovoltaics) by 2010. The initiative was begun in 1997. DOE already has received commitments for close to one million solar roofs. To further spur solar energy technologies, the President has proposed a 15 percent tax credit (up to $2,000) for the purchase of rooftop solar systems. Million Solar Roofs is implemented by EERE's Solar Energy Technology Program Office, in cooperation with EERE's Building Technologies Program Office and the FEMP. Under Executive Order 13123 (1999), each federal agency must strive to expand the use of renewable energy within its facilities and in its activities by implementing renewable energy projects and by purchasing electricity from renewable energy sources, including a goal of installing 20,000 solar systems on federal buildings' rooftops by 2010.
- **Partnership for Advanced Technology in Housing (PATH)**. The goal of the PATH Initiative, begun in 1998, is to speed the creation and widespread use of advanced technologies that measurably improve the quality, durability, energy efficiency, environmental performance, and affordability of our nation's housing. The initiative seeks to make new homes 50 percent more energy efficient, and to make at least 15 million existing homes 30 percent more energy efficient, within a decade. Projects are underway in pilot communities in Denver, Los Angeles, Pittsburgh, and Tucson. The U.S. Department of Housing & Urban Development (HUD—the Program Manager) and DOE provide leadership for overall policy direction, in cooperation with the PATH Interagency Council composed of senior representatives from DOE,

HUD, EPA, Federal Emergency Management Agency, U.S. Department of Commerce, and U.S. Department of Agriculture. A working group with representatives from all the federal agencies participating in PATH helps with day-to-day coordination of federal activities.

PATH uses a five-part approach: 1) industry-driven research partnerships on new technologies and practices, 2) working with industry on pilot programs building thousands of marketable houses, 3) streamlining of federal, state and local codes and regulations, 4) judicious use of existing authority on standards, and 5) an information campaign to influence consumer demand. With the interagency working group, the Office of Building Technology is developing a technology roadmap for residential building research. It coordinates state and local participation in demonstrating new heating and air conditioning duct sealing technology in Weatherization Assistance Program homes. With industry, the program develops, promotes, and integrates energy technologies and practices to make buildings more energy efficient. EERE also helps coordinate Building America projects with PATH, provides technical assistance to other federal agency partners, and increases outreach. The Million Solar Roofs Program is also coordinated with PATH.

- **Freedom Cooperative Automotive Research (FreedomCAR)**. DOE and the U.S. Council for Automotive Research (composed of automakers Ford, General Motors, and Chrysler) announced in January 2002 a new cooperative research effort. Known as FreedomCAR, it represents DOE's commitment to developing public/private partnerships to fund high-risk, high-payoff research into advanced automotive technologies. Efficient fuel cell technology, which uses hydrogen to power automobiles without air pollution, is a very promising pathway to achieve the ultimate vision.
  - — The goal of the partnership is to develop cars and trucks that are cheaper to operate, pollution free, competitively priced, and free from imported oil. America's transportation sector depends on petroleum for 95% of its fuel, and transportation accounts for 67% of our nation's petroleum use. The steady growth of imported oil needed to meet U.S. requirements—to current levels of approximately 10 million barrels of imported oil each day–may not be sustainable over the long term.

— Fuel cells are 2 – 3 times more efficient than today's internal combustion engines in converting fuel to power. DOE has determined that a promising approach to reducing our nation's consumption of petroleum is to develop hydrogen-powered fuel cell vehicles and the hydrogen supply infrastructure needed to support them.

- **21st Century Trucks**. This initiative, begun in April 2000, seeks to develop, by 2010, production prototype vehicles that achieve three times the fuel economy (measured in ton-miles per gallon) of heavy pickups, large urban delivery trucks, and full-sized buses. It seeks to double the fuel economy of 18-wheeler, long-haul trucks. The public-private partnership includes 18 companies from the trucking industry. DOE, the U.S. Department of Transportation, the U.S. Department of Defense, and the EPA cooperate on R&D toward advanced engines, fuel cells, advanced propulsion technologies, lightweight materials, vehicle design, advanced emissions control, and vehicle safety systems for long-haul trucks, heavy pickups, delivery vans, and full-size passenger buses. The initiative calls for production prototypes within 10 years. In support, EERE's Vehicle Technologies Program Office does R&D on advanced emissions technologies, advanced propulsion systems, advanced materials, and innovative vehicle designs. Indications are that the Secretary of Energy will be heading the initiative, and EERE's VT Program Office will be the primary participant. A Partnership Coordinating Committee, made up of senior representatives from the participating companies and government agencies, will develop a plan detailing the initiative's goals and timetables. In addition, external peers will review the partnership committee's work each year to ensure that technological advances are on track to meet the goals set for 2010.

- **Greening the Government Through Efficient Energy Management and Greening the Government Through Federal Fleet and Transportation Efficiency**. This initiative places emphasis on improving the energy efficiency and environmental quality of the federal program office. Executive Order 13123, Greening the Government Through Efficient Energy Management, assigns the EERE FEMP responsibility for providing technical assistance, guidance, and (sometimes) setting targets for federal

agencies. FEMP assists federal agencies to identify, finance, and implement energy efficiency and renewable energy projects and to manage utility costs in federal facilities. The agencies then act to increase energy efficiency and renewable energy use, and reduce water consumption in their buildings, facilities, and operations. FEMP has developed contractual mechanisms to attract substantial private-sector funds to improve the energy efficiency of federal facilities.

Executive Order 13149, Greening the Government through Federal Fleet and Transportation Efficiency, requires each federal agency operating 20 or more motor vehicles within the United States to reduce its entire vehicle fleet's annual petroleum consumption by at least 20 percent by the end of FY 2005, compared with FY 1999 levels. Each agency must fulfill the acquisition requirements for alternative fueled vehicles established by the Energy Policy Act of 1992. The VT Program Office facilitates evaluation and use of advanced technology vehicles by federal agencies and helps federal agencies acquire alternative fuel vehicles. This office also strengthens the joint DOE/General Services Administration program to promote development of alternative fuel refueling infrastructure.

1.2.10.2 Secretary of Energy Initiatives

- **Power Outage Prevention (Short-term)**. The goal of this initiative, established in 1999, is to ensure that the nation's electric power system remains reliable as the industry transitions to competitive markets over the short term. Participants study significant electric power outages and recommend appropriate federal actions to avoid the recurrence of similar system disturbances in the future. EERE participants include the Industrial Technologies Program Office, the Building Technologies Program Office, and FEMP. For example, EERE programs develop standards for more efficient air conditioners, support focused research on energy storage technologies to reduce the high cost of power outages, improve power quality, and enhance technology choices in a competitive utility environment.
- **Energy Grid Reliability (Electricity Grid Component, Long-term)**. The goal of this initiative, undertaken in 1999, is to establish an integrated set of program activities for both the electricity grid and the natural gas grid that will enable the long-term reliable delivery of energy services to consumers in competitive, restructured energy

markets. The continued merging of energy delivery systems and telecommunications systems (the emerging InterGrid) has created the need for closer integration of programs. EERE is developing advanced technologies for reliable and cost-efficient power delivery, with an emphasis on the integration of distributed generation resources. These measures include developing policies and technologies (e.g., system simulation, power storage, real-time sensors and controls, and new distributed power options) that will help increase system reliability by improving system flexibility, efficiency, and security. EERE participants include the Industrial Technologies Program Office and the Building Technologies Program Office.

- **EnergySmart Schools Partnership**. The EnergySmart Schools Partnership was initiated by the Secretary in 1998 as part of an interagency effort to improve the nation's schools by reducing energy bills, improving the learning environment, and redirecting the savings to our children's education. Schools can reduce their energy bills by 25 percent and realize potential savings of $1.5 billion annually. The EnergySmart Schools initiative uses existing EERE programs, including the SEP, Rebuild America, Clean Cities, EnergyStar™, and the President's Million Solar Roofs Initiative. This public-private partnership provides technical assistance, an information clearinghouse, technology demonstrations, guidance in financing mechanisms and design, and education in energy awareness to school districts around the country.
- **Geopowering the West**. This January 2000 initiative seeks a dramatic increase in the use of geothermal energy to meet the electric power or heat energy needs of 7 million homes and businesses in the western United States by 2010, and at least 10 percent of the West's electricity by 2020. EERE's Geothermal Technologies Program Office and Wind & Hydropower Technologies Program lead implementation of the initiative. The initiative includes education, awareness, and outreach activities aimed at a variety of stakeholders such as businesses, government organizations, Native American groups, and the general public. EERE's program also facilitates near-term priority opportunities and targeted technical support activities.
- **Lighting and Appliance Standards**. The Secretary of Energy assigned this initiative the goal of having the Building Technologies Program Office prepare, and DOE issue, final rules for clothes washers,

fluorescent lamp ballasts, water heaters, and central air conditioner energy efficiency standards by late December 2000. EERE published a notice of proposed rulemaking for water heaters in the Federal Register on April 28, 2000; the comment period closed July 12, 2000. On May 23, the Secretary, with senior industry and energy efficiency advocates, announced a consensus agreement on standards for clothes washers. The final rule for ballasts was published in the Federal Register on September 19, 2000. Final Notices of Proposed Rulemaking were published in October for residential central air conditioners (and heat pumps) and clothes washers.

- **Natural Gas**. This developing initiative coordinates and fosters research and market barrier actions to expand opportunities for clean and efficient natural gas technologies. Near-term goals focus on market efficiency, market opportunities, and reducing market barrier impediments to the use of such technologies. EERE supports demonstrations of residential and building-sized hydrogen/natural gas fuel cells for off-grid applications. EERE focuses on overcoming the critical technology barriers to developing and validating viable fuel cell systems for automotive applications. This technology is also directly applicable to light truck and heavy-duty vehicle applications (e.g., buses). In order to realize the market penetration of alternative fueled vehicles, an aggressive program has been structured to support the widespread use and distribution of natural gas as a transportation fuel.
- **Pollution Prevention/Energy Efficiency (P2E2)**. The 1999 P2E2 Initiative goal is to enable DOE to meet the requirements of Executive Order 13123, Greening the Government Through Efficient Energy Management. This means preventing pollution, reducing greenhouse gas emissions, reducing energy costs, and deploying energy-efficient technologies throughout DOE facilities and operations to satisfy the Administration's pollution-related requirements. EERE's FEMP, through its Departmental Energy and Utility Team, provides funding support to DOE sites for accomplishing energy management projects and expanding the use of private-sector financing for energy management, thus allowing the Department to meet the requirements of Executive Order 13123.

- **Wind Powering America**. The goal of this initiative, begun in 1999, is a dramatic increase in the use of wind energy in the United States from today's level of 2,500 megawatts (MW). It includes tripling the number of states with more than 20 MW of wind capacity installed by 2010, providing 5% of federal electricity use by 2010 with wind power, and providing at least 5% of the nation's electricity by 2020 with wind power. The Geothermal Technologies and Wind & Hydropower Technologies programs provide resources assessments, technical assistance, and economic analysis to potential stakeholders and potential partners. It organizes community outreach programs and regional and state wind workshops. The office also leads federal efforts in the purchase of wind-generated power. The federal government has set a goal of purchasing 5% of its electricity from wind-generated power by 2010. Over 30 federal agencies at 130 sites in the Denver metropolitan area will soon purchase 10 MW of electricity generated by wind, as well as solar, geothermal, and biomass energy. The Wind Power America initiative includes a regional field verification program for competitively selected projects that address unique siting, regulatory, electric power systems, and marketing issues in key regions of the United States.
- **Ultra-Clean Transportation Fuels**. The goal of the 1999 Ultra-Clean Transportation Fuels Initiative is, over the next seven years, to develop a portfolio of fuels that enable the high-efficiency and low-emission operation of light- and heavy-duty transportation vehicles. A planning effort between EERE's VT Program Office and DOE's Office of Fossil Energy produced a joint program plan for Ultra-Clean Transportation Fuels that included a technical roadmap specifying near- and long-term goals, scheduled milestones, and funding requirements. The initiative supports proposals in three areas: (1) technology for the production of ultra-clean fuels from a variety of resources; (2) innovative emission control technologies, processes, or devices; and (3) innovative fuel-making components, materials, processes, or technologies within the context of a system that includes fuel-engine after treatment.

1.2.10.3 Executive Orders

Executive Orders from the President specify programs, activities, goals, and objectives applying to all federal government operations. The current Executive Orders requiring program action in EERE are listed below.

- **Strengthening Federal Environmental, Energy, and Transportation Management (January 24, 2007)**. This Executive Order institutes new guidance for the federal government on policies related to energy efficiency, the use of renewable energy, and the reduction of environmental impact. This Order calls upon all federal agencies to "improve energy efficiency and reduce greenhouse gas emissions of the agency, through reduction of energy intensity by (i) 3 percent annually through the end of fiscal year 2015, or (ii) 30 percent by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003; and, ensure that (i) at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable sources, and (ii) to the extent feasible, the agency implements renewable energy generation projects on agency property for agency use." The order also calls for agencies with fleets up to 20 vehicles or higher, to reduce petroleum-based fuel consumption by 2% annually through fiscal year 2015, and to increase use of non-petroleum fuels by 10% annually. The order requires that federal agencies use plug-in hybrid vehicles once they are commercially available and reasonably priced, as well as the consideration of the highest energy efficiency and environmental standards when purchasing new electronics.

  This Order revokes the following five orders: Executive Order 13101 of September 14, 1998; Executive Order 13123 of June 3, 1999; Executive Order 13134 of August 12, 1999, as amended; Executive Order 13148 of April 21, 2000; and Executive Order 13149 of April 21, 2000.

- **Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use, Executive Order 13211 (of May 18, 2001)**. Agencies will prepare and submit a statement of Energy Effects to the Administrator of the Office of Information and Regulatory Affairs, OMB, for those matters identified as significant energy actions. They will publish these statements, or a summary of them, in

each related Notice of Proposed Rulemaking and in any resulting Final Rule. "Significant energy action'' means:

- Any action by an agency (normally published in the Federal Register) that promulgates or is expected to lead to the promulgation of a final rule or regulation, notices of inquiry, advance notices of proposed rulemaking, and notices of proposed rulemaking;
- Any action deemed a significant regulatory action under Executive Order 12866 or any successor order;
- Any action likely adversely and significantly to effect on the supply, distribution, or use of energy; and
- Any action that the Administrator of the Office of Information and Regulatory Affairs designates as a significant energy action.

- **Actions to Expedite Energy-Related Projects, Executive Order 13212 (May 18, 2001)**. This Order requires executive departments and agencies to act to expedite projects that will increase the production, transmission, or conservation of energy. They will expedite their review of permits or take other actions as necessary to accelerate the completion of such projects, while maintaining safety, public health, and environmental protections. The agencies will do so to the extent permitted by law and regulation. An Interagency Task Force will monitor and assist agency efforts. The Task Force also will help set up appropriate mechanisms to coordinate federal, state, tribal, and local permitting in geographic areas where they expect increased permitting activity.

References

EERE Web Sites:

Technology Development Homepage:
http://eere-intranet.ee.doe.gov/td/td.html

Office of Biomass Program Homepage:
http://www1.eere.energy.gov/biomass/

Office of Building Technologies Program (BTP) Homepage:
http://www.eere.energy.gov/buildings/

Federal Energy Management Program (FEMP) Homepage:
http://www.eere.energy.gov/femp/

Office of Vehicle Technologies (VT) Homepage:
http://www1.eere.energy.gov/vehiclesandfuels/

Office of Geothermal Technologies Program (GTP) Homepage:
http://www1.eere.energy.gov/geothermal/

Office of Hydrogen, Fuel Cells & Infrastructure Technologies Program (HFCIT) Homepage:
http://www.eere.energy.gov/hydrogenandfuelcells/

Office of Industrial Technologies Program (ITP) Homepage:
http://www.eere.energy.gov/industry/

Office of Solar Energy Technologies Program (SETP) Homepage:
http://www.eere.energy.gov/solar/

Office of Weatherization and Intergovernmental Program (OWIP) Homepage:
http://www.eere.energy.gov/wip/

Office of Wind and Hydropower Technologies (WHTP) Homepage:
http://www1.eere.energy.gov/windandhydro/

Office of Business Administration (BA) Homepage:
http://www1.eere.energy.gov/ba/

Office of Program Execution Support Homepage:
http://www1.eere.energy.gov/ba/prog_exec_support.html

Office of Planning, Budget, and Analysis Homepage:
http://www1.eere.energy.gov/ba/pba/

Office of Information and Business Management Systems Homepage:
http://eere-intranet.ee.doe.gov/BA/IBMS/

Project Management Center Homepage:
https://www.eere-pmc.energy.gov/

Golden Field Office Homepage:
http://www.energy.gov/golden

National Energy Technology Laboratory:
http://www.netl.doe.gov/about/organization.html

National Renewable Energy Laboratory:
http://www.nrel.gov/orgchart.html

United States Federal Government. *Executive Orders Disposition Tables Index, January 9, 1939 – present.* National Archives, USA. Retrieved from: http://www.archives.gov/federal-register/executive-orders/disposition.html

Advanced Energy Initiative:

The Advanced Energy Initiative may be accessed in its entirety at:
http://www.whitehouse.gov/stateoftheunion/2006/energy/#section1

The Advanced Energy Initiative is comprised of several sub-initiatives, five of which have a direct impact on EERE: Solar America Initiative; Expanding Clean Energy from Wind Initiative; The Biorefinery Initiative; Developing More Efficient Vehicles Initiative; and The Hydrogen Fuel Initiative.

For more information about these initiatives, please click on the links below.

Biorefinery Initiative:
http://www.whitehouse.gov/news/releases/2006/01/20060131-6.html

Developing More Efficient Vehicles Initiative:
http://www.whitehouse.gov/news/releases/2006/01/20060131-6.html

Expanding Clean Energy from Wind Initiative:
http://www.whitehouse.gov/news/releases/2006/01/20060131-6.html

Hydrogen Fuel Initiative:
http://www1.eere.energy.gov/hydrogenandfuelcells/presidents_initiative.html

Solar America Initiative:
http://www1.eere.energy.gov/solar/solar_america/about.html

Executive Office of the President of the United States of America. (2007). *Strengthening Federal Environmental, Energy, and Transportation Management (Executive Order: January 24, 2007).* United States Federal Government, USA. Retrieved from:
http://www.whitehouse.gov/news/releases/2007/01/print/20070124-2.html

Executive Office of the President of the United States of America. (2007). *Twenty in Ten: Strengthening America's Energy Security.* United States Federal Government, USA. Retrieved from:
http://www.whitehouse.gov/infocus/energy/

Information on President's Management Agenda may be accessed at:
http://www.whitehouse.gov/results/agenda/egov.html

1.2.11 Statutory Underpinnings

Many statutes under Titles 15 and 42 (Commerce and Trade and The Public Health and Welfare, respectively) specify programs, activities, goals, and objectives applying to EERE. For example, the Energy Policy and Conservation Act of 1975 and the National Appliance Energy Conservation Act direct DOE to set energy efficiency standards for appliances. The statutes that underpin many of EERE's programs are summarized below.

Energy Policy Act of 2005

The EPAct 2005 is the first effort of the U.S. government to address U.S. energy policy since the Energy Policy Act of 1992. The President's national energy plan will encourage energy efficiency and conservation, reduce America's dependence of foreign sources of energy, increase domestic energy production, encourage the expansion of nuclear energy, and promote alternative and renewable energy sources.

EPAct 2005 highlights several areas that DOE will concentrate on in order to achieve some of the previously mentioned goals. EERE will be responsible for the research, development, and implementation of the following four major focuses of this new energy policy: Energy Efficiency; Renewable Energy; Vehicles and Fuels; and Hydrogen.

Energy Efficiency

- Requires a 20% reduction in federal building energy use by 2015, provides funding for energy efficiency programs for public buildings, and increases fuels.
- Authorizes $3.4 billion for each fiscal year 2005 – 2007 for the Low Income Housing Assistance Program. Increases funding for low-income weatherization and state energy programs to improve energy efficiency (U.S. House Committee on Energy and Commerce Press Office, 2005)

Renewable Energy

- Reauthorizes the Renewable Energy Production Incentive Program to provide renewable energy production incentives for solar, wind, geothermal, and biomass, and expands it to include landfill mass.
- Authorizes $300 million for solar programs, with a goal of installing 20,000 solar roof-top systems in federal buildings by 2010, as well as an additional $210 million program for concentrating solar power for hydrogen production.

- Authorizes $100 million for increased hydropower usage through increased production, without compromising existing environmental protections. Hydroelectric power is the nation's largest source of renewable energy and makes up approximately 10 percent of America's electric supply.
- Directs the government to use more renewable energy, with a goal of using 7.5% or more by 2013 (U.S. House Committee on Energy and Commerce Press Office, 2005)

Vehicles and Fuels

- Authorizes $200 million for an advanced vehicle program, which would provide grants to state and local governments to acquire alternative fueled and fuel-cell vehicles, hybrids, and other vehicles, including ultra low-sulfured diesel vehicles. This program will operate under the "Clean Cities" program.
- Authorizes two new "Clean School Bus" programs. The first will provide $100 million to retrofit existing diesel buses with new pollution control technology. The second program authorizes $200 million in grants for replacement of older school buses with buses that use clean, alternative fuels and ultra-low sulfured based fuels.
- Launches programs for hydrogen fuel-cell transit buses and for hydrogen fuel-cell school buses to demonstrate the use of this technology. Includes funding for a railroad efficiency center, a provision to review mobile emission reduction trading, a study of aviation fuel conservation methods, diesel fuel emission technologies, and a program for advanced idle reduction systems (U.S. House Committee on Energy and Commerce Press Office, 2005).

Hydrogen

- Launches a state-of-the-art program to put hydrogen-powered vehicles on the road by the year 2020, as well as the necessary infrastructure to provide for the safe delivery of hydrogen fuels. Establishes an interagency task force on hydrogen as well as an outside advisory committee.
- Requires DOE to develop a plan outlining technical milestones as well as technical and non-technical challenges to hydrogen vehicles and their associated infrastructure. The hydrogen program is to be conducted as a public/private partnership, and is to address the

production of hydrogen from diverse sources. These sources include: fossil fuels, hydrogen-carrier fuels, and renewable energy resources such as biomass and nuclear energy. The program also addresses pipeline hydrogen transmission, convenient refueling, advanced vehicle technologies, hydrogen storage, and the development of the necessary codes and standards associated with these methods.

Solar Energy Research, Development, and Demonstration Act of 1974, as Amended

- Directs an R&D program, including design and construction of facilities, to address the major technical problems inhibiting commercial use of solar energy. Establishes a solar energy resource determination and assessment program. Details the goals of the programs. Established the Solar Energy Research Institute (now NREL).

  This statute, Pub. L. 93-473, Oct. 26, 1974, 88 Stat. 1431 (Title 42, Sec. 5551 et seq.), includes amendments made by the congressional Reports Elimination Act of 1980.

Federal Energy Administration Act of 1974, as Amended

- Established the Federal Energy Administration by transferring functions of the Secretary of the Interior, the Chairman of the Cost of Living Council, and the Executive Director of the Cost of Living Council related to production, conservation, and allocation of all forms of energy, including DOI's Office of Petroleum Allocation, Office of Energy Conservation, Office of Energy Data and Analysis, and the Office of Oil and Gas. Provides for an economic analysis of the impact of proposed regulatory actions.

  This statute, Pub. L. 93-275, May 7, 1974, 88 Stat. 96 (Title 15, Sec. 761 et seq.), includes amendments to the Federal Energy Administration Act of 1974, Energy Conservation and Production Act, Federal Energy Administration Authorization Act (1977), Department of Energy Organization Act (1977), Congressional Reports Elimination Act of 1980, Federal Reports Elimination and Sunset Act of 1995, National Defense Authorization Act for Fiscal Year 1996, and Department of Energy Standardization Act of 1997.

Nonnuclear Energy Research and Development Act of 1974, as Amended

- Consolidated various energy R&D programs within the ERDA, required development of a comprehensive plan for energy "research, development, and demonstration" for energy conservation, waste-to-fuel, recycling, clean fossil fuel, efficient electricity, geothermal, synthetic fuels, solar, and ocean thermal technologies; and was the enabling legislation for the Inventions and Innovations Program. Created "corporations" for joint federal-private initiatives in each (e.g., the Synthetic Fuels Corporation).

  This statute, Pub. L. 93-577, Dec. 31, 1974, 88 Stat. 1878 (Title 42, Sec. 5901 et seq.), includes amendments made by the Authorization of Appropriations for Fiscal Year 1976, ERDA, National Energy Extension Service Act, DOE Authorization Act of 1978, Civilian Applications Congressional Reports Elimination Act of 1980, amendments to Patent and Trademark Laws (1980), Congressional Reports Elimination Act of 1986, Energy Policy Act of 1992, Federal Reports Elimination and Sunset Act of 1995, National Defense Authorization Act for Fiscal Year 1996, and General Accounting Office Act of 1996.

Energy Policy and Conservation Act (EPCA), as Amended

- Requires average fuel economy standards for passenger automobiles manufactured by any manufacturer in any model year after model year 1977, and assigns DOE responsibilities in managing the fuel economy program. Prescribes a program of test procedures for classes of consumer and industrial products specified in the law. Directs energy efficiency improvement targets for each type of covered product and procedures for prescribing the standards. Establishes an international energy program to facilitate the ability of the domestic renewable energy industry and related service industries to create new markets.

  This statute, Pub. L. 94-163, Dec. 22, 1975, 89 Stat. 871 (Title 42, Sec. 6201 et seq.), includes amendments made by the Energy Policy and Conservation Act Extension Amendment of 1990; Energy Policy and Conservation Act Short-Term Extension Amendment of 1990; Energy Policy and Conservation Act Amendments of 1990, 1994, and 1995; Naval Petroleum Reserves Production Act; Energy Conservation and Production Act (1976); Federal Energy Administration Authorization Act (1977); National Energy Conservation Policy Act (1978); Export

Administration Act of 1979; Emergency Energy Conservation Act of 1979; Energy Security Act (1980); Congressional Reports Elimination Act of 1980; Omnibus Budget Reconciliation Act of 1981; Energy Emergency Preparedness Act of 1982; Renewable Energy Industry Development Act of 1983; Energy Policy and Conservation Amendments Act of 1985; Supplemental Appropriations Act, 1985; Consolidated Omnibus Budget Reconciliation Act of 1985; Omnibus Budget Reconciliation Act of 1986; National Appliance Energy Conservation Act of 1987; National Appliance Energy Conservation Amendments of 1988; Alternative Motor Fuels Act of 1988; Federal Energy Management Improvement Act of 1988; Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989; Energy Policy and Conservation Act Extension Amendment of 1990; Energy Policy and Conservation Act Short-Term Extension Amendment of 1990; Energy Policy and Conservation Act Amendments of 1990; State Energy Efficiency Programs Improvement Act of 1990; Energy Policy Act of 1992; codification of existing federal transportation law (1994); codification and amendment of specified provisions of federal transportation law (1994); Federal Reports Elimination and Sunset Act of 1995; General Accounting Office Act of 1996; National Defense Authorization Act for Fiscal Year 1996; Balanced Budget Act of 1997; Higher Education Amendments of 1998; Energy Conservation Reauthorization Act of 1998; and Amendments to the Energy Policy and Conservation Act of 1975 in 1979, 1981, 1984, 1988, 1989, 1996, and 1998.

Energy Conservation and Production Act (ECPA), as Amended

- Provides for the development and implementation of voluntary performance standards for new residential and commercial buildings. Encourages state and local governments to adopt and enforce such standards through their existing building codes and other construction control mechanisms, or to apply them through a special approval process. Establishes a Weatherization Assistance Program to increase the energy efficiency of dwellings owned or occupied by low-income persons, such as the elderly, the handicapped, and children, to reduce their total residential energy expenditures and improve their health and safety.

  This statute, Pub. L. 94-385, Aug. 14, 1976, 90 Stat. 1125 (Title 42, Sec. 6801 et seq.), includes amendments made by the Federal Energy

Administration Authorization Act (1977), Developmental Disabilities Assistance and Bill of Rights Act, Public Utility Regulatory Policies Act, Congressional Reports Elimination Act of 1980, Congressional Reports Elimination Act of 1982, State Energy Efficiency Programs Improvement Act of 1990, Energy Policy Act of 1992, National and Community Service Trust Act of 1993, General Accounting Office Act of 1996, Workforce Investment Partnership Act of 1998, Omnibus Consolidated and Emergency Supplemental Appropriations Act (1999), and Energy Conservation Reauthorization Act of 1998.

Electric and Hybrid Vehicle Research Development and Demonstration Act of 1976, as Amended

- Establishes a program of electric vehicle research and development. Authorizes the introduction of electric vehicles into fleets used by federal agencies.

  This statute, Pub. L. 94-413, Sept. 17, 1976, 90 Stat. 1260 (Title 15, Sec. 2501 et seq.), includes amendments made by the DOE Authorization Act of 1978, Civilian Applications, Congressional Reports Elimination Act of 1980, Congressional Reports Elimination Act of 1982, Federal Reports Elimination and Sunset Act of 1995.

Department of Energy Organization Act (1977), as Amended

- Establishes the U.S. Department of Energy in the executive branch. Transfers all functions of the Federal Energy Administration, the ERDA, and the Federal Power Commission to the Department. Transfers specified functions from other departments and agencies to the Department.

  This statute, Pub. L. 95-91, Aug. 4, 1977, 91 Stat. 565 (Title 42, Sec. 7101 et seq.) includes amendments made by the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act Fiscal Year 1979, National Energy Conservation Policy Act (1978), Powerplant and Industrial Fuel Use Act of 1978, Natural Gas Policy Act (1978), General Accounting Office Act of 1980, Congressional Reports Elimination Act of 1982, Omnibus Budget Reconciliation Act of 1986, Inspector General Act Amendments of 1988, amendments to the Department of Energy Organization Act (1988), Federal Energy Regulatory Commission Member Term Act of 1990, National Defense Authorization Act for

Fiscal Year 1991, Intelligence Authorization Act, Fiscal Year 1991, Energy Policy Act of 1992, National Defense Authorization Act for Fiscal Year 1994, codification of existing federal transportation law (1994), National Defense Authorization Act for Fiscal Year 1995, Alaska Power Administration Asset Sale and Termination Act and Outer Continental Shelf Deep Water Royalty Relief Act, Federal Reports Elimination and Sunset Act of 1995, National Defense Authorization Act for Fiscal Year 1996, Energy and Water Development Appropriations Act, 1997, Department of Energy Standardization Act of 1997, and Energy and Water Development Appropriations Act, 1999.

National Energy Conservation Policy Act and Federal Photovoltaic Utilization Act, as Amended

- The National Energy Conservation Policy Act establishes guidelines, procedures, and criteria for residential energy conservation plans, weatherization grants to low-income people, and energy audits of, and conservation grants to, school and hospital facilities. Establishes a program to demonstrate solar heating and cooling technology in federal buildings, including criteria for evaluating federal agency proposals. Directs energy performance targets for federal buildings. The Federal Photovoltaic Utilization Act establishes a program for procuring photovoltaic solar electric systems in new and existing federal facilities. Establishes a photovoltaic systems evaluation and purchase program.

  This statute, Pub. L. 95-619, Nov. 9, 1978, 92 Stat. 3206 (Title 42, Sec. 8201 et seq.), includes amendments made by the National Energy Conservation Policy Act, Energy Security Act (1980), Consolidated Omnibus Budget Reconciliation Act of 1985, Conservation Service Reform Act of 1986, Omnibus Budget Reconciliation Act of 1986, Federal Energy Management Improvement Act of 1988, Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989, amendments to title 38, United States Code (1991), Energy Policy Act of 1992, codification of existing federal transportation law (1994), Federal Reports Elimination and Sunset Act of 1995, Federal Reports Elimination and Sunset Act of 1995, General Accounting Office Act of 1996, Energy Conservation Reauthorization Act of 1998, and Omnibus Consolidated and Emergency Supplemental Appropriations Act, (1999).

Powerplant and Industrial Fuel Use Act of 1978, as Amended

- Requires federal agencies providing federal financial assistance through loans, grants, or contracts to achieve conservation of petroleum and natural gas.

  This statute, Pub. L. 95-620, Nov. 9, 1978, 92 Stat. 3289 (Title 42, Sec. 8301 et seq.), includes amendments made by the Powerplant and Industrial Fuel Use Act of 1978, Omnibus Budget Reconciliation Act of 1981, Congressional Reports Elimination Act of 1982, amendments to the Powerplant and Industrial Fuel Use Act of 1978 (1988), Energy Policy Act of 1992, and Federal Reports Elimination and Sunset Act of 1995.

Energy Tax Act of 1978, as Amended

- Allows an income tax credit to an individual for energy conservation expenditures and for qualified renewable energy source expenditures. Provides for a depletion deduction, the option to deduct as expenses intangible drilling and development costs, and the minimum tax provisions for excess intangible drilling costs of individuals for geothermal resources and natural gas produced from geopressured brine located in the United States. Extends the recapture provisions for oil and gas property to include geothermal wells. Extends the risk limitation of losses that may be deducted for exploiting oil and gas to include geothermal resources.

  This statute, Pub. L. 95-618, Nov. 9, 1978, 92 Stat. 3174, includes amendments made by the Crude Oil Windfall Profit Tax Act of 1980, and the Tax Equity and Fiscal Responsibility Act of 1982.

Methane Transportation Research Development and Demonstration Act of 1980, as Amended

- Establishes an RD&D program on methane-fueled vehicles and optimum overall specifications for such vehicles. Establishes demonstrations of the economic and technological practicalities of methane-fueled vehicles for fleet use and of methane-fueled farm equipment. Promotes the substitution of methane-fueled vehicles for gasoline- and diesel-powered vehicles currently used on farms and in fleet operations.

  This statute, Pub. L. 96-512, Dec. 12, 1980, 94 Stat. 2827 (Title 15, Sec. 3801 et seq.), includes amendments made by the Congressional

Reports Elimination Act of 1982, and the Federal Reports Elimination and Sunset Act of 1995.

National Appliance Energy Conservation Act of 1987

- Amends the Energy Policy and Conservation Act to revise the list of appliances covered under the Act. Prescribes a program of test procedures for classes of consumer and industrial products specified in the law. Directs energy efficiency improvement targets for each type of covered product and procedures for prescribing the standards. Established the deadline for initial DOE rulemaking and authorizes continued rulemaking.

  This statute is Pub. L. 100-12, Mar. 17, 1987, 101 Stat. 103 (Title 42, Sec. 6291 et seq.).

Alternative Motor Fuels Act of 1988, as Amended

- Amends the Energy Policy and Conservation Act to direct the Secretary of Energy to ensure that the maximum practicable number of federal passenger automobiles and light-duty trucks be either methanol-powered or dual-energy vehicles. Sets forth other requirements regarding the use of alternative motor fuels.

  This statute, Pub. L. 100-494, Oct. 14, 1988, 102 Stat. 2441, includes amendments made by the Energy Policy Act of 1992, and an act codifying existing federal transportation law (1994).

Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989, as Amended

- Authorizes and directs a program of research, development, demonstration, and commercial application with the private program office for renewable energy and alternative energy resources. Establishes long-term federal research goals for wind, photovoltaic, solar thermal, and alcohol from biomass technologies. Directs improving the ability of the private program office to commercialize renewable energy and energy efficiency technologies through government support of a program of demonstration and commercial application projects.

  This statute, Pub. L. 101-218, Dec. 11, 1989, 103 Stat. 1859 (Title 42, Sec 12001 et seq.), includes amendments made by the Energy Policy Act of 1992.

Clean Air Act Amendments of 1990, as Amended

- Amends the Clean Air Act to establish air quality standards for nonattainment areas. Sets requirements with respect to mobile sources and sources emitting hazardous air pollutants, sulfur dioxide, and nitrogen oxides. Establishes permit programs. Revises enforcement and penalty provisions. Establishes programs for acid deposition control and stratospheric ozone protection.

  This statute, Pub. L. 101-549, Nov. 15, 1990, 104 Stat. 2399, includes amendments made by the General Accounting Office Act of 1996.

Global Change Research Act of 1990

- Establishes a comprehensive and integrated U.S. research program that will assist the nation and the world in understanding, assessing, predicting, and responding to human-induced and natural processes of global change. Promotes international, intergovernmental cooperation on global change research. Promotes international efforts to provide technical and other assistance to developing nations that will facilitate improvements in their domestic standard of living while minimizing damage to the global or regional environment.

  This statute is Pub. L. 101-606, Nov. 16, 1990, 104 Stat. 3096 (Title 15, Sec. 2921 et seq.).

Department of Energy Metal Casting Competitiveness Research Act of 1990, as Amended

- Directs establishment of an R&D program on technology competitiveness and energy efficiency in the U.S. metal casting industry and an overseeing Industrial Advisory Board. Requires non-federal matching contributions.

  This statute, Pub. L. 101-425, Oct. 15, 1990, 104 Stat. 915 (Title 15, Sec. 5301 et seq.), includes amendments made by the Energy Policy Act of 1992.

Solar Wind, Waste, and Geothermal Power Production Incentives Act of 1990

- Amends the Public Utility and Regulatory Policies Act of 1978 (PURPA) and the Federal Power Act to remove the size limitations placed on solar, wind, and geothermal facilities eligible for PURPA

regulatory benefits. Sets forth general qualification, certification application, and construction deadline requirements for such facilities.

This statute is Pub. L. 101-575, Nov. 15, 1990, 104 Stat. 2834.

Energy Policy Act of 1992, as Amended

- Amends the National Energy Conservation Policy Act. Establishes programs, requirements, and criteria for energy efficiency in buildings, for appliance and equipment energy efficiency standards, for industrial energy use, for state and local assistance, and for federal agency energy management. Provides guidelines for DOE to acquire alternative-fueled vehicles for the federal fleet, to report on federal experience with alternative-fueled heavy-duty vehicles, and to assist federal agencies in procuring and placing alternative-fueled vehicles. Sets minimum federal fleet requirements for alternative-fueled vehicles. Establishes programs, requirements, and criteria for alternative fuels and fuel conservation for vehicles in non-federal programs, and sets a timetable for the acquisition of alternative-fueled vehicles by specified persons engaged in fuels transactions. Directs an electric motor vehicle demonstration program. Details the program's proposal parameters. Directs a five-year program to further the commercialization of renewable energy and energy efficiency technologies by soliciting proposals for demonstration and commercial application projects.

  This statute, Pub. L. 102-486, Oct. 24, 1992, 106 Stat. 2776, includes amendments made by the codification of existing federal transportation law (1994), Federal Reports Elimination and Sunset Act of 1995, ICC Termination Act of 1995, Department of the Interior and Related Agencies Appropriations Act, 1996, Safe Drinking Water Act Amendments of 1996, Small Business Job Protection Act of 1996, amendments to the Uranium Mill Tailings Radiation Control Act of 1978 (1996), Hydrogen Future Act of 1996, amendments to the Energy Policy Act of 1992 (1977), Small Business Reauthorization Act of 1997, Federal Reports Elimination Act of 1998, Energy Conservation Reauthorization Act of 1998, Energy and Water Development Appropriations Act, 1999, Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999.

National Climate Program Act, as Amended

- Establishes a National Climate Program for research, collection, analysis, forecasting, modeling, and dissemination of data concerning climate, its variations, and their impacts on human activities. Requires five-year plans and defines the roles of federal agencies. Requires assessing the effects of climate on agriculture, energy supply and demand, land and water resources, transportation, human health, and national security. Requires basic and applied research, and requires global data collection and climate monitoring and analysis activities. Specifies requirements for intergovernmental programs.

  This statute, Pub. L. 95-367, Sept. 17, 1978, 92 Stat. 601 (Title 15, Sec. 2901 et seq.), includes amendments made by the National Climate Program Act Amendments (1980), Congressional Reports Elimination Act of 1982, and Consolidated Omnibus Budget Reconciliation Act of 1985.

Hydrogen Future Act of 1996, as Amended

- Directs the Secretary of Energy to conduct a research, development, and demonstration program leading to the production, storage, transport, and use of hydrogen for industrial, residential, transportation, and utility applications. Section 104 directs the hydrogen R&D program: the program should give emphasis to developing an understanding and resolution of critical technical issues preventing the introduction of hydrogen, initiate or accelerate existing research in critical areas that will contribute to the development of more economic hydrogen production and use, and survey the private program office and take steps to ensure that R&D activities do not displace or compete with privately funded activities.
- This Act reauthorized the Hydrogen Technical Advisory Panel, comprising representatives of domestic industry, universities, professional societies, government laboratories, financial, environmental, and other organizations as necessary to review and make any necessary recommendations on the implementation and conduct of the DOE programs under this Act, economic, technological, and environmental consequences for the deployment of the hydrogen systems, and comments and recommendations for improvements.

This statute, Pub. L. 104-271, Oct. 9, 1996, 42 USC 12401, includes amendments made by the Spark Matsunaga Research, Development and Demonstration Act of 1990, Public law 101-566 and Energy Policy Act of 1992.

1.2.12 Interagency Initiatives / Activities

Although EERE's goals and objectives reflect unique roles and responsibilities, success will depend upon closely coordinated planning and the continuation of working relationships with a number of federal agencies, state and local governments, tribal nations, industry, and Congress. It is especially important to recognize the complementary role other federal agencies play in EERE's programs. Table 1.2-4 illustrates our efforts to coordinate with other agencies to avoid duplication of effort and reduce the cost to taxpayers. A legend of Acronyms follows Table 1.2-4 on page 1-78.

Table 1.2-4 EERE Program Offices

EERE Program Office	Initiative/Activity	Federal Agency Participants
All Program Offices	Fundamental Research	NSF, DoD, USDA, NASA, NIH
Buildings, Biomass, Geothermal, Wind, Solar	Emergency Response	DoD, State, DOT, GSA, TVA, HHS, VA, NOAA, DOJ, USDA, EPA, NRC, FEMA, IAEA, National Communication System
Biomass	U.S. Human Genome Project	NIH
Biomass	Bioproducts/Bioenergy Initiative	USDA, DOC, OMB, DOE, OSTP, TVA, EPA
Building Technologies	Interagency Committee on Indoor Air Quality	IEPA, HHS, OSHA, and 16 others
FEMP	Greening the Government Through Efficient Energy Management	All Federal Agencies
FEMP	Federal Energy Management Program	All Major Federal Agencies
Vehicle Technologies	FreedomCAR and Fuel Partnership	EPA, DOT, DOD
Vehicle Technologies	21st Century Truck Partnership	EPA, DOT, DOD
HFCIT	President's Commission on Critical Infrastructure Protection	Treasury, DOJ, DoD, DOC, DOT, CIA, FEMA, FBI, NSA

EERE Program Office	Initiative/Activity	Federal Agency Participants
HFCIT	Hydroelectric	FERC, DOI (Bureau of Land Management, Bureau of Reclamation), Army Corps of Engineers, International Boundary and Water Commission
Industrial Technologies	Energy-related Inventions Program	DOC (NIST)
Industrial Technologies	Industries of the Future—Agriculture	DOC, DOI, EPA, NSF, USDA
Industrial Technologies	Industries of the Future—Aluminum	DOC (ATP), DoD, NSF
Industrial Technologies	Industries of the Future—Chemicals	DOC (NIST, ATP)
Industrial Technologies	Industries of the Future—Forest and Paper	USDA
Industrial Technologies	Industries of the Future—Glass	DOC (NIST, ATP), DoD
Industrial Technologies	Industries of the Future—Metal Casting	DoD, DOT, EPA
Industrial Technologies	Industries of the Future—Mining	DOC, DoD, DOI, EPA, HHS, Labor, NASA, USDA
Industrial Technologies	Industries of the Future—Concrete Initiative	DOC (NIST)
Industrial Technologies	Industries of the Future—Combustion	DOC (NIST), DoD, NSF
Industrial Technologies	Industries of the Future—Sensors & Controls	DOC (NIST), NSF
Industrial Technologies	Industries of the Future—Inventions & Innovations	DOC (NIST)
Industrial Technologies	Industries of the Future—Industrial Assessment Centers	Industrial Federal facilities
International Programs—All Program Offices	Global Environmental Issues, Trade and Market Development, Energy and Environmental Security	State, EPA, AID, DOC, USDA, DOI
Planning	U.S. Global Change Research Program	USDA, NOAA, NSF, NASA, DoD, HHS, DOI (USGS), State, EPA, OMB, OSTP, Smithsonian Institution
Planning, International	U.N. Framework Convention on Climate Change	NOAA, State, EPA, USDA, DoD, AID, Treasury, DOJ, Labor
Weatherization and Intergovernmental	Weatherization Assistance Program	HHS

EERE Program Office	Initiative/Activity	Federal Agency Participants
Weatherization and Intergovernmental	State Energy Program	EPA, FEMA
Weatherization and Intergovernmental	International Programs	AID, DOC, State, DOT, USDA
Weatherization and Intergovernmental	Tribal Energy Program	DOI
Wind & Hydropower	Farm Bill, Rural Utilities Service, Forest Service	USDA
Wind & Hydropower	Offshore Wind Regulation	DOI/Minerals Management Service
Wind & Hydropower	Wind/Bat and Bird Studies	DOI/Fish & Wildlife
Wind & Hydropower	Windy Land Use Policy	DOI/Bureau of Land Management
Wind & Hydropower	Wind on Native American Lands	DOI
Wind & Hydropower	Wind Grid Integration	DOE/Western Power Authority
Wind & Hydropower	Turbine Top Lighting, Turbine/Radar	DOT, FAA

Legend:

AID	Agency for International Development
ATP	Advanced Technology Program
CIA	Central Intelligence Agency
DARPA	Defense Advanced Research Projects Agency
DOC	Department of Commerce
DoD	Department of Defense
DoEdu	Department of Education
DOI	Department of the Interior
DOJ	Department of Justice
DOT	Department of Transportation
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation

FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GSA	General Services Administration
HHS	Department of Health and Human Services
HUD	Department of Housing and Urban Development
IAEA	International Atomic Energy Agency
Labor	Department of Labor
NAS	National Academy of Sciences
NASA	National Aeronautics and Space Administration
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NRC	Nuclear Regulatory Commission
NSA	National Security Agency
NSF	National Science Foundation
OMB	Office of Management and Budget
State	Department of State
Treasury	Department of the Treasury
TVA	Tennessee Valley Authority
USDA	U.S. Department of Agriculture
VA	Department of Veterans Affairs

1.2.13 State and Local Government Activities

Energy use varies substantially from region to region and from state to state. It varies as a result of population, climate, economic base, diversity of housing stock, the existing infrastructure (e.g., transportation and energy delivery systems), and other related factors. Because of this, energy needs and opportunities are not uniform across the nation. For this reason, any strategy for the development and deployment of energy efficiency and renewable energy technologies, products, or practices should address the unique needs and opportunities presented by each state and locale. States and localities are much closer to most energy users than is the federal government, e.g., the general public, commerce, industry, and public institutions. Over the years, state and local governments have developed considerable expertise in energy

management, in outreach to the private and non-profit program offices, and in providing energy services and information. States sponsor a good deal of energy efficiency and renewable energy RD&D. They have primary responsibility for codes and standards; are the regulators of electric and gas utilities; and (acting individually and collectively) manage energy emergencies. For all these reasons, one cornerstone of a successful EERE strategy must be strong federal, state, and local partnerships.

Key programmatic activities in support of these partnerships are the SEP, the WAP, community energy partnership grants, and a number of special-purpose competitive grants which encourage states and localities (alone or with other public- or private-sector partners), their associations, and others to implement projects that serve both national and state/local needs. The SEP provides financial and technical support to states to develop and implement energy plans that are responsive to their own needs but that also support national goals. The WAP provides both financial and technical support to states and local agencies; grants are awarded to states, which in turn fund approximately 900 local service provider agencies (mostly Community Action Agencies), which provide for the installation of energy- (and energy-cost) saving measures in the homes of eligible low-income clients. Through the SEP and WAP (administered through the PMC), EERE maintains close working relationships with the state energy offices and the state grantee agencies for the WAP. At the national level, EERE also maintains close working relationships with the National Association of State Energy Officials, which represents the state energy office directors; the National Association of State Community Service Programs, representing the State Weatherization directors; and the National Community Action Foundation, the association representing the local Weatherization service providers. Other organizations with which the EERE maintains ties include: the National Conference of State Legislatures; the Urban Consortium Energy Task Force; the National Association of Counties; the National Governor's Association; the National League of Cities; and the Conference of Mayors. EERE recently began meeting with an umbrella group formed to represent local government associations on energy matters.

Another area of cooperation is in R&D. An example is the recently executed Memoranda of Understanding with the California Energy Commission, the New York State Energy Research and Development Authority, and the Association of State Energy Research and Technology Transfer Institutions to work on research projects of mutual interest, through direct contracts and through the DOE national laboratories. EERE and the states have agreed to work together on the following issues: biobased products and bioenergy, fuel

cells and microturbines, petroleum industry, schools, combined heat and power and distributed generation, data acquisition, and transportation.

Collaboration between the national laboratories and State RD&D activities (particularly, in terms of coordinating research agendas, avoiding duplication, and technology deployment) has been one of the topics in which the State Energy Advisory Board (STEAB) has taken a strong interest. The STEAB was established by P.L. 101-440 to advise DOE and Congress on the operation of EERE programs, technology deployment, and other related issues. The Board provides early input and advice to EERE on budget priorities. The STEAB has been very proactive on a range of other issues as well, and is particularly active in creating recommendations that enhance EERE's ability to effectively promote market transformation and outreach activities. In addition to public meetings and day-to-day working contacts with EERE, the Board submits an annual report to the Secretary and the Congress.

Much of the interaction between EERE and individual states and localities takes place through the PMC. The PMC assists in grant administration, undertakes outreach responsibilities, and serves as a liaison to state and local governments in their regions; provides or coordinates the delivery of technical assistance; and provides technology deployment assistance. The PMC has well-established relationships with state and local governments, regional commerce and industry, and local EERE customers and stakeholders. The PMC provides an initial point of contact (and is often an aggregator of services) for state and local governments in dealing with EERE's program offices.

Several administrative barriers—such as federal, state, and local contracting and procurement regulations and different requirements and forms for different parts of DOE—have made it difficult to execute instruments of agreement between federal and state governments. In 1998 and 1999, DOE initiated negotiations with various state organizations to establish model agreements to address these problems. These negotiations resulted in two model agreements generally applicable to most state governments and state institutions and one model agreement specifically applicable to the California Energy Commission. The implementation of these agreements has improved the ability of federal and state governments to work on mutually agreed upon projects. These model agreements were developed to promote ongoing and future cooperative efforts between DOE and state governments and institutions, and to expedite the contracting process.

1.2.14 Stakeholders

The following list of stakeholders includes some organizations that have been traditional supporters of selected EERE programs. Most are nonprofit groups. The groups generally support the EERE budget request to the Congress through testimony and informational visits. Each seeks to ensure that its technology needs receive sufficient funding. The challenge is to ensure that, as each group works to gain support for their particular area of interest, they do not, as a whole, work against the larger interest of all EERE programs. Meeting with the organizations, both individually and in small groups, will help ensure that all understand the mission and goals of the overall EERE R&D portfolio.

EERE Stakeholders (alphabetically listed):

- Advanced Ceramic Research
- Advanced Research Corp.
- Advanced Thermal Systems
- Air-Conditioning & Refrigeration Institute
- Alaska Energy Authority
- Alaska Housing Finance Corp.
- Alliance of Automobile Manufacturers
- Alliance to Save Energy
- Alternative Energy Corporation
- AMERESCO
- American Association of Retired Persons
- American Boiler Manufacturing Association
- American Corn Growers Association
- American Council for an Energy Efficient Economy (ACEEE)
- American Council on Renewable Energy (ACORE)
- American Electric Power Company
- American Forest and Paper Association
- American Gas Association
- American Iron and Steel Institute
- American Petroleum Institute
- American Plastics Council
- American Public Power Administration
- American Public Power Association
- American Society of Heating, Refrigerating and Air-Conditioning Engineers

- American Solar Energy Society
- American Trucking Association
- American Wind Energy Association
- Americans for Clean Energy
- Amonix, Inc.
- American Council for an Energy-Efficient Economy
- APCI
- APS
- Arizona Dept. of Commerce
- Arizona Public Service Company
- Aspen Systems
- Association of Higher Education Facilities Officers
- Association of Energy Engineers
- Association of Home Appliance Manufacturers
- Association of School Business Officials
- Austin Energy
- BEW Engineering
- Bioenergy Association
- Birk Nanotechnology Center
- Bob Lawrence and Associates
- Bonneville Environmental Foundation
- BP America, Inc.
- BP Renewables & Alternatives
- BP Solar International
- Business Council for Sustainable Energy
- California Department of Community Services & Development
- California Energy Commission
- California Institute of Technology
- Carnegie Mellon University
- Cascade Associates
- CASE
- Center for Clean Air Policy
- Chevron Texaco
- Chevron Texaco Policy, Government and Public Affairs
- Chrysler LLC

- Clean Fuels Development Coalition
- Climate Institute
- CNMI, Department of Public Works
- Coherent
- Colorado State University
- Con Edison Solutions
- Concentrating Technologies, LLC
- ConocoPhillips Company
- Conservation International
- Consortium for Energy Efficiency
- Consumer Alert
- Consumer Federation of America
- Corning Incorporated
- Council of Industrial Boiler Owners
- Council on Superconductivity for American Competitiveness
- Davis Energy Group, Inc.
- Davis, Joseph & Negley
- DayStar Technologies
- DC Energy Office
- Department of Physics, Fisk University
- Dow Corning Corporation
- Eastman Chemical Company
- Edison Electric Institute
- Edtek, Inc.
- Electric Drive Transportation Association
- Electric Vehicle Association
- Emcore Corporation
- Energy and Environmental Building Association
- Energy and Security Group
- Energy Conversion Devices, Inc.
- Energy Future Coalition
- Energy Laboratories, Inc.
- Energy Market & Policy Analysis, Inc.
- Energy Masters International, Inc.
- Energy Photovoltaics, Inc.

- Energy Storage Association
- Engine Manufacturer's Association
- Environmental and Energy Study Institute
- Environmental Council of the States
- Environmental Defense Fund
- Environmental Federal Solutions, Inc.
- Environmental Law and Policy Center
- EPRI/California Energy Commission/E21
- EUA Cogenex Corporation
- Evergreen Solar
- Export Council for Energy Efficiency
- ExxonMobil
- FAFCO, Inc.
- Federal Trade Commission
- First Solar, LLC
- FLEXcon
- Florida Solar Energy Center
- Ford Motor Company
- FPL Energy, Inc.
- Friends of the Earth
- Gas Appliance Manufacturers Association, Inc.
- Gas Turbine Association
- GE Energy, Solar Technologies
- GE Global Research
- GE, KWC 1603
- General Motors Corporation
- Georgia Institute of Technology (Georgia Tech)
- Geothermal Energy Association
- Geothermal Heat Pump Consortium, Inc.
- Geothermal Resources Association
- Geothermal Resources Council
- Glass Magazine
- Global Biorefineries, Inc.
- Global Photonic Energy Corporation
- Global Solar Energy, Inc.

- Greening America
- Greenpeace
- Hawaii Department of Business, Economic Development & Tourism
- Hawaii Office of Community Services, Department of Labor & Industrial Relations
- Hawaiian Electric Company
- Hearth Products Association
- Hearth, Patio and Barbecue Association
- HEC Inc.
- Hewlett Packard
- Honeywell, Inc.
- Idaho Department of Health & Welfare, Bureau of Benefit Program Operations
- Idaho Department of Water Resources
- Illuminating Engineering Society of North America
- Industrial Solar Technology
- Information Technology Industry Council
- Institute of Energy Conversion, University of Delaware
- International Code Council
- International Fund for Renewable Energy & Energy Efficiency
- International Utility Efficiency Partnership, Inc. (IUEP)
- InterState Renewable Energy Council
- Inter-Tribal Council of Arizona, Inc.
- Ion Optics Inc.
- Iowa State University
- ISET
- ITN Energy Systems, Inc.
- Johnson Controls, Inc.
- JX Crystals Inc.
- Kearney & Associates
- KJC Operating Company
- Kramer Junction Company
- LightSpin Technologies, Inc.
- Manager, Technology Planning
- Manufacturers of Emission Controls Association
- Maryland Energy Administration

- Massachusetts Institute of Technology (MIT)
- Maytag Corporation
- MC Research & Innovation Center Inc.
- Miasole
- Midwest Energy Efficiency Alliance
- Midwest Research Institute
- Morse Associates
- MV Systems Inc.
- NABCEP
- Nagle Pumps, Inc.
- NASA Glenn Research Center/OAI
- National Association of Home Builders (NAHB)
- National Association of State Universities and Land-Grant Colleges
- National Association Energy Service Companies
- National Association for State Community Services Programs
- National Association of College and University Business Officers
- National Association of Counties
- National Association of Energy Service Companies (NAESCO)
- National Association of Environmental Law Society
- National Association of Home Builders
- National Association of Home Builders Research Center
- National Association of State Energy Officials
- National Audubon Society
- National BioEnergy Industries Association
- National Community Action Foundation
- National Concrete Manufacturers Association
- National Conference of State Legislatures
- National Conference of States on Building Codes and Standards
- National Electrical Manufacturers Association
- National Energy Education Development Project
- National Energy Foundation
- National Fenestration Rating Council
- National Governors Association
- National Governors Association Center for Best Practices
- National Hydropower Association

- National Institute of Building Sciences
- National Mining Association
- National Resources Defense Council
- National Rural Electric Cooperatives Association
- National School Boards Association
- National Wildlife Federation
- National Wind Coordinating Committee
- Natural Gas Vehicle Coalition
- Natural Resources Defense Council
- Navajo Nation Housing Services Department, Division of Community Development
- Nevada Housing Division
- Nevada State Office of Energy
- New Mexico State University
- Nexant, A Bechtel Technology and Consulting Company
- NORESCO
- North American Insulation Manufacturers Association
- North Carolina A&T State University
- North Carolina State University, Materials Science and Engineering
- Northeast Energy Efficiency Partnership
- Northwestern University Department of Materials Science and Engineering
- Northwest Energy Efficiency Alliance
- Oregon Department of Energy
- Oregon Department of Housing & Community Services
- Oregon Institute of Technology, Geo Heat Center
- Oregon State University
- ORMAT International, Inc.
- Oshkosh Truck Corporation
- PACCAR
- Pacific Northwest National Laboratory (PNNL)
- Palo Alto Research Center
- Paneltec Corporation
- Pennsylvania State University (Penn State)
- PEW
- Plug Power Inc.
- Polyisocyanurate Insulation Manufacturers Association

- Portland Cement Association
- Potomac Electric and Power Company
- Potomac Resources, Inc.
- PowerLight Corporation
- PowerMark Corp.
- Purdue University
- PV Energy Systems
- Reflective Enterprise
- Renewable Fuels Association
- RTS Corporation
- RWE SCHOTT Solar Inc.
- Safe Energy Communication Council
- Salt River Project
- Sargent & Lundy
- SatCon Technology Corp.
- SCHOTT North America, Inc.
- Science Applications International Corporation (Technology Development Laboratories)
- Sempura Energy Solutions
- Shell Hydrogen BV
- Shell Oil Products US
- Shell Solar, LLP
- Siebe Government Services
- Sierra Club
- Sinton Consulting, Inc
- Society of Building Science Educators
- Solar Electric Power Association & National Hydrogen Association
- Solar Energy Industries Association (SEIA)
- Solar One Solution
- Solar Rating & Certification Corporation
- Solar Today
- Solar Turbines Inc.
- SOLARGENIX ENERGY, LLC
- Solel Solar Systems Ltd.
- South Dakota State University
- Southern California Edison

- Southwest Energy Efficiency Project
- Spectrolab, Inc.
- Spencer Management Associates
- Spire Corporation
- SRS
- Steel Manufacturers Association
- Steven Winter Associates
- STM Corporation
- STR
- SUN DAY Campaign
- SunPower Corporation
- Sunray Energy, Inc.
- Sustainable Buildings Industry Council
- Syracuse University
- Territorial Energy Office, Office of the Governor
- Territory of Guam, Guam Energy Office
- Texas Tech University
- The Alliance to Save Energy
- The Aluminum Association
- The American Institute of Architects
- The Boeing Company
- The Council of Educational Facility Planners International
- The Energy Foundation
- The National Association of Counties (NACO)
- The Nature Conservancy
- The Ohio State University, Department of Electrical and Computer Engineering
- The Pew Charitable Trusts
- The Stellar Group
- The Trane Company
- The U.S. Conference of Mayors
- The Vinyl Institute
- Thermacore, Inc.
- Thermal Conversion Technology
- Thomas Lord Professor of Materials Science & Engineering
- U.S. Association for Renewable Energy & Efficiency Development

- U.S. Export Council for Renewable Energy
- U.S. Green Building Council
- UltraDots, Inc.
- Union of Concerned Scientists
- Uni-Solar
- Unisun
- United Innovations, Inc.
- United Solar Ovonic Corporation
- United Technologies Corporation
- University of California
- University of California at Berkeley (UC Berkeley)
- University of Connecticut Institute of Materials Science
- University of Delaware
- University of Florida
- University of Minnesota
- University of North Texas
- University of Oregon
- University of South Florida
- University of Texas at El Paso
- University of Toledo
- University of Utah
- University of Wisconsin
- U.S. Department of Agriculture, Forest Service, Special Uses Program
- U.S. Department of Agriculture, Office of Rural Development-Rural Business Programs
- U.S. Department of the Interior, Bureau of Land Management
- U.S. Green Building Council
- Utility Photovoltaic Group & National Hydrogen Association
- Utility Wind Interest Group
- Virginia Power
- Washington Department of Commerce, Trade & Economic Development
- Washington Gas
- Washington Office of Community Development, Housing Division
- Waterman & Associates
- Western Renewables Group
- WG Associates

- World Wildlife Fund
- World Resources Institute
- World Watch Institute
- WSU Energy Programs
- Xantrex Technology Inc.

1.2.15 Legislative Relationships

Congressional Committees

EERE receives appropriations from the Energy and Water Development Appropriations Subcommittee. EERE is within the jurisdiction of the following congressional authorizing committees: Senate Energy and Natural Resources, House Science (all research, development, and selected deployment activities), and House Energy and Commerce Committee (SEP, WAP, FEMP, and selected deployment activities).

Key Members In 2007

Appropriations Committee / Subcommittees

- Senator Robert C. Byrd (D-WV), Chairman, full Senate Appropriations Committee
- Senator Thad Cochran (R-MS), Ranking Member, full Senate Appropriations Committee
- Senator Byron Dorgan, (D-ND), Chairman, Senate Energy and Water Development Subcommittee
- Senator Pete V. Domenici, (R-NM), Ranking Member, Senate Energy and Water Development Subcommittee
- Representative David R. Obey (D-WI), Chairman of the full House Appropriations Committee
- Representative Jerry Lewis, (R-CA), Ranking Member of the full House Appropriations Committee.
- Representative Peter J. Visclosky (D-IN), Chairman of the Energy and Water Development and Related Agencies Subcommittee
- Representative David L. Hobson (R-OH), Ranking Member of the Energy and Water Development and Related Agencies Subcommittee

Authorizing Committees

- Senator Jeff Bingaman (D-NM), Chairman, Senate Energy and Natural Resources Committee
- Senator Pete V. Domenici (R-NM), Ranking Member, Senate Energy and Natural Resources Committee
- Representative Bart Gordon (D-TN), Chairman, House Committee on Science and Technology
- Representative Ralph M. Hall (R-TX), Ranking Member, House Committee on Science and Technology
- Representative John D. Dingell (D-MI), Chairman, House Committee on Energy and Commerce
- Representative Joe Barton (R-TX), Ranking Member, House Committee on Energy and Commerce

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The U.S. House of Representatives Committee on Energy and Commerce homepage may be accessed at: http://energycommerce.house.gov/

Statutory Underpinnings

Additional information regarding the Statutory Underpinnings discussed earlier in this chapter can be viewed by following the links that appear below.

Solar Energy Research, Development, and Demonstration Act of 1974, as Amended:

http://uscode.house.gov/download/pls/42C71.txt

Federal Energy Administration Act of 1974, as Amended:

http://uscode.house.gov/download/pls/15C16B.txt

Nonnuclear Energy Research and Development Act of 1974, as Amended:

http://uscode.house.gov/download/pls/42C74.txt

Energy Policy and Conservation Act (EPCA), as Amended:

Link currently unavailable.

Energy Conservation and Production Act (ECPA), as Amended:

Link currently unavailable.

Electric and Hybrid Vehicle Research Development and Demonstration Act of 1976, as Amended:

http://uscode.house.gov/download/pls/15C52.txt

Department of Energy Organization Act (1977), and Amendments:

http://uscode.house.gov/download/pls/42C84.txt

National Energy Conservation Policy Act (NECPA) and Federal Photovoltaic Utilization Act, as Amended:

Link currently unavailable.

Powerplant and Industrial Fuel Use Act of 1978, as Amended:

http://uscode.house.gov/download/pls/42C92.txt

Energy Tax Act of 1978, as Amended:

Link currently unavailable.

Methane Transportation Research Development and Demonstration Act of 1980, as Amended:

http://uscode.house.gov/download/pls/15C64.txt

National Appliance Energy Conservation Act of 1987:

Link currently unavailable.

Renewable Energy and Energy Efficiency Technology Competitiveness Act of 1989, as Amended:

http://uscode.house.gov/download/pls/42C125.txt

Clean Air Act Amendments of 1990, as Amended:

Link currently unavailable.

Global Change Research Act of 1990:

http://uscode.house.gov/download/pls/15C56A.txt

Department of Energy Metal Casting Competitiveness Research Act of 1990, as Amended:

http://uscode.house.gov/download/pls/15C79.txt

Solar Wind, Waste, and Geothermal Power Production Incentives Act of 1990:

http://thomas.loc.gov/cgi-bin/query/z?c101:H.R.4808

Energy Policy Act of 1992, as Amended:

http://thomas.loc.gov/cgi-bin/query/z?c102:H.R.776.ENR

National Climate Program Act, as Amended:

http://epw.senate.gov/ncpa.pdf

Hydrogen Future Act of 1996, as Amended:

http://www.er.doe.gov/bes/Hydrogen_Future_Act_of_1996_PL-104-271_09OCT96.pdf

EPAct 2005:

http://www.doi.gov/iepa/EnergyPolicyActof2005.pdf