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Mr. Chairman and Members of the Committee, thank you for this opportunity to testify on the President's Fiscal Year (FY) 2008 budget request for the Office of Energy Efficiency and Renewable Energy (EERE).

The President's FY 2008 budget request includes $1.24 billion for EERE, approximately $60 million (five percent) more than the FY 2007 request to Congress. To be clear, my testimony today on the FY 2008 budget request is presented in comparison to the Administration's FY 2007 request -- not the final amounts appropriated in the 2007 Continuing Resolution (CR). In accordance with the terms of the 2007 CR, the Department of Energy (DOE) is in the process of preparing an operating plan for submittal to Congress. EERE received an increase in funding under the CR, and I am grateful to Congress for its strong commitment to energy efficiency and renewable energy programs.

The FY 2008 budget request addresses pressing energy and environmental challenges facing our country today by accelerating the development of both renewable energy technologies to increase the amount of clean energy produced in the United States and advanced energy efficient technologies, standards, and practices that use less energy. Much of EERE's funding is an integral part of the President's Advanced Energy Initiative (AEI), launched in 2006 to confront our addiction to oil, lessen dependence on foreign resources, and reduce emissions by developing clean sources of electricity generation. Together, new technologies can help change the way we power our homes, businesses, and automobiles.

In his 2007 State of the Union address, the President raised the bar by seeking legislative action for our country to reduce gasoline consumption by 20 percent in the next 10 years, the "20 in 10" plan. The FY 2008 budget request increases funding for programs that may help the nation achieve the "20 in 10" goal, including, for example, biomass/biofuels R&D that may help to expand the availability of alternative transportation fuels.

EERE's applied science R&D contributes to the foundation for transforming the Nation's energy options and energy use. For example, one of this year's R&D 100 awards went to the Department's Idaho National Laboratory for its work with Xtreme Xylanase, an enzyme produced by bacteria found in the hot, acidic waters of Yellowstone National Park. Work on Xtreme Xylanase was funded in part by EERE's Biomass Program. The metabolic versatility of this enzyme (it breaks down cellulose and hemicellulose over a broad range of temperatures and acidic pH conditions) could help make cellulosic ethanol more efficiently and economically. In the field of solar energy, a new world-record 40 percent efficient concentrating photovoltaic solar cell was developed as a result of collaboration between DOE, the National Renewable Energy Laboratory, and Spectrolab. For general lighting applications with solid-state lighting, Cree, Inc., with DOE R&D funding, has released the new XLamp® 7090 power white light-emitting diode (LED), setting a world record for LED brightness and efficacy (at 85 lumens/Watt) in a power chip.

It is essential, however, that, we work not only to accelerate R&D for new energy technologies, but address the accelerated adoption of technologies into commercial products that are widely available at reasonable cost to all Americans. Thus, in addition to its historical role of leading Federal applied science on emerging technologies, EERE is taking aggressive steps to catalyze the rapid commercialization and deployment of critical energy advances through innovative partnerships and collaboration with lenders and investment groups, the States, and industry leaders. We seek to help enable and accelerate market transformation toward the use of more efficient and cleaner technologies.

EERE's overall budget request reflects the funding needed to meet our goals. The following EERE programs target and support sectors of energy use and supply that will help lead our Nation to a secure energy future:

BIOMASS AND BIOREFINERY SYSTEMS R&D

The FY 2008 budget request for Biomass and Biorefinery Systems R&D is $179.3 million, an increase of $29.6 million, almost 20 percent above the FY 2007 request. This proposed funding increase reflects the essential role of the Biofuels Initiative in increasing America's energy security. Biomass is the most viable renewable option for producing liquid transportation fuels in the near term, with the potential to help reduce our dependence on imported oil.

The focus of the program is to make cellulosic ethanol cost-competitive by 2012. EERE will continue in FY 2008 to support its cost-share efforts with industry to develop and demonstrate technologies to enable cellulosic biorefineries for the production of transportation fuels and co-products. The FY 2008 funding increase also supports the validation of advancing biomass conversion technologies and feedstocks in biorefineries at approximately 10 percent of commercial scale. This effort enables industry to resolve remaining technical and process integration uncertainties for the "next generation" of biorefinery process technologies being examined at a significant, but less-costly scale.

Ultimately, 10-percent scale demonstrations have the potential to reduce the overall cost and risk to industry along with improving the likelihood of obtaining financing for commercial-scale facilities.

The FY 2008 funding increase will also support EERE cost-shared projects with industry for enzyme development for producing low cost sugars from biomass and for improved organism development or "ethanologen" for converting those sugars to ethanol. These two industry cost-share projects address major barriers to meeting the 2012 cost goal. Overall knowledge gained from Section 932 projects, 10 percent validation scale projects, enzyme development, and ethanologen R&D, combined with other key R&D activities, should accelerate industry's ability to produce cost-competitive cellulosic ethanol.

To address biomass resource availability and feedstock infrastructure to reduce the cost and improve the storage of delivered biomass in different geographical areas of the U.S., EERE will continue to support the Regional Feedstock Partnership work with the U.S. Department of Agriculture (USDA) and land grant colleges. These partnerships will help identify the regional biomass supply, growth, and biorefinery development opportunities.

In order to capture and coordinate Federal-wide activities supporting the President's goal, the Biomass Program is developing a National Biofuels Action Plan commissioned through the Biomass Research and Development Initiative. The Biomass Program will also establish the framework for an ethanol reverse auction in accordance with Section 942 of EPACT 2005. The auction will award incentives on a per gallon basis of cellulosic biofuels produced.

VEHICLE TECHNOLOGIES PROGRAM

In FY 2008, the Department is requesting $176.1 million for the Vehicle Technologies Program to advance development of increasingly more energy-efficient and environmentally friendly, flexible platform technologies for cars and trucks that will use significantly less oil and enable the auto industry to comply with reformed CAFE standards. This request is $10.1 million higher than the FY 2007 request, and will advance the state of the art for energy storage batteries, power electronics and motors, and the hybrid drive systems and testing needed to accelerate manufacturing viability and delivery of plug-in hybrid electric vehicles.

Activities in the Vehicle Technologies Program contribute to two cooperative government/industry activities: the *FreedomCAR and Fuel Partnership* (where CAR stands for Cooperative Automotive Research) and the *21st Century Truck Partnership*. The *FreedomCAR and Fuel Partnership* is a collaborative effort among the U.S. Council for Automotive Research (USCAR – representing the three domestic automobile manufacturers), five energy suppliers, and DOE for cooperative, pre-competitive research on advanced automotive technologies having significant potential to reduce oil consumption. The *21st Century Truck Partnership* focuses on commercial vehicles. The partnership involves key members of the commercial vehicle industry, (truck equipment

manufacturers and engine manufacturers) along with three other Federal agencies. The R&D centers on improving advanced combustion engine systems and fuels and on reducing vehicle parasitic losses, meaning frictional and aerodynamic losses, extra loads like air conditioning, and other vehicle inefficiencies that increase fuel consumption.

Vehicle Technologies Program activities that support the goals of the *FreedomCAR and Fuel Partnership* focus on high-efficiency and flexible platform vehicle technologies such as advanced combustion engines and their enabling fuels, hybrid vehicle systems (including plug-in hybrids), high-power and high-energy batteries, lightweight materials, and power electronics. These technologies could lead to substantial oil savings if adopted by industry participants and included in their manufacturing plans.

The FreedomCAR goals include reducing the volume production cost of a high-power 25kW battery for use in hybrid passenger vehicles from $3000 in 1998 to $500 by 2010. In 2006 we projected through the modeling of research data that lithium ion battery cost could be reduced to $750 per 25 kW battery system when produced in mass quantities. This year's request increases the emphasis on plug-in hybrid vehicle component technologies. Cited by the President as a key part of the strategy for reducing America's dependence on oil, these technologies offer the potential to make significant additional improvements in petroleum reduction beyond that achievable with standard hybrid configurations.

Combustion engine efficiency has made good progress over the past three years (2004-2006), with our R&D increasing the efficiency of light-duty passenger vehicle diesel engines from 35 to 41 percent. This means that if manufacturers were to produce these more efficient engines, a car that previously got the CAFE average of 27 miles per gallon on gasoline could potentially get 37 miles per gallon with an advanced, clean diesel. In FY 2008, we expect to reach 43 percent efficiency for passenger vehicle diesel engines, approaching the 2010 goal of 45 percent. These advanced combustion engines have the potential to achieve the efficiency goals for cars and trucks while maintaining cost and durability with near-zero emissions. Battery technologies have also made significant progress toward program goals, having reduced the cost of next-generation hybrid vehicle batteries in each of the past three years, from almost $1,200 per vehicle at the beginning of FY 2004 to $750 at the end of FY 2006. In FY 2008, we expect to bring that down to $625 per vehicle, and to increase our emphasis on batteries specifically optimized for plug-in hybrid vehicles to have battery technology ready by 2014 that will enable automobile manufacturers to economically produce competitive plug-in hybrid vehicles having a 40 mile all-electric range.

R&D programs will also continue to accelerate materials research directed at light, strong vehicle structures to enable the production of lighter vehicles that could result in higher efficiency fleets, and to develop thermoelectric materials for efficient energy recovery from heat. Other activities will focus on expanding efforts to promote the adoption and use of petroleum-reducing fuels, technologies, and practices, principally by working with industry partners, fuel providers, Clean Cities coalitions and their stakeholders, and end-

users on activities ranging from using more alternative fuel vehicles and renewable fuel blends to driving smarter, minimizing wasteful idle time, and purchasing vehicles that get better fuel economy. Accordingly, the Vehicle Technologies Deployment budget request (including Clean Cities) will increase by over 100 percent relative to the FY 2007 request.

HYDROGEN TECHNOLOGY PROGRAM

Hydrogen is an important element of our Nation's long-term strategy for energy security and environmental stewardship. It could enhance our energy security by providing a transportation fuel that may be produced from a variety of domestic resources; and it should serve our environmental interests by allowing vehicles to operate using fuel cells, without generating any tailpipe emissions. The Department's research is focused on pathways that produce and deliver hydrogen from diverse origins including emission-free nuclear, and renewable resources.

The President's $309 million FY 2008 budget request for DOE for the Hydrogen Fuel Initiative fulfills his commitment of $1.2 billion over five years. The portion of this under our purview in EERE is $213 million, which reflects a $17.2 million increase over the FY 2007 budget request. The proposed increase will accelerate and expand efforts to research and develop hydrogen-storage systems to improve performance, and fuel cell materials and components to reduce their cost, and improve durability. It will also support accelerating cost reduction of renewable hydrogen production technologies as well as critical delivery technologies.

Much progress has been made since the announcement of the Hydrogen Fuel Initiative in 2003. The research has reduced the high-volume cost of automotive fuel cells from $275 per kilowatt in 2002 to $107 per kilowatt in 2006—a major step towards the ultimate cost target of $30 per kilowatt. In FY 2008, we will continue projects on fuel cell catalysts and membranes, and cold-weather start-up and operation. In addition to reducing cost and improving performance, this work will help us achieve our 2010 durability target of 5,000 hours, which should enable a vehicle lifetime of 150,000 miles.

We have also achieved our 2006 hydrogen cost goal of $3 per gasoline-gallon-equivalent for hydrogen produced by distributed reforming of natural gas, a potentially economical early market pathway. Our research will sharpen its focus to meet the same objective through renewable pathways—including reforming of bio-derived liquids and electrolysis. We are also working with the Department's Offices of Nuclear Energy, Fossil Energy, and Science to develop nuclear-based hydrogen production, hydrogen from coal—exclusively with carbon sequestration—and longer-term biological and photoelectrochemical hydrogen production pathways.

Our diverse hydrogen-storage portfolio is also showing promising results, with innovative materials being developed in areas such as metal hydrides, chemical hydrides, and carbon-based materials. Research conducted at our "Centers of Excellence," and by independent projects, has continued to increase material storage capacity. Substantial

breakthroughs are required to reach our goal of providing consumers with enough storage for a 300-mile driving range, without compromising a vehicle's interior space.

Developing hydrogen technologies that can be manufactured domestically will also improve our economic competitiveness. Our manufacturing R&D effort addresses the need for high-volume fabrication processes for fuel cells and many other components, which are all currently built one-at-a-time. This is essential to lowering the cost of these technologies, and to developing a domestic supplier base.

In addition to these R&D activities, we are addressing other challenges significant to realizing the benefits of hydrogen fuel cells. Our Technology Validation Program has brought together teams of automobile manufacturers and energy companies to operate and evaluate fuel cell vehicles and hydrogen stations under real-world conditions. To date, the program has placed 69 fuel cell vehicles on the road, served by 10 hydrogen fueling stations.

Furthermore, we are working to ensure safe practices, and—through support of existing codes and standards development organizations—we are laying the groundwork for developing technically sound codes and standards, which are essential to implementing hydrogen technologies.

Finally, our education activities focus on overcoming the knowledge barriers inherent in the introduction of new technology. Last month, we released a multimedia web-based course that introduces hydrogen to first responders. In the coming year, we will continue to expand the availability of training and conduct outreach to raise awareness of the technology.

The effects of the Department's broad-based efforts in the Hydrogen Program are being seen nationwide, and progress has been substantial. Investments are not only occurring at the Federal level, but also at state and local levels. These diverse investments increase our probability of success in overcoming existing technological barriers, which will allow industry to make fuel cell vehicles that customers will want to buy, and encourage investment in a hydrogen refueling infrastructure that is profitable.

SOLAR ENERGY PROGRAM

The Solar Energy Program sponsors research, development, and deployment of solar energy technologies and systems that can help our Nation meet electricity needs and reduce the stress on our electricity infrastructure. Through the Solar America Initiative (SAI), the Solar Program aims to accelerate the market competitiveness of solar electricity as industry-led teams compete to deliver solar systems that are less expensive, more efficient, and highly reliable. The Solar Program supports three technology areas: photovoltaics (PV), concentrating solar power (CSP), and solar heating and lighting. The FY 2008 budget request for Solar Energy is $148.3 million, a level that is nearly twice the enacted FY 2006 level.

To lower costs more rapidly and improve performance, the Department's PV R&D, budgeted in FY 2008 at $137.3 million, focuses on those technology pathways that have

the greatest potential to reach cost-competitiveness and grid parity by or before 2015. Industry-led partnerships with universities, state groups and National Laboratories, known as "Technology Pathway Partnerships," will continue in FY 2008 to address the issues of cost, performance, and reliability associated with each pathway. Work on PV modules, the heart of PV systems, will be conducted, as well as other "balance-of-system" components.

To catalyze market transformation, DOE will promote the expansion of the solar marketplace by seizing opportunities for growth and by lowering barriers to entry. The Department will provide technical outreach to States and utilities, continue pressing work on codes and standards issues, and solicit new applications for its Solar America Cities activity. These market transformation activities help pave the way for technologies developed by our industry partnerships to enter the marketplace.

We will emphasize the importance of interconnection standard procedures and net metering regulations that are designed to accommodate solar and other clean distributed energy systems. A precondition for large-scale solar market penetration in America is to have the proper means for homeowners and businesses to connect solar systems to the grid, as well as to be paid for excess electricity they feed back into the grid. We are working with our colleagues in the Department's Office of Electricity Delivery and Energy Reliability to develop "best practice" recommendations for States to use as they undertake consideration of interconnection procedures and net metering regulations and make implementation decisions pursuant to Sections 1251 and 1254 of EPACT 2005. FY 2008 funding will also be used to offer technical outreach to States and utilities to enhance solar connectivity issues.

Work will continue on the multi-year solicitations launched in FY 2007 that promote adoption of market-ready solar technologies and a new effort will support benchmarking, modeling, and analysis for the systems driven approach, and market, value and policy analysis needed to support the SAI. EERE's PV activities are increasingly coordinated and when possible convergent with solar energy activities in the Building Technologies and the Federal Energy Management programs, and the research activities of the DOE Office of Science.

The FY 2008 budget request for CSP – systems that utilize heat generated by concentrating and absorbing the sun's energy to drive a heat engine/generator to produce electric power – is $9.0 million. The development of advanced thermal energy storage technologies will be expanded, along with continued support to develop next generation parabolic trough concentrators, solar engines, and receivers. For distributed applications, research will focus on improving the reliability of dish systems through the operation and testing of multiple units. Technical assistance will be provided to industry in its development of a 1.0 MW dish system in California that is expected to be the precursor of several much larger plants. Technical support will also be provided to the Western Governors' Association and several southwestern utilities to assist their CSP deployment activities.

The Solar Heating and Lighting program, a $2.0 million request, will focus on R&D to reduce the cost of solar heating in freezing climates. The program will also support collaboration with EERE's Building Technologies programs to integrate photovoltaic systems, solar water heating, and solar space heating into home design and structure. Such deployment efforts will help to seize market expansion opportunities.

BUILDING TECHNOLOGIES PROGRAM

Energy use by residential and commercial buildings accounts for over one-third of the Nation's total energy consumption, including two-thirds of the electricity generated in the United States. Addressing that significant sector of energy consumption, the $86.5 million requested this year for the Building Technologies Program represents a $9.1 million increase of 12 percent over the FY 2007 request. The funding supports a portfolio of activities that includes solid state lighting, improved energy efficiency of other building components and equipment and their effective integration using whole-building-system design technique, the development of codes and standards for buildings and appliances, and education and market introduction programs, including ENERGY STAR and EnergySmart Schools.

Funding for Residential Buildings Integration aims to enable residential buildings to use up to 70 percent less energy, and to integrate renewable energy systems into highly efficient buildings to achieve the long-term goal in 2020 of net Zero Energy Buildings – houses that produce as much energy as they use on an annual basis. During FY 2008, research for production-ready new residential buildings that are 40 percent more efficient will continue for four climate zones.

The $19.3 million request for solid state lighting will advance development of the organic and inorganic LEDs that has the potential to double the efficiency of fluorescent lighting technology. The FY 2008 requested funding will be used to develop general illumination technologies with the goal of achieving energy efficiencies of up to 93 lumens per Watt with improved visual comfort and quality of light and focus on applied research that enables the industrial base to manufacture LEDs.

The FY 2008 request reflects the Department's commitment to clear the backlog of equipment standards and test procedures that had accumulated in the prior 12 years and meet the statutory schedule for rulemakings for new products covered by EPACT 2005. The Department will continue to implement productivity enhancements that will allow multiple rulemaking activities to proceed simultaneously, while maintaining the rigorous technical and economic analysis required by statute.

Funds for the Building Technologies Program will also support development of highly insulating and dynamic window technologies and integrated attic-roof systems needed to achieve long-term zero energy building goals. Efforts to accelerate the adoption of efficient building technologies by consumers and businesses include expanded ENERGY STAR specifications and labels for more products, promotion of advanced building

efficiency codes, and public-private partnerships to advance efficient schools, hospitals, commercial lighting, and home building.

FEDERAL ENERGY MANAGEMENT PROGRAM

The Federal Energy Management Program (FEMP) assists Federal agencies, including DOE, in increasing their use of energy efficiency and renewable energy technologies through alternative financing contract support and technical assistance, and coordinates Federal reporting and evaluation of agency progress each year. As the single largest energy consumer in the U.S., the Federal government must set an example and lead the Nation toward becoming a cleaner, more efficient consumer by using existing energy efficiency and renewable energy technologies and techniques. On January 24, 2007, President Bush signed a new Executive Order to strengthen the environmental, energy, and transportation management of Federal agencies which includes a requirement for agencies to reduce their energy intensity by three percent each year until 2015, compared with a 2003 baseline.

The FY 2008 request for FEMP is $16.8 million, a slight decrease of $0.1 million from the FY 2007 request. We are requesting $7.9 million for FEMP alternative financing programs that help agencies access private sector financing to fund energy improvements without the use of current appropriations. We expect to achieve not less than $160 million in private sector investment through Super ESPCs, Energy Savings Performance Contracts, and Utility Energy Service Contracts (UESCs), which will result in about 15 trillion Btus in energy saved over the lifecycle of the projects. Furthermore, we are requesting $6.5 million for Technical Guidance and Assistance to help Federal energy managers identify, design, and implement new construction and facility improvement projects that incorporate energy efficiency and renewable energy. FEMP will assist Federal agencies in meeting the increased energy efficiency goals, established by the new Executive Order, by orienting its Technical Guidance and Assistance, Training, and Outreach activities towards attracting private-sector financing for investment into energy efficiency at Federal facilities. In addition to the focus on facility energy consumption, FEMP also tracks alternative fuel use in Federal vehicle fleets.

In FY 2008, the Departmental Energy Management Program (DEMP) is being discontinued. FEMP will still provide policy guidance and technical assistance to the Department, but DOE has determined that the management of energy efficiency and renewable investments at its facilities can be more effectively conducted by those facilities. While not reported separately, DOE national labs and other facilities spend significant funding (direct and indirect) on energy efficiency improvements, while also using ESPCs and UESCs where appropriate.

WIND ENERGY PROGRAM

The Wind Program focuses on reducing wind power costs and removing barriers to resource utilization of wind energy technology in the United States. The program's FY 2008 request is $40.1 million.

As a result of thirty years of R&D, wind turbines can now provide cost-effective, reliable clean energy in high wind speed areas. While we will continue to do R&D to improve wind energy technologies in low wind speed areas, we are also focusing on near-term actions to remove existing barriers to increasing the use of wind energy, building on the current robust market for wind energy in the U.S. These efforts could help to set the path for the wind industry to accelerate its penetration of delivered emission-free energy, significantly expanding beyond the roughly one percent of installed electrical generating capacity today.

The program is expanding application and deployment-related activities. The $12.9 million requested for Systems Integration and Technology Acceptance will help wind technologies entering the market to overcome key obstacles such as grid integration, siting, permitting, and environmental barriers. In addition, there will be increased support to address issues of pre-competitive turbine reliability and performance via efforts of National Laboratories and Cooperative Research and Development Agreements or "CRADAs" with industry. The Wind Program will also establish a Federal interagency siting group to minimize regulatory delays on wind projects.

The Wind Program is funding a broader effort on distributed wind technologies and applications to advance the full scope of diverse opportunities for wind energy on the distribution side of the electric power system.

A U.S. wind industry-wide roadmapping analysis, being supported by the DOE wind program, is underway to determine the technical feasibility for wind energy to generate 20 percent of our Nation's electricity. To achieve this vision it would require grid modernization, expansion, and integration, and removal of other deployment barriers. Success would enable delivery of more than 300 gigawatts of new, clean, affordable, and domestic production capacity to our urban load centers and be a substantial contributor to economic growth, manufacturing, and rural prosperity. EERE will work with DOE's Office of Electricity Delivery and Energy Reliability on several studies aimed at expanding electricity transmission between remote wind resources and urban areas.

WEATHERIZATION AND INTERGOVERNMENTAL PROGRAM

In FY 2008, we are requesting $204.9 million for Weatherization and Intergovernmental Activities, a $20.1 million decrease from the FY 2007 request. The reduction is primarily related to the decrease in the amounts requested for the Weatherization Assistance Program, which will enable greater investments in advanced R&D within the EERE portfolio to address national priorities: reducing dependence on foreign oil, accelerating

the development of clean, emission-free electricity supply options, and developing highly efficient new technologies, products, and practices for our homes and buildings.

The requested $144 million for the Weatherization Assistance Program will fund energy efficiency audits and upgrades for at least 54,599 low-income homes. DOE works directly with States and certain Native American Tribes that contract with local governmental or non-profit agencies to deliver weatherization services to homes in need of energy assistance.

The $45.5 million requested for the State Energy Program provides financial and technical assistance to State governments, enabling them to target their high priority energy needs and expand clean energy choices for their citizens and businesses. This request includes $10.5 million for a competitive solicitation that will seek regional and state partnerships to replicate smart energy policies and programs among States. The regional context is outlined in EPACT and aligns with our electricity transmission infrastructure.

Clean electricity generation is targeted by the Renewable Energy Production Initiative, which provides financial incentive payment to public and Tribal utilities and not-for-profit electric cooperatives for renewable generation systems that use solar, wind, geothermal, or biomass technologies. The Tribal Energy Program aims to facilitate the installation of 100 MW of renewable energy generation by Native American tribes by 2010.

The Asia Pacific Partnership (APP) for Clean Development and Climate requests funding at the $7.5 million level. This international partnership is an important and innovative accord to accelerate the development and deployment of clean energy technologies among the six member countries: Australia, China, India, Japan, South Korea, and the United States. Representing about half of the world's economy, population, energy use, and emissions, the six countries have agreed to work together and with private sector partners to set and meet goals for energy security, national air pollution reduction, and global warming, employing policies and practices that promote sustainable economic growth and poverty reduction, while addressing the serious challenge of climate change.

INDUSTRIAL TECHNOLOGIES PROGRAM

Industry consumes more energy than the residential, commercial, and transportation end-use sectors, and it is also the Nation’s second largest emitter of CO_2. Advancements in industrial energy-efficient technology could improve U.S. competitiveness, and contribute to our national effort to reduce oil imports, alleviate natural gas price pressure, and pre-empt the need for new power plants and consequent emissions.

The FY 2008 budget request for Industrial Technologies is $46.0 million, a $0.4 million increase over the FY 2007 request. The program will leverage its innovative technology transfer practices and partnerships with energy-intensive industries, while shifting toward more crosscutting and higher-impact R&D activities that will bring innovative energy solutions to a much broader group of industrial companies, at a more accelerated pace.

The Industrial Technologies Program (ITP) has a track record for moving innovative technologies from R&D through commercialization and onto the floors of industrial plants. In 2006 alone, eight technologies funded by ITP received prestigious R&D 100 awards. New technologies emerging from ITP's R&D program are being adopted to help solve some of industry's toughest energy and competitiveness challenges. In many cases, this is occurring through the industrial energy assessments that ITP is conducting at 250 of the Nation's largest energy-consuming manufacturing plants as part of Secretary Bodman's "Easy Ways to Save Energy" initiative. We estimate that ITP-sponsored technologies and deployment activities have contributed to industrial energy savings of over $3.1 billion in one year (2004).

The $7.2 million requested for the new activity, Energy-Intensive Process R&D, will support R&D in four crosscutting areas to better deliver technology solutions for the industrial processes that consume the most energy. These four areas are Energy Conversion Systems, Industrial Reaction and Separation, High-Temperature Processing, and Fabrication and Infrastructure. One example of a technology that cuts across the industrial sector to deliver savings is ITP's ultra-high efficiency, ultra-low emissions, industrial steam generation "Super Boiler." Since steam is used in every major sector, the potential benefits are tremendous. The Super Boiler is 10 to 20 percent more efficient than current technology and can reduce NOx emissions to below 5 parts per million, which represents an approximately 90 percent reduction in emissions from a conventional boiler.

The $4.9 million request for the new Inter-Agency Manufacturing R&D activity working with the National Science and Technology Council will support the development or adaptation of next-generation technologies that can revolutionize U.S. industrial processes and deliver dramatic energy and environmental benefits. These next-generation technologies, such as entirely new processing routes and supply chains, can have broad application across industry, yet they typically require the type of high-risk, high-return R&D that one industry cannot usually undertake. Our initial research focus will include development of techniques and processes needed for nanomanufacturing. We aim to help transform industrial processes by enabling the mass production and application of nano-scale materials, structures, devices, and systems that provide unprecedented energy, cost, and productivity benefits in manufacturing.

Deployment efforts such as "Best Practices" activities and Industrial Assessment Centers will continue to deliver the results of energy-efficiency R&D and energy-saving practices to industrial plants nationwide. A vehicle for educational outreach, the university-based Industrial Assessment Centers train engineers and scientists in the energy field, providing opportunities for students to conduct energy assessments at no cost to small and medium-sized manufacturing plants in the U.S.

FACILITIES AND INFRASTRUCTURE

The FY 2008 budget request of $7.0 million for Facilities and Infrastructure, an increase of $1.0 million from the FY 2007 request, supports the operations and maintenance of the National Renewable Energy Laboratory (NREL) in Golden, CO. NREL is a single-purpose National Laboratory dedicated to R&D for energy efficiency, renewable energy, and related technologies that provides EERE, as well as DOE's Office of Science and the Office of Electricity Delivery and Energy Reliability, with R&D, expert advice, and programmatic counsel.

PROGRAM DIRECTION AND PROGRAM SUPPORT

The Program Direction budget supports the management and technical direction and oversight needed to implement EERE programs at both headquarters and the Project Management Center. Areas funded by this request include: Federal salaries, information systems and technology equipment, office space, travel, and support service contractors. The FY 2008 budget request for Program Direction totals $105.0 million, a $14.0 million increase over the FY 2007 request. This increase reflects EERE's updated staffing needs, which more closely align critical skills to mission requirements and adds staff to support technical program staffing shortfalls and implementation of the AEI and EPACT 2005 priorities.

The Program Support budget request provides resources for crosscutting performance evaluation, analysis, and planning for EERE programs and for technical advancement and outreach activities. The information developed by the Program Support components provides decision makers at every level the information they need to make choices related to energy alternatives that can help the Department achieve its goals. The FY 2008 budget request for Program Support activities totals $13.3 million, representing a $2.4 million increase from the FY 2007 budget request. The increase reflects the expansion of EERE's market transformation and commercialization analysis and expanded efforts in the Technology Advancement and Outreach Office.

CONCLUSION

Accelerating research, development, and deployment of America's abundant clean sources of energy and making more efficient use of all energy consumed is central to EERE's mission, and to a secure and competitive economic future that enhances our environmental well-being for our Nation and our world. We believe the Administration's FY 2008 budget request for energy efficiency and renewable energy programs strategically positions the stepping stones that will continuously catalyze and accelerate new energy sources, technologies, and practices into the marketplace, and hasten the transformation of how our homes, businesses, and vehicles use energy.

This concludes my prepared statement, and I am happy to answer any questions the Committee members may have.