DEPARTMENT OF ENERGY

Funding Highlights:

- Provides $28.4 billion in discretionary funds for the Department of Energy, an eight percent increase above the 2012 enacted level. This increased funding will position the United States to compete as a world leader in clean energy and advanced manufacturing, enhance our energy security, respond to the threat of climate change, and modernize the nuclear weapons stockpile and infrastructure.
- Maintains the President's commitment to increase funding for key basic research agencies by providing over $5 billion, a 5.7 percent increase over the 2012 enacted level, for the Office of Science for basic research and research infrastructure to lay the foundation for innovation, long-term economic growth, and competitiveness in areas such as foundational science for clean energy and fundamental physics.
- Builds on the Administration's success in reducing our use of oil, promoting energy efficiency, and doubling U.S. renewable electricity generation by increasing funding for the Department's clean energy technology activities by over 40 percent above the 2012 enacted level. Creates new Race to the Top for Energy Efficiency and Grid Modernization awards to support State governments that implement effective policies to increase energy productivity and modernize the grid, and to make progress toward the President's goal of cutting in half the energy wasted by our homes and businesses over the next 20 years.
- Provides $615 million to increase the use and decrease the costs of clean power from solar, wind, geothermal, and water energy.
- Increases the affordability and convenience of advanced vehicles and domestic renewable fuels by investing $575 million in cutting-edge vehicle technologies, $282 million in the next generation of advanced biofuels, and $2 billion of proposed mandatory funding for an Energy Security Trust to transition our cars and trucks off of oil.
- Invests $365 million in advanced manufacturing research and development to strengthen U.S. competitiveness and enable companies to improve product quality and manufacturing processes while cutting production costs by using less energy.
- Achieves savings and efficiencies by eliminating $4 billion in annual unwarranted and unnecessary subsidies to the oil, gas, and coal industries, restructuring the plutonium disposition program, cutting low priority and low performing programs, and increasing utilization of existing facilities and infrastructure.

- Helps consumers and businesses save money and improve their energy efficiency by investing in new technology development, implementing cost-effective appliance standards, and catalyzing private sector investment in more energy efficient buildings through the President's Better Buildings Initiative.
- Invests $16 million—an increase of $10 million—in enhanced energy infrastructure security and energy recovery capabilities.
- Supports modernizing the electricity delivery grid through an investment of $153 million in research and development for smart grid investments, cybersecurity for energy control systems, and permitting, siting, and analysis activities within the Office of Electricity Delivery and Energy Reliability. Advances the technologies and tools for improved clean energy integration onto the grid through an $80 million coordinated effort within the Office of Energy Efficiency and Renewable Energy.
- Increases investments to maintain a safe, secure, and effective nuclear weapons stockpile at levels consistent with planned reductions under the New Strategic Arms Reduction Treaty.
- Strengthens national security by securing, removing, and detecting nuclear and radiological material worldwide.

The Department of Energy (DOE) is charged with advancing the energy, environmental, and nuclear security of the United States, promoting scientific and technological innovation in support of that mission, and ensuring the environmental cleanup of the national nuclear weapons complex. It facilitates many of the President's highest priorities, including cutting carbon pollution, increasing climate preparedness, and supporting clean energy and innovation, which are critical to job creation, long-term economic growth, and national security. In total, the President's 2014 Budget provides $28.4 billion in discretionary funds for DOE to support its mission, an eight percent increase over the 2012 enacted level. It includes $11.7 billion for nuclear security, a six percent increase over the 2012 enacted level. In light of the current discretionary caps, these increases in funding are significant and a testament to the importance of clean energy and innovation to the country's economic future, and the importance of nuclear security to the Nation's safety. While funding has been increased in these critical areas, the Administration has identified areas for savings and efficiency, such as eliminating oil, gas, and coal tax subsidies, restructuring the plutonium disposition program, and changing the National Ignition Facility's fee structure.

Invests in Clean Energy, Innovation, and Jobs of the Future

Funds Clean Energy Research, Development, and Demonstration to Keep America Competitive and Respond to the Threat of Climate Change. Investing in research and development (R&D) today is critical to leading the clean energy and advanced manufacturing industries of tomorrow. The Budget provides $2.8 billion for the Office of Energy Efficiency and Renewable Energy (EERE) to accelerate research and development, to build on ongoing successes, and to further reduce the costs and increase the use of critical clean energy technologies. Within EERE, the Budget increases funding by 75 percent above 2012 levels for development and demonstration of the next generation of advanced vehicles and by 42 percent for the next generation of advanced biofuels and biorefineries. It increases funding by 29 percent for innovative projects to make clean, renewable power, such as solar energy and off-shore wind, more easily integrated

onto the electric grid and as affordable as electricity from conventional sources, without subsidies. It more than doubles funding for energy efficiency and advanced manufacturing activities to help reduce energy use and costs in commercial and residential buildings, in the industrial and business sectors, and in Federal buildings and fleets. These investments will support progress toward the President's goal of cutting in half the energy wasted by our homes and businesses, doubling our energy productivity over the next 20 years. The Budget provides $735 million for the Office of Nuclear Energy, which includes funding for advanced small modular reactors R&D. The Budget also includes $379 million for the Advanced Research Projects Agency–Energy, a program that seeks to fund transformative energy research.

Challenges States to Cut Energy Waste and Support Energy Efficiency and Modernize the Grid. Modeled after a successful Administration approach in education reform designed to promote forward-leaning policies at the State level, the Budget includes $200 million in one-time funding for Race to the Top performance based awards to support State governments that implement effective policies to cut energy waste and modernize the grid. Key opportunities for States include: modernizing utility regulations to encourage cost-effective investments in efficiency, including combined heat and power and demand response resources, and in clean distributed generation; enhancing customer access to data; investments that improve the reliability, security and resilience of the grid; and enhancing the sharing of information regarding grid conditions.

The Administration also continues to call on the Congress to pass HomeStar or similar mandatory funding legislation aimed at creating jobs and spurring economic growth by encouraging Americans to invest in energy saving home improvements. The President's Better Buildings Initiative, launched in 2011, continues to make progress toward a 20 percent improvement in the energy efficiency of commercial and industrial buildings by 2020, including through public-private partnerships under the Better Buildings Challenge. The Budget also supports increased research and development on innovative building efficiency technologies and the ongoing introduction and enforcement of appliance efficiency standards that save consumers and companies money while improving performance. In addition, the Budget provides $184 million for the Weatherization Assistance Program to help low-income families save hundreds of dollars a year each on their energy bills by making their homes more energy efficient.

Invests in Advanced Energy-Efficient Production Technologies to Strengthen Domestic Manufacturing. The Budget invests in a national effort to develop and commercialize the emerging technologies that will create high quality manufacturing jobs and enhance our global competitiveness. Funding will enable Federal agencies to continue collaboration efforts with the private sector and universities to develop cross-cutting manufacturing technologies. These efforts will speed advancement of ideas from the drawing board to the factory floor, scale up first-of-a-kind technologies, and establish shared facilities and collaborative networks to help small and mid-sized manufacturers innovate and compete. As an integral part of this initiative, the Budget provides DOE with $365 million to expand important efforts on innovative manufacturing processes and advanced industrial materials. These innovations will enable U.S. companies to cut manufacturing costs and reduce the life cycle energy consumption of technologies, while improving product quality and accelerating product development. These activities would include funding to support one or more manufacturing innovation institutes focused on energy and efficiency technologies. These manufacturing R&D centers are part of a larger proposed interagency network aimed at bringing together universities, companies, and the Government to co-invest in solving industry-relevant problems and to create, showcase, and deploy new manufacturing capabilities, products, and processes that can impact large-scale commercial production. The Budget also continues to support the development of competitive new manufacturing processes for advanced vehicles, biofuels, solar energy, wind

energy, and other rapidly growing clean energy industries, to help ensure that the technologies developed here are also manufactured here.

Strengthens U.S. Leadership in Advanced Vehicle Development and Production. To lead the world in advanced vehicle development and manufacturing, and to increase the deployment of advanced vehicles, the Budget builds on previous investments supporting electric vehicle and alternative-fuel vehicle manufacturing and adoption in the United States through investments in R&D. The Budget invests $2 billion over the next 10 years from Federal oil and gas development revenue in a new Energy Security Trust that would provide a reliable stream of mandatory funding for R&D on cost-effective transportation alternatives that reduce our dependence on oil. It would be designed to invest in research that will improve and reduce the cost of the technologies of the future—technologies that will allow us to run our cars and trucks on electricity, homegrown biofuels, renewable hydrogen, and domestically produced natural gas. In addition, the Budget advances innovative technologies through $575 million in discretionary funding for vehicle technology activities—an increase of 75 percent over the 2012 enacted level. Funding supports the EV Everywhere initiative, a targeted effort to make electric-powered vehicles as affordable and convenient as gasoline-powered vehicles for the average American family within a decade. This initiative includes accelerated R&D on emerging battery technologies and manufacturing processes to enable production of lower-cost electric vehicles with an improved vehicle range and an increased fast-charging capability. Funding also supports a small number of advanced vehicle deployment communities, which will be competitively selected and will leverage Federal resources to test different real-world approaches to accelerating deployment of advanced vehicles at scale in specific communities.

The Budget continues to promote fuel supply diversification by providing $282 million at DOE to develop and demonstrate conversion technologies to produce cellulosic ethanol and other advanced biofuels, such as algae-derived biofuels and "drop-in" replacements for diesel and jet fuel, for civilian and military uses. In addition, the Budget supports long-term research efforts to promote advanced vehicles, including a battery and energy storage hub, continued fuel cell research, and three Bioenergy Research Centers aimed at developing the scientific understanding underpinning new technological solutions that will enable increased production of advanced biofuels.

Invests in Basic Research and Research Infrastructure to Keep America Competitive. The Budget maintains the President's commitment to increase funding for key basic research agencies, including a 5.7 percent increase over the 2012 enacted level for the Office of Science. To continue the cutting-edge research and development that is essential to U.S. innovation and economic competitiveness, the Budget provides over $5 billion to the Office of Science which funds research grants and unique scientific facilities in several areas of science, including physics, biology, climate and environmental sciences, fusion sciences, computational sciences, materials science, and chemistry. The Budget also includes one-time funding to fully forward fund some five-year awards for new or renewed Energy Frontier Research Centers that conduct basic research aimed at understanding and overcoming the fundamental barriers to transformational advances in many energy technologies. As part of its scientific facilities portfolio, the Office of Science operates U.S. light sources that are used by both biologists and physical scientists to understand the fundamental nature of the world around us, such as the molecular structure of materials and the processes of chemical reactions.

Supports Critical Carbon Capture Research Initiatives. The Budget provides $421 million for the Fossil Energy Research and Development program, including an investment of $266 million in fossil energy R&D primarily dedicated to developing cost-effective carbon capture and storage and advanced power systems. The Budget includes a one-time, $25 million inducement prize for the first natural gas combined cycle power plant to integrate large-scale car-

bon capture and storage. The Budget also includes $12 million to fund DOE's participation in a multi-agency research initiative aimed at advancing technology and methods to safely and responsibly develop America's natural gas resources. Specifically, DOE, in collaboration with the Environmental Protection Agency and the Department of the Interior, will focus on minimizing the health, safety, and environmental effects of natural gas and oil production from hydraulic fracturing in shale and other geologic formations.

Cuts Wasteful Spending and Improves Efficiency

Eliminates Unnecessary Fossil Fuel Subsidies. As we continue to pursue clean energy technologies that will support future economic growth, we should not devote scarce resources to subsidizing the use of fossil fuels produced by some of the largest, most profitable companies in the world. That is why the Budget proposes to eliminate unnecessary fossil fuel subsidies that impede investment in clean energy sources and undermine efforts to address the threat of climate change. The Budget would repeal over $4 billion per year in tax subsidies to oil, gas, and other fossil fuel producers.

Reduces Energy Use in Federal Buildings. The 270 billion square feet of residential and commercial building space in the United States present an opportunity to realize large gains in energy efficiency. To help the Federal Government lead by example, the Federal Energy Management Program will continue to assist agencies to improve the energy efficiency of Federal buildings (representing over three billion square feet) and to help them implement and monitor performance-based contracts to do so. These contracts provide enough long-term savings in energy costs to more than pay for the up-front investments, achieving savings at no net-cost to the taxpayer.

Enhances Energy Infrastructure Security and Energy Restoration Capabilities. The Budget includes $16 million for new situational awareness investments to be achieved through a DOE regional presence with the Federal Emergency Management Agency, an expanded DOE Emergency Operations Center, and real-time analytic and modeling capabilities to foster a more efficient response to energy emergencies.

Invests in Modernizing the Electricity Delivery Grid. A 21st Century electric grid which is reliable, flexible, efficient, and secure is essential to the Nation's well-being. Within the Office of Electricity Delivery and Energy Reliability, the Budget invests $153 million in R&D and other activities that will further transition to a Smart Grid. This investment seeks to develop real-time situational awareness to improve grid operations, build system-level understanding needed for innovative approaches to technology and regional planning, support advanced visualization analysis and decision support for grid operators leading to predictive response, and enhance security of the grid. It includes $20 million for a new Electricity Systems Hub, which will explore the interface between transmission and distribution systems in the context of a modernized grid. Within EERE, the Budget supports hardware and modeling R&D to improve the integration of clean energy into the electricity distribution grid, including $80 million for a coordinated initiative to develop the technologies and tools to more intelligently, flexibly, and cost-effectively integrate distributed generation, electric vehicles, and residential and commercial buildings loads behind the meter.

Protects Americans from the Threat of Nuclear Harm and Pollution

Modernizes the Nation's Nuclear Deterrent. The Budget proposes $7.87 billion for Weapons Activities, an increase of $654 million, or nine percent above the 2012 enacted level, to maintain a safe, secure, and effective nuclear deterrent as described in the Administration's Nuclear Posture Review (NPR) of 2010. This funding proposal is the result of an unprecedented cooperative analysis and planning process jointly conducted by the National Nuclear Security Administration (NNSA) and the Department of Defense (DOD). The Budget meets the goals

of the NPR by funding cost increases for nuclear weapon life extension programs, such as: upgrades to the W76 and B61 nuclear weapons; initiating new upgrades for the W78 and W88 nuclear weapons; improving or replacing aging facilities, such as the Uranium Processing Facility; adding funds for tritium production and plutonium manufacturing and experimentation; and sustaining the existing stockpile by maintaining the underlying science, surveillance, and other support programs. To meet the NPR goals while remaining within the discretionary spending caps currently in place, the Budget proposes to achieve savings by reducing investments in the National Ignition Facility, which failed to achieve ignition in 2012 as scheduled, and by implementing several management efficiencies.

The Budget also proposes $1.25 billion for work on naval reactors, an increase of $166 million, or 15 percent above the 2012 enacted level. This work includes continuing operational support to nuclear powered submarines and aircraft carriers, developing the next generation of reactor for the replacement to the OHIO class ballistic missile submarine, and modernizing the spent nuclear fuel infrastructure.

Further reflecting a close partnership and shared commitment with our Nation's defense, a portion of future funding for NNSA will continue to be included in DOD's outyear budget, providing allocations to NNSA in each budget year.

Prevents the Proliferation of Nuclear Material and Weapons. The Budget proposes $2.14 billion to prevent the proliferation of nuclear weapons. This proposal fully funds Administration priorities to secure and remove nuclear material, develop and field technologies to deter or detect nuclear proliferation, and implement international nonproliferation regulatory controls and safeguards. Decreases to nonproliferation funding are due to the planned December 2013 completion of the domestic uranium enrichment research, development, and demonstration project, and from restructuring the plutonium disposition program. The plutonium disposition program has been building the Mixed Oxide (MOX) Fuel Fabrication Facility in South Carolina to enable DOE to dispose of plutonium by converting it to MOX fuel and burning it in commercial nuclear reactors. This current plutonium disposition approach may be unaffordable, though, due to cost growth and fiscal pressure. While the Administration will assess the feasibility of alternative plutonium disposition strategies, resulting in a slowdown of MOX Fuel Fabrication Facility construction in 2014, it is nonetheless committed to the overarching goals of the plutonium disposition program to: 1) dispose of excess U.S. plutonium; and 2) achieve Russian disposition of equal quantities of plutonium. The Administration recognizes the importance of the U.S.-Russia Plutonium Management and Disposition Agreement, whereby each side committed to dispose of at least 34 metric tons of weapon-grade plutonium.

Protects the Public from Harmful Exposure to Radioactive Waste and Nuclear Materials at DOE Sites. The Environmental Management (EM) program continues to clean up waste and contamination, focusing on its legally enforceable regulatory commitments. The Budget includes $5.6 billion for EM to ensure that nuclear wastes from the production of weapons during the Cold War are safely processed, secured, and disposed of in a timely manner. The program's cleanup actions include removing radioactive wastes from underground storage tanks, decontaminating and decommissioning old production facilities, and remediating soil and groundwater, primarily at sites in Washington, South Carolina, Idaho, Tennessee, Kentucky, Ohio, and New Mexico.

Securing the Long-Term Disposal of Nuclear Waste

Begins to Implement a New Strategy for the Management and Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste. In 2010, the Administration determined that Yucca Mountain was not a workable solution for disposing of the Nation's spent nuclear fuel and high-level radioactive waste. The Secretary of Energy established the Blue Ribbon Commission

on America's Nuclear Future to review options for managing these wastes, and the Commission released its final report in January 2012. After careful consideration of the Commission's recommendations, the Administration released its Strategy for the Management and Disposal of Used Nuclear Fuel and High Level Radioactive Waste in January 2013. The Administration's Strategy supports the principles of the Commission's recommendations and provides a framework for an integrated program for nuclear waste management, including sustainable funding mechanisms. Fundamentals of the Strategy include the creation of a well-defined consent-based facility siting process, implementation of interim storage in the near term, development of geologic disposal as a permanent solution, establishment of a new body to run the program, and an approach to make funds collected to support nuclear waste management more directly available for that purpose. The Budget provides $60 million for transportation, storage, disposal, and siting activities to lay the groundwork for implementing this strategy, as well as related R&D activities.