

## Winning the Future through Innovation

Having emerged from the worst recession in generations, the President has put forward a plan to rebuild our economy and win the future by out-innovating, out-educating, and out-building our global competitors and creating the jobs and industries of tomorrow. But we cannot rebuild our economy and win the future if we pass on a mountain of debt to our children and grandchildren. We must restore fiscal responsibility, and reform our government to make it more effective, efficient, and open to the American people. The President's 2012 Budget is a responsible approach that puts the nation on a path to live within our means so we can invest in our future – by cutting wasteful spending and making tough choices on some things we cannot afford, while keeping the investments we need to grow the economy and create jobs. It targets scarce federal resources to the areas critical to winning the future: education, innovation, clean energy, and infrastructure. And it proposes to reform how Washington does business, putting more federal funding up for competition, cutting waste, and reorganizing government so that it better serves the American people.

To spur innovation, the Budget will:

### **Bring About a Clean Energy Economy and Create the Jobs of the Future.**

A global race is underway to develop and manufacture clean energy technologies, and we are competing with other countries that are playing to win. America has the most dynamic economy in the world, but we can't expect to win the future by standing still. The President is committed to building a new clean energy economy here at home – because the nation that harnesses the power of clean, renewable energy will be the nation that leads the 21st century. A clean energy economy supports job growth, environmental protection, and fiscal health.

To help drive this transition, the President has laid out a series of ambitious proposals for the Nation. The 2012 Budget supports clear progress toward achieving these targets, and builds on the historic steps that the Administration has already taken through the Recovery Act, which included over \$90 billion in clean energy investments. The President's proposals include:

- *Putting One Million Advanced Technology Vehicles on the Road by 2015.* In 2008, the President set an ambitious goal of having 1 million advanced technology vehicles on the road by 2015. To reach that goal and become the first in the world to do so, the Budget proposes a new effort to support electric vehicle manufacturing and adoption in the U.S. through new consumer rebates, investments in R&D, and competitive programs to encourage communities that invest in electric vehicle infrastructure. Specifically, the Budget proposes to: transform the existing \$7,500 tax credit for electric vehicles into a rebate that will be available to all consumers immediately at the point of sale; advance innovative technologies through new R&D investments, building on Recovery Act investments for technologies like batteries and electric drives – including an over 30% increase in support for vehicle technology R&D and a new Energy Innovation Hub devoted to improving batteries and energy storage for vehicles and beyond; reward communities that invest in electric vehicle infrastructure through a \$200 million

program, modeled after Race-to-the-top, which provides an incentive for communities to invest in electric vehicle (EV) infrastructure and remove regulatory barriers.

- *Doubling the Share of Electricity from Clean Energy Sources by 2035.* The President's proposed Clean Energy Standard, whereby 80 percent of electricity will come from clean energy sources by 2035, is the centerpiece of the Administration's strategy to ensure strong American leadership in the clean energy economy. To support this goal, the Budget increases funding for renewable energy research, development; advances in nuclear energy and clean coal; and efforts to promote the expansion and use of clean energy across the country including rural areas. The Budget also builds on current financing efforts by providing up to an additional \$36 billion in loan authority for new nuclear power facilities and an additional \$200 million in credit subsidy to support \$1 billion to \$2 billion in loan guarantees for innovative energy efficiency and renewable energy projects, and by providing \$5 billion in Section 48C tax credits for renewable energy manufacturing facilities and extending the Section 1603 tax credit for renewable energy deployment.
- *Issuing Permits for 9,000 Megawatts of New Solar, Wind, and Geothermal Energy Generation on Federal Lands.* The vast acreage of Federal land holdings presents an opportunity for the Nation to facilitate large-scale clean energy projects. The Budget includes \$64 million to maintain capacity to review and permit new renewable energy projects on Federal lands, with the goal of permitting at least 9,000 megawatts of new solar, wind, and geothermal electricity generation capacity on Department of the Interior-managed lands by the end of calendar year 2011.

**Prepare 100,000 STEM Teachers over the Next Decade.** Students need to master science, technology, engineering, and mathematics (STEM) in order to thrive in the 21st Century economy. Steadily, we have seen other nations gain ground in preparing their children in these critical fields. That is why the President has set the ambitious goal of preparing 100,000 STEM teachers over the next decade, and recruiting 10,000 STEM teachers over the next two years. The Budget allocates \$100 million toward that goal, including \$80 million from the Department of Education dedicated to teacher pathways that successfully prepare effective STEM teachers and \$20 million from the National Science Foundation (NSF) to launch a new teacher-training research program called Teacher Learning for the Future. In cooperation with the Department of Education, NSF's Teacher Learning for the Future program will fund innovative efforts that design, develop, implement, and test new teacher-training programs. These programs will be developed in conjunction with a government-wide effort to improve the impact of Federal investments in math and science education by ensuring that all programs supporting K-12 and undergraduate education adhere to consistent standards of effectiveness.

**Increase Investment in Research and Development and Create Transformational Technologies.** For many years, the United States has been a world leader in research and development (R&D) spending, as well as in the quality and impact of that spending. The challenge is for the Nation to make private and public investments in science, research and development that will keep the U.S. as the world's leader in innovation for decades to come. The 2012 Budget does that by providing \$148 billion for R&D overall, while targeting resources to those areas most likely to directly contribute to the creation of transformational technologies

that can create the businesses and jobs of the future. The Budget makes progress toward the President's commitment to double funding for key basic research agencies: the National Science Foundation (NSF), the Department of Energy's Office of Science, and the National Institute of Standards and Technology (NIST) laboratories. These funds will be directed at priority areas, such as clean energy technologies, advanced manufacturing technologies, and cyber security. In addition, the Budget provides \$12 million in NIST for the Advanced Manufacturing Technology Consortia program, a new public-private partnership that will develop road maps for long-term industrial research needs and fund research at universities, government laboratories, and businesses directed at meeting those needs. The Budget also funds research at the National Institutes of Health with an increased focus on translating research discovering into clinical trials. These funds will directed at priority areas, such as clean energy technologies, advanced manufacturing technologies, and cyber security. The Budget also funds research at the National Institutes of Health with an increased focus on translating research discovering into clinical trials.

**Bring the Best Minds Together to Advance Critical Energy Research.** Innovation and breakthroughs often happen when scientists and thinkers from different disciplines collaborate on some of our toughest problems. That is why we are challenging America's scientists and engineers to assemble teams of the best minds in their fields to focus on the hardest problems in clean energy. The best proposals will be funded as new Energy Innovation Hubs. Currently, we have three Hubs in place, which specialize in fuels from sunlight, energy efficient buildings, and modeling and simulation technologies for nuclear power. The Budget doubles the number of Energy Innovation Hubs, creating three more hubs across the country. These new Hubs will bring together top scientists to work in teams on cross-disciplinary research related to: critical materials, including rare earth elements; batteries and energy storage; and the development of new grid materials and systems to help SmartGrid technology and improve energy transmission efficiency. The budget also invests \$550 million in the Advanced Research Projects Agency-Energy, also known as ARPA-E. This will allow ARPA-E to continue the promising early-stage research projects that aimed to deliver game-changing clean energy technologies by providing enough funds to more than double the portfolio of projects funded through this important program.

**Simplify, Expand, and Make Permanent the Research and Experimentation Tax Credit.** The Research and Experimentation (R&E) tax credit is a powerful incentive for private firms to make investments in the research and development necessary to keep a pipeline of new and improved products coming to market, which is critical to economic growth and job creation. Yet the U.S. currently ranks 24th out of 38 countries in the generosity of our R&D tax incentives. That's why, as part of corporate tax reform, the President supports making the R&E tax credit permanent to give businesses the certainty they need to make these important investments. In addition, the Administration wants to expand the credit by about 20 percent, the largest increase in the credit's history, and simplify it so that it is easier for firms to take this credit and make the investments our economy needs to compete.

**Improve the Patent System and Protect Intellectual Property.** The Budget proposes to give the U.S. Patent and Trademark Office (USPTO) full access to its fee collections and strengthen USPTO's efforts to improve the speed and quality of patent examinations through a temporary fee surcharge and regulatory and legislative reforms. The surcharge will better align application

fees with processing costs. In total, this will provide USPTO with over \$2.7 billion of resources in 2012, or more than 34 percent more than in 2010.

**Help Innovative Small Businesses Obtain Early-Stage Financing.** SBA will also create within the Small Business Investment Company (SBIC) debenture program a new vehicle - the Innovation Fund - to address the capital gap many start-ups face between "angel investor" financing and later-stage venture capital financing. Over each of the next five years, up to \$200 million in matching funds will be available to investors seeking to support innovative companies seeking to ramp up their operations and create new jobs. The Budget also establishes the SBIC Impact Fund program. The program, which operates with no cost to the taxpayers, will guarantee debentures that leverage efforts by venture capitalists, private equity firms, and institutional investors with promising small businesses in underserved markets.

**Enhance Regional Economic Competitiveness.** Competitive, high-performing regional economies are the building blocks of national growth and can benefit from smarter policies. Through the Department of Commerce's Economic Development Administration (EDA) and other Federal agencies, the Administration will support regional cluster development, regional business plans, investment in science parks, and other activities authorized under the America COMPETES Act to promote innovation, regional competitiveness, and employment growth. In addition, to bolster economic rejuvenation in hard-hit areas of our country, the Administration proposes a new Growth Zone program that will deliver expanded tax incentives for investment and employment and more streamlined access to government assistance to 20 new economically distressed areas with growth potential. Replacing the Empowerment Zone program, the Growth Zones will include a mix of rural and urban areas that will be selected through a national competition that will judge their competitive strategies and their need and ability to attract investment and growth. The Budget also provides \$40 million through EDA to assist the selected zones with planning, seed capital, and technical assistance.

**Support Biomedical Research at the National Institutes of Health .** The Budget includes \$32 billion for basic and applied biomedical research supported by the National Institutes of Health (NIH). Innovation in this field creates and sustains companies, products, and jobs. Through implementation of the National Center for Advancing Translational Sciences and the Cures Acceleration Network, NIH will increase its focus on bridging the translational divide between basic science and therapeutic applications. By fostering novel collaborations among government, academia, and industry, NIH will accelerate the development of treatments for diseases and disorders that affect millions of Americans. NIH will continue to pursue the leading edge of discovery in basic cancer science, development of new cancer treatments, and prevention and early detection of cancer, focusing on recent discoveries regarding cancer genomes. For Alzheimer's disease, NIH is partnering with the private sector to find new methods for early diagnosis and to support early drug discovery and preclinical drug development. Ongoing research into environmental factors, early detection, and novel treatments will transform our understanding and care for those with autism spectrum disorders.

**Help Small Businesses Grow Smarter.** Some entrepreneurs need assistance to develop their idea fully into a growing business and start hiring new employees. That is why the Administration includes \$3 million to continue competitive technical assistance grants through

Small Business Administration's (SBA) Emerging Leaders initiative and to enhance small business participation in regional economic clusters. The Emerging Leaders initiative provides intensive technical assistance to companies that have high growth potential and are located in distressed economic areas, such as inner cities and Native American communities, and connects them to regional business networks to accelerate economic and job growth. SBA will also promote broader small business participation in regional economic clusters by awarding competitive grants to facilitate greater coordination of resources such as business counseling, training, and mentor-protégé partnerships.

**Bring Next-Generation, Wireless Broadband to All Parts of the Country and Create an Interoperable Network for Public Safety.** The advances in wireless technology and the adoption of and reliance on wireless devices in daily commercial and personal life have been dramatic. High-speed, wireless broadband is fast becoming a critical component of business operations and economic growth. The United States needs to lead the world in providing broad access to the fastest networks possible. To do that, however, requires freeing up underutilized spectrum currently dedicated to other private and Federal uses. To that end, as part of the Wireless Innovation and Infrastructure Initiative (WI3), the Budget proposes legislation to provide authority for "voluntary incentive auctions" that will enable spectrum licensees to auction the rights to use their spectrum in return for a share of the proceeds. This step is critical both for reallocating spectrum and re-purposing it over the coming decade to greatly facilitate access for smart phones, portable computers, and innovative technologies that are on the horizon. Voluntary incentive auctions, along with other measures to enable more efficient spectrum management will generate nearly \$28 billion over the next 10 years, providing funds that will enable us to:

- Build an interoperable wireless broadband network for public safety that would allow for seamless use by first responders across the country and reserve additional spectrum for public safety use.
- Expand high-speed, wireless broadband to rural America, complementing the Federal Communications Commission's reform of its Universal Service Fund.
- Establish a Wireless Innovation Fund to accelerate the research and development of cutting-edge wireless technologies and applications.

Taken together, these investments will give more Americans access to the data networks that will be central to future economic growth and job creation. And nearly \$10 billion of the funds generated from spectrum reallocation will be used for deficit reduction.