

## Supporting American Innovation

We now face a make-or-break moment for the middle class and those trying to reach it. After decades of eroding middle-class security as those at the very top saw their incomes rise as never before and after a historic recession that plunged our economy into a crisis from which we are still fighting to recover, it is time to construct an economy that is built to last. The President's 2013 Budget is built around the idea that our country does best when everyone gets a fair shot, does their fair share, and plays by the same rules. We must transform our economy from one focused on speculating, spending, and borrowing to one constructed on the solid foundation of educating, innovating, and building. That begins with putting the Nation on a path to living within our means – by cutting wasteful spending, asking all Americans to shoulder their fair share, and making tough choices on some things we cannot afford, while keeping the investments we need to grow the economy and create jobs. The Budget targets scarce federal resources to the areas critical to growing the economy and restoring middle-class security: education and skills for American workers, innovation and manufacturing, clean energy, and infrastructure. The Budget is a blueprint for how we can rebuild an economy where hard work pays off and responsibility is rewarded.

That starts with continuing investment in the basic research, science, and technology from which new products, new businesses, and even new industries are formed. To spur innovation, the 2013 Budget will:

**Enhance the Competitiveness of U.S. Manufacturers.** The President recognizes we must do more to enhance innovation in the manufacturing sector, support investment in new products, processes, and industries, and invest in the cross-cutting technologies that can improve the competitiveness of U.S. manufacturing. With that in mind, the President launched the Advanced Manufacturing Partnership in June 2011, an investment in a national effort to develop and commercialize the emerging technologies that will create high quality manufacturing jobs and enhance our global competitiveness. The Budget provides \$2.2 billion for Federal advanced manufacturing R&D at NSF, DOD, DOE, DOC, and other agencies, a 19 percent increase from 2012. This includes funding for:

- *National Institute of Standards and Technology.* The Budget provides \$708 million for NIST labs, expanding NIST research in areas such as smart manufacturing, nanomanufacturing, and biomanufacturing. The Budget also includes \$21 million for the Advanced Manufacturing Technology Consortia program, a 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.
- *Department of Energy.* The Budget provides DOE's Office of Energy Efficiency and Renewable Energy with \$290 million—more than twice the 2012 level—for its Advanced Manufacturing Office. This program is expanding its R&D activities on innovative manufacturing processes and advanced industrial materials that will enable U.S. companies to cut the costs of manufacturing by using less energy, while improving product quality and accelerating product development. The Budget also continues to support the development of competitive new manufacturing processes for advanced vehicles, biofuels, solar energy, and

other new clean energy technologies, to help ensure that these technologies are invented and manufactured in the U.S.

- *National Science Foundation.* The Administration proposes \$149 million, an increase of \$39 million above the 2012 enacted level, for basic research targeted at developing revolutionary new manufacturing technologies in partnership with other Federal agencies and the private sector. This advanced manufacturing research is part of a larger \$257 million research initiative aimed at transforming static systems, processes, and infrastructure into adaptive, pervasive “smart” systems with embedded computational intelligence that can sense, adapt, and react. This larger research initiative also provides \$28 million for NSF's contribution to the National Robotics Initiative, which will accelerate the development and use of robots in the United States.

**Bring About a Clean Energy Economy and Create the Jobs of the Future.** 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 21<sup>st</sup> Century. A clean energy economy supports economic prosperity, environmental protection, and energy security. To help drive this transition, the President has laid out a series of ambitious proposals for the Nation. The 2013 Budget supports 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 will:

- *Double 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. In support of this goal, the Budget includes efforts to promote the expansion and use of clean energy across the country including rural areas.
- *Increase Investment in Clean Energy Technologies.* The Budget invests nearly \$6.7 billion across the Government to support the advancement of clean energy technologies, including research and development (R&D) on solar, wind, advanced vehicles, and biofuels – a 13% increase above the FY 2012 enacted level. This funding also supports advances in nuclear energy technology and fossil energy technologies that reduce carbon emissions from coal-fired power plants. This growth is driven by increased funding in areas such as industrial efficiency, bioenergy, and buildings efficiency. This investment is complimented by targeted financial assistance and tax incentives to help promote the deployment of clean energy technologies that are ready today. For example, the Budget provides an additional \$5 billion in Section 48C tax credits for clean energy manufacturing facilities, extends the Section 1603 payments in lieu of tax credits for renewable energy deployment in 2012, and extends the Production Tax Credit for renewable energy generation beginning in 2013 while making it refundable.

**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 21<sup>st</sup> 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 \$80 million toward that goal from the Department of Education dedicated to teacher pathways that successfully prepare effective STEM teachers. The Budget also funds a jointly administered mathematics education initiative, with \$30 million from the Department of Education and \$30 million from the National Science Foundation, to support evidence-based approaches to improve student learning at the K-12 and undergraduate levels. 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.

**Develop the Next Generation of Scientific Leaders.** The Administration proposes \$459 million, an increase of \$55 million over the 2012 enacted level, for two prestigious agency-wide science and engineering workforce development programs at the National Science Foundation: the graduate research fellowship program and the faculty early career development program. These two programs recognize and support the best and brightest scientists and engineers at the formative stages of their careers.

**Increase Investment in Research and Development and Create Transformational Technologies.** For many years, the United States has been a world leader in 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 2013 Budget does that by providing \$141 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—by proposing \$13.1 billion, an increase of 4.4 percent, for these three agencies. These funds will be directed at priority areas, such as clean energy technologies, wireless communications, and advanced manufacturing technologies. The Budget also funds research at the National Institutes of Health with an increased focus on translating research discoveries into clinical trials.

**Harness Innovation for Defense and Security.** The Administration invests in defense and security R&D to ensure that the Nation has access to the best defense systems in the world. DOD-funded research provides future affordable options for new defense systems and helps the Nation to avoid technological surprise by potential adversaries. The Budget proposes \$2.8 billion for the Defense Advanced Research Projects Agency (DARPA) for its support of long-term breakthrough research. It sustains DOD's basic research portfolio with a commitment of \$2.1 billion for research in high-priority areas such as cybersecurity, robotics, advanced learning, information access, cleaner and more efficient energy, and biodefense. The Budget also includes \$7.6 billion for DOE's Weapons Activities to maintain a safe, secure, and effective nuclear arsenal.

**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 United States 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. That's why, as part of corporate tax reform, the President supports enhancing and making the R&E tax credit permanent to give businesses the certainty they need to make these important investments. The Administration proposes to permanently extend these tax credits and to raise the rate of the alternative simplified credit to 17 percent.

**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. In total, this will provide USPTO with over \$2.95 billion of resources in 2013, over \$200 million more than in 2012.

**Help Innovative Small Businesses Obtain Early-Stage Financing.** SBA will continue to operate within Small Business Investment Company (SBIC) debenture program the Innovation Fund to address the capital gap many start-ups face between "angel investor" financing and later-stage venture capital financing. Up to \$200 million in matching funds will be available in 2013 to investors seeking to support innovative companies seeking to ramp up their operations and create new jobs. The Budget also continues to support 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.

**Support Biomedical Research at the National Institutes of Health.** The Budget includes \$31 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.

**Help Small Businesses Connect to Regional Innovation.** Small businesses are key players in regional economies. The Administration includes \$3.4 million for SBA to enhance small business participation in regional economic clusters that integrate economic, business and workforce assets to accelerate innovation and job creation. In addition, 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.

**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

National Wireless Initiative, 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 repurposing 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 provide over \$10 billion of 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.
- Establish a Wireless Innovation Fund to accelerate the research and development of cutting-edge wireless technologies and applications in support of a nationwide public safety broadband network.

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 \$21 billion of the funds generated from spectrum reallocation and more efficient management will be used for deficit reduction.

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