Energy and Water Development and Related Agencies

Focus the Department of Energy's National Nuclear Security Administration Spending on Weapons Programs

RECOMMENDATION

Halt growth in Department of Energy (DOE) National Nuclear Security Administration (NNSA) programs that do not directly contribute to the country's nuclear weapons programs. This proposal saves $466 million in FY 2018.

RATIONALE

The DOE is responsible for the nuclear reactors and weapons that are operated by the Defense Department. Each year, the DOE is allotted roughly between $16 billion and $17 billion to fund defense-related activities. The recent negative review of U.S. nuclear forces drove the Obama Administration to increase spending in the coming years. While this increase for nuclear weapons programs is entirely necessary, an increase for non-weapons programs and support is not. Congress should cancel the Minority Serving Institution Partnership Program, with a savings of $15 million in FY 2018, and return the following programs to their FY 2014 budget levels (in nominal dollars):

- Secure Transportation Asset (Saves $72 million.)
- Information Technology and Cyber Security (Saves $12 million.)
- Warhead Dismantlement and Fissile Materials Transparency (now under "Nuclear Verification") (Saves $1 million.)
- Nuclear Safeguards and Security Programs (Saves $2 million.)
- Defense Environmental Clean-Up (Saves $365 million.)[1]

ADDITIONAL READING

- Michaela Dodge and Baker Spring, "Bait and Switch on Nuclear Modernization Must Stop," Heritage Foundation *Backgrounder* No. 2755, January 4, 2013.

CALCULATIONS

Savings are expressed as budget authority and were calculated based on estimated spending levels from the Department of Energy's "FY 2017 Statistical Table by Appropriation." Heritage assumes that the FY 2016 levels hold steady in FY 2017 and decrease at the same rate as discretionary spending (–0.32 percent) as projected in the CBO's most recent August 2016 baseline spending projections. Savings of $466 million equals the combined total of placing a hard cap on FY 2014 funding levels for five budget components, plus cancelling the Minority Serving Institution Partnership Program.

Return Funding for the DOE Office of Nuclear Physics to FY 2008 Levels

RECOMMENDATION

Reduce funding for the DOE Office of Nuclear Physics to FY 2008 levels. This proposal saves $128 million in FY 2018.

RATIONALE

Under the Office of Science, the Office of Nuclear Physics supports theoretical and experimental research in the composition of and interactions within nuclear matter. The DOE and the National Science Foundation conduct nearly all basic nuclear physics research in the country: The DOE provides over 90 percent of the nuclear science research funding in the U.S., which is employed at universities and federally sponsored research facilities (also called user facilities).[2] Funding for the Nuclear Physics program has become unaffordable in tight fiscal conditions. Program funding should be returned to the inflation-indexed FY 2008 amount of $487 million in FY 2018 (actual FY 2008 spending was $424 million)—a $128 million reduction from its projected FY 2018 level of $615 million.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority and were calculated by comparing current spending levels to estimated levels assuming that FY 2008 spending had increased for inflation only, based on the personal consumer expenditures (PCE) measure and as projected for FY 2017 and 2018 by the CBO. The FY 2016 enacted level of $617.1 million can be found in U.S. Department of Energy, "FY 2017 Statistical Table by Appropriation," p. 7, https://energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetStatisticalTablebyAppropriation_0.pdf (accessed February 7, 2017). Heritage assumes that the FY 2016 level holds steady in FY 2017 and decreases at the same rate as discretionary spending (–0.32 percent) according to the CBO's most recent August 2016 baseline spending projections (a projected $615.1 million appropriation level for 2018). The FY 2008 spending level of $423.7 million equals $486.6 million in 2018 dollars.

Return Advanced Scientific Computing Research to FY 2008 Levels

RECOMMENDATION

Reduce DOE Advanced Scientific Computing Research spending to FY 2008 levels. This proposal saves $216 million in FY 2018.

RATIONALE

This program under the Office of Sciences conducts computer modeling, simulations, and testing to advance the DOE's mission through applied mathematics, computer science, and integrated network environments. These models can lay the foundation for scientific breakthroughs and are arguably some of the most important aspects of basic Energy Department research—but this program has also been the beneficiary of a consistently expanding budget, and in order to live within today's fiscal constraints, funding should be returned to the inflation-indexed FY 2008 levels of $403 million (actual 2008 spending was $351 million).

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2669, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority and were calculated by comparing current spending levels to estimated levels assuming that FY 2008 spending had increased for inflation only, based on the PCE measure and as projected for FY 2017 and 2018 by the CBO. The FY 2016 enacted level of $621 million can be found in U.S. Department of Energy, "FY 2017 Statistical Table by Appropriation," p. 7, https://energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetStatisticalTablebyAppropriation_0.pdf (accessed February 7, 2017). Heritage assumes that the FY 2016 level holds steady in FY 2017 and decreases at the same rate as discretionary spending (–0.32 percent) according to the CBO's most recent August 2016 baseline spending projections (a projected $619 million appropriation level for 2018). The FY 2008 spending level of $351.2 million equals $403.4 million in 2018 dollars.

Eliminate the DOE Advanced Research Projects Agency–Energy Program

RECOMMENDATION

Eliminate the Advanced Research Projects Agency–Energy (ARPA-E) program. This proposal saves $302 million in FY 2018.

RATIONALE

ARPA-E is a federal program designed in 2007 to fund high-risk, high-reward projects on which the private sector would not embark on its own. ARPA-E also has the goal of reducing energy imports, increasing energy efficiency, and reducing energy-related emissions, including greenhouse gases.

ARPA-E does not always seem to follow its own clear goals: The federal government has awarded several ARPA-E grants to companies and projects that are neither high-risk nor something that private industry cannot support. These problems with ARPA-E were identified by the Government Accountability Office (GAO), the Department of Energy's Inspector General (DOE IG), and the House Science, Space, and Technology Committee staff. Of the 44 small and medium-sized companies that received an ARPA-E award, the GAO found that 18 had previously received private-sector investment for a similar technology. The GAO found that 12 of those 18 companies planned to use ARPA-E funding to either advance or accelerate already funded work.[3]

Federal scientific research and development funding must be rationalized to cut waste and reign in federal spending to either meet specific government objectives or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest research-and-development (R&D) budget in the federal government.[4] Government projects that have become commercial successes—the Internet, computer chips, the global positioning system (GPS)—were not initially intended to meet a commercial demand but were developed for national security needs. Entrepreneurs saw an opportunity in these defense technologies and created the commercially viable products available today. The DOE should conduct research to meet government objectives that the private sector does not undertake. Further, policies should be put in place that remove bureaucratic obstacles and invite the private sector, using private funds, to access that research and commercialize it.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- Matthew Stepp, Sean Pool, Jack Spencer, and Nicolas D. Loris, "Turning the Page: Reimagining the National Labs in the 21st Century Innovation Economy," The Information Technology & Innovation Foundation, June 19, 2013.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority according to the CBO's most recent August 2016 baseline spending projections.

Drastically Cut or Eliminate the DOE Biological and Environmental Research Program and Shift Remaining Programs to Office of Science

RECOMMENDATION

Drastically cut or eliminate the DOE Biological and Environmental Research (BER) program. This proposal saves $592 million in FY 2018.

RATIONALE

The Office of Science's BER program funds research for a variety of energy-related subjects, including biology, radiochemistry, climate science, and subsurface biogeochemistry. At a basic research-and-development level, the funding for some of the research endeavors is valid. However, much of the research conducted does not support the mission of the DOE, including research on global warming. Furthermore, the BER program also supports activities that inappropriately move beyond basic research. For example, research is conducted on the "redesign of microbes and plants for sustainable biofuels production, improved carbon storage, and controlled biological transformation of materials such as nutrients and contaminants in the environment."[5]

Many BER programs should be cut drastically and moved to the Office of Science, or eliminated entirely, because they are activities better suited to the private sector, duplicative of other research, or do not align with the Energy Department's mission.

Cuts should be made to the:

- The Climate and Environmental Science program,
- The Biological Systems Facilities and Infrastructure program,
- The Bioenergy Research Centers program,
- The Genomic Science program, and
- Climate and Environmental Facilities and Infrastructure.

One BER program that should receive *increased* funding is the Low-Dose Radiation Research (LDRR) program, which was created to understand the radiobiological effects of low levels of radiation exposure. Such research is critical because the federal government is engaged in regulating low-dose levels it does not adequately understand yet, and the vast majority of the average Americans' exposure to radiation is at very low, chronic doses, and government responsibilities like cleanup of the remaining nuclear weapons complex could be improved with more accurate knowledge of radiation risks. The Obama Administration gradually decreased funding for the LDRR program, ultimately requesting no funds in its final budget request and stating only that "activities are completed."[6] LDRR program activities apparently were considered complete because the "EPA has indicated that they do not require additional research information that would cause them to overturn their current regulatory limits, which are based on the extremely conservative Linear No Threshold (LNT) theory," according to DOE e-mails obtained by the House Committee on Science, Space, and Technology.[7] In fact, research on low-dose radiation is far from complete.

Congress should reconstitute the LDRR program to 2008 levels of funding over the next two years, beginning with 75 percent funding in FY 2018 and 100 percent in FY 2019.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority and were calculated by using the FY 2016 requested spending level of $609 million for BER as found in U.S. Department of Energy, "FY 2017 Congressional Budget Request: FY 2017 Statistical Table by Appropriation," p. 7, https://energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetStatisticalTablebyAppropriation_0.pdf (accessed January 5, 2017). Heritage assumes that the FY 2016 level holds steady in FY 2017 and decreases at the same rate as discretionary spending (–0.32 percent) in FY 2018 according to the CBO's most recent August 2016 baseline spending projections. This saves $607 million in FY 2018. Additional funding for the LDRR would add $15 million in FY 2018. The FY 2008 spending level was $17.6 million as reported in U.S. Department of Energy, *FY 2009 Congressional Budget Request: Science*, Vol. 4, February 2008, p. 201, https://energy.gov/sites/prod/files/FY09Volume4.pdf (accessed February 4, 2017). In inflation-adjusted dollars, this amounts to $20 million in FY 2018. Heritage proposes a 75 percent funding level in FY 2018. Combined, this proposal saves $592 million in FY 2018.

Reduce Funding for the DOE Basic Energy Sciences Program

RECOMMENDATION

Reduce funding for the DOE Basic Energy Sciences (BES) program. This proposal saves $345 million in FY 2018.

RATIONALE

The BES is a legitimate program that investigates "fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels in order to provide the foundations for new energy technologies and to support the DOE mission in energy, environment, and national security."[8] The problem is that many of the BES subprograms stray from fundamental research into commercialization. The government should eliminate such aspects of these programs, since private companies are capable of fulfilling these roles, whether through their own laboratories or by funding university research. Government funding has simply become unaffordable. The proposed cuts would eliminate some subprograms and return others close to FY 2008 levels.

Federal scientific R&D funding must be rationalized to cut waste and rein in federal spending to either meet a specific government objective or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest R&D budget in the federal government.[9] Government projects that have become commercial successes—the Internet, computer chips, GPS—were not initially intended to meet a commercial demand but were developed for national security needs. Entrepreneurs saw an opportunity in these defense technologies and created the commercially viable products available today. The DOE should conduct research to meet government objectives that the private sector does not undertake. Further, policies should be put in place that remove bureaucratic obstacles and invite the private sector, using private funds, to access that research and commercialize it.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are based on the recommended $287.6 million in FY 2013 spending cuts for Basic Energy Sciences as found in Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012. These cuts would have brought FY 2013 spending to a level of $1.402 billion. The FY 2016 enacted level of $1.849 billion is found in U.S. Department of Energy, "FY 2017 Congressional Budget Request: FY 2017 Statistical Table by Appropriation," p. 7. Heritage assumes that the FY 2016 enacted level holds steady in FY 2017 and decreases at the same rate as discretionary spending growth (–0.32 percent) in FY 2018 according to the CBO's most recent August 2016 baseline spending projections (declining slightly to $1.843 billion). The estimated savings of $345 million for FY 2018 equal the difference between growing the recommended FY 2013 level ($1.402 billion) by inflation according to the PCE, to an estimated FY 2018 level of $1.498 billion, and the projected FY 2018 level of $1.843 billion based on FY 2016 enacted spending.

Eliminate DOE Energy Innovation Hubs

RECOMMENDATION

Eliminate funding for DOE Energy Innovation Hubs. This proposal saves $39 million in FY 2018.

RATIONALE

The DOE has four Energy Innovation Hubs (multidisciplinary teams) to overcome obstacles in energy technologies: (1) the Fuels from Sunlight Hub, (2) the Batteries and Energy Storage Hub, (3) the Nuclear Energy Modeling and Simulation Hub, and (4) the Critical Materials Institute. Regardless of the merits of such endeavors, the problem with the Energy Innovation Hubs is that they focus on promoting specific energy sources and technology developments rather than basic research.

Federal scientific R&D funding must be rationalized to cut waste and rein in federal spending to either meet a specific government objective or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest R&D budget in the federal government.[10] Government projects that have become commercial successes—the Internet, computer chips, GPS—were not initially intended to meet a commercial demand but were developed for national security needs. Entrepreneurs saw an opportunity in these defense technologies and created the commercially viable products available today. The DOE should conduct research to meet government objectives that the private sector does not undertake. Further, policies should be put in place that remove bureaucratic obstacles and invite the private sector, using private funds, to access that research and commercialize it.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority and were calculated by using the FY 2016 enacted spending levels of $24.3 million for energy information hubs batteries and storage and $15 million for the hubs' fuels for sunlight as found in U.S. Department of Energy, *FY 2017 Congressional Budget Request*, Vol. 4, p. 53, https://energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetVolume%204.pdf (accessed February 7, 2017). Heritage assumes that the FY 2016 enacted level holds steady in FY 2017 and decreases at the same rate as discretionary spending for 2018 (–0.32 percent), according to the CBO's most recent August 2016 baseline spending projections.

Eliminate the DOE Office of Electricity Deliverability and Energy Reliability

RECOMMENDATION

Eliminate the DOE Office of Electricity Deliverability and Energy Reliability (OE). This proposal saves $214 million in FY 2018.

RATIONALE

The Office of Electricity Deliverability and Energy Reliability pursues activities to modernize the nation's power grid to "ensure a resilient, reliable, and flexible electricity system."[11] Under the Obama Administration, much of the funding went to promoting electric vehicles and renewable energy. OE focuses on advanced grid technology R&D, transmission permitting and assistance for states and tribes, infrastructure security, and cybersecurity research and development.

While upgrading the nation's electricity grid has merit, it should be accomplished at the private, local, state, and regional levels. OE's role is redundant with the Federal Energy Regulatory Commission (FERC), the North American Electric Reliability Corporation (NERC), regional independent system operators (ISOs), and the private sector. Rather than subsidizing advanced renewable energy resources or smart-grid technology, the federal government's role should be to reduce unnecessary regulatory burden on grid siting and upgrades. National security concerns, for example in cybersecurity or for a cooperative public–private role for grid protection, could very well fall under the Department of Homeland Security's purview.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- Jonathan Lesser, "America's Electricity Grid: Outdated or Underrated?" Heritage Foundation *Backgrounder* No. 2959, October 29, 2014.

CALCULATIONS

Savings are expressed as budget authority according to the CBO's most recent August 2016 baseline spending projections.

Eliminate the DOE Office of Energy Efficiency and Renewable Energy

RECOMMENDATION

Eliminate the DOE Office of Energy Efficiency and Renewable Energy (EERE). This proposal saves $2.149 billion in FY 2018.

RATIONALE

EERE funds research and development "to create and sustain American leadership in the transition to a global clean energy economy" as the government defines clean-energy technologies.[12] Under the Obama Administration, funding went to projects such as "drop-in" biofuels, improving engine efficiency, vehicle weight reduction, home energy efficiency, and renewables. Promoting these technologies is not an investment in basic research, but outright commercialization. Congress should eliminate EERE.

All of this spending is for activities that the private sector should undertake if companies believe it is in their economic interest to do so. The reality is that the market opportunity for clean-energy investments already exists. Americans spent roughly $456 billion on gasoline in 2014. Both the electricity and the transportation-fuels markets are multi-trillion-dollar markets. The global market for energy totals $6 trillion. There is a robust, consistent, and growing demand for energy technology and services independent of any government efforts to subsidize it.

Federal scientific research and development funding must be rationalized to cut waste and rein in federal spending to either meet a specific government objective or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest R&D budget in the federal government.[13] Government projects that have become commercial successes—the Internet, computer chips, GPS—were not initially intended to meet a commercial demand but were developed for national security needs. Entrepreneurs saw an opportunity in these defense technologies and created the commercially viable products available today. The DOE should conduct research to meet government objectives that the private sector does not undertake. Further, policies should be put in place that remove bureaucratic obstacles and invite the private sector, using private funds, to access that research and commercialize it.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

Savings are expressed as budget authority according to the CBO's most recent August 2016 baseline spending projections.

Eliminate the DOE Office of Fossil Energy

RECOMMENDATION

Eliminate the DOE Office of Fossil Energy (FE). This proposal saves $898 million in FY 2018.

RATIONALE

Under the Obama Administration, most of the funding for fossil-energy research and development focuses on technologies that will reduce CO2 emissions and are activities that the private sector should carry out. FE spends money on a clean-coal power initiative, fuels and power systems to reduce fossil power plant emissions, innovations for existing plants, integrated-gasification-combined-cycle (IGCC) research, advanced turbines, carbon sequestration, and natural gas technologies. Part of the DOE's strategic plan is to bring down the cost and increase the scalability of carbon and capture sequestration.

FE also authorizes imports and exports of natural gas. However, this is an outdated and unnecessary function that unnecessarily restricts energy markets. Until Congress acts, the Office of Fossil Energy should approval all natural gas trade.

Other funding has gone to managing the government-controlled stockpile of oil, the Strategic Petroleum Reserve (SPR). The SPR has been used more for politics than responding to oil supply shocks, and ignores the private sector's abilities to unload abundant inventories in such an event. Over time, Congress should sell all the oil in the SPR and use the revenue exclusively for deficit reduction. It should decommission or sell storage facilities used for the SPR. Eliminating spending for fossil energy projects and selling off government reserves of stockpiled resources eliminates the need for an Office of Fossil Energy.

Federal scientific R&D funding must be rationalized to cut waste and rein in federal spending to either meet a specific government objective or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest R&D budget in the federal government.[14] By attempting to force government-developed technologies into the market, the government diminishes the role of the entrepreneur, and crowds out private-sector investment. This practice of the government picking winners and losers denies energy technologies the opportunity to compete in the marketplace, which is the only proven way to develop market-viable products. When the government attempts to drive technological commercialization, it circumvents this critical process. Thus, almost without exception, it fails in some way.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.

CALCULATIONS

Savings are expressed as budget authority according to the CBO's most recent August 2016 baseline spending projections. Savings include spending on Fossil Energy Research and Development, Naval Petroleum & Oil Shale Reserves, and Strategic Petroleum Reserves.

Eliminate the DOE Office of Nuclear Energy and Shift Remaining Activities to Offices of Science and Civilian Radioactive Waste Management

RECOMMENDATION

Eliminate the DOE Office of Nuclear Energy and shift funding for some of its programs to the Office of Science and Civilian Radioactive Waste Material. This proposal saves $350 million in FY 2018.

RATIONALE

The Office of Nuclear Energy aims to advance nuclear power in the U.S. and address technical, cost, safety, security, and regulatory issues. Like spending with conventional fuels and renewables, it is not an appropriate function of the federal government to spend taxes on nuclear projects that should be conducted by the private sector. For example, the Office of Nuclear Energy includes tens of millions of dollars for small modular reactor (SMR) licensing and support programs. While SMRs have great potential, commercialization must be shouldered by the private sector. Government funding should be redirected to the Nuclear Regulatory Commission for SMR-licensing preparation.

Work that clearly falls under basic R&D should be moved to the Office of Science. For example, the President's Nuclear Energy Enabling Technologies (NEET) program is charged with investigating the crosscutting of technologies. Cuts to the NEET budget should include eliminating the unnecessary modeling and simulation hub, and tens of millions from the National Scientific User Facility, which supports work that should be funded by the Science budget, if at all. That still leaves approximately $19 million for NEET projects.

Fuel-cycle R&D should also be decreased by $103.8 million while reprogramming remaining spending to reconstitute the statutorily required Office of Civilian Radioactive Waste Management (OCRWM) and support the Nuclear Regulatory Commission's license review of Yucca Mountain. Before the Obama Administration eliminated OCRWM, the office was responsible for overseeing the DOE's activities for storage of nuclear waste from commercial nuclear power plants. In particular, OCRWM managed the permit application for a deep geologic repository at Yucca Mountain. Despite the Obama Administration's refusal to support the program, the 1982 Nuclear Waste Policy Act, as amended, legally mandates that the DOE carry out a licensing process for a repository at Yucca Mountain in Nevada. Regardless of the ultimate fate of Yucca Mountain, completing the review makes all of the information available for Congress, the President, the state of Nevada, industry, and others to make wise decisions about what to do next.

Congress should provide $50 million each to the DOE and the Nuclear Regulatory Commission (NRC) for FY 2017 to start up the program, and re-evaluate concrete funding needs in FY 2018. No funds should be used for the DOE's consent-based siting initiative established under the Obama Administration without direction from Congress.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- Katie Tubb and Jack Spencer, "Real Consent for Nuclear Waste Management Starts with a Free Market," Heritage Foundation *Backgrounder* No.3107, March 22, 2016.

CALCULATIONS

Savings are based on the recommended $178 million in FY 2013 spending cuts for nuclear energy as found in Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012. These cuts would have brought FY 2013 spending to a level of $592 million, instead of the actual $770 million. The estimated savings for FY 2018 equal the difference between growing the recommended $592 million FY 2013 level by inflation according to the PCE (an estimated FY 2018 level of $633 million) and the projected FY 2018 appropriation of $983 million (a difference of $350 million), calculated by holding steady the FY 2016 enacted level of $986.2 million in FY 2017 and decreasing it slightly in FY 2018 by the projected decline (–0.32 percent) in discretionary spending, according to the CBO's most recent August 2016 baseline spending projections. The FY 2016 enacted level of $986.2 million is found in U.S. Department of Energy, "FY 2017 Congressional Budget Request: FY 2017 Statistical Table by Appropriation," p. 1.

Eliminate DOE Funding for Small Business Innovation Research and Small Business Technology Transfer Programs

RECOMMENDATION

Eliminate Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. This proposal saves $197 million in FY 2018.

RATIONALE

The DOE Office of Science includes SBIR and STTR programs with the original intent to "increase private sector commercialization of innovations derived from Federal R&D, thereby increasing competition, productivity, and economic growth."[15]

The SBIR and STTR programs stress that the goal of the programs today is to place more emphasis on commercialization, "[a]ccepting greater risk in support of agency missions." Using taxpayer dollars to offset higher risk is no way to promote economic development. It ensures that the public pays for the failures, as they have with failed government energy investments, while the private sector reaps the benefits of any successes. Congress should eliminate all SBIR and STTR funding in the DOE budget.

Federal scientific R&D funding must be rationalized to cut waste and rein in federal spending to either meet a specific government objective or contribute to basic research where the private sector is not already working. In 2013, the DOE had the fourth-largest R&D budget in the federal government.[16] Government projects that have become commercial successes—the Internet, computer chips, GPS—were not initially intended to meet a commercial demand but were developed for national security needs. Entrepreneurs saw an opportunity in these defense technologies and created the commercially viable products available today. The Department of Energy should conduct research to meet government objectives that the private sector does not undertake. Further, policies should be put in place that remove bureaucratic obstacles and invite the private sector, using private funds, to access that research and commercialize it.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.

CALCULATIONS

The Department of Energy received $174 million in SBIR awards and $24 million in STTR awards in 2015. SBIR and STTR award information is found in U.S. Department of Energy, *FY 2017 Congressional Budget Request*, Vol. 4, p. 369, https://energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetVolume%204.pdf (accessed February 7, 2017). The budget request does not provide enacted levels for FY 2016, so Heritage assumes that the FY 2015 spending level remains unchanged through FY 2017 and then decreases at the same rate as discretionary spending (–0.32 percent) according to the CBO's most recent August 2016 baseline spending projections.

Liquidate the Strategic Petroleum Reserve and the Northeastern Home Heating and Gasoline Supply Reserves

RECOMMENDATION

Liquidate the Strategic Petroleum Reserve (SPR) and the Northeastern Home Heating and Gasoline Supply Reserves, using the revenues solely for deficit reduction. This proposal saves $27.789 billion in FY 2018.

RATIONALE

The SPR has been used more for politics than responding to oil supply shocks, and ignores the private sector's abilities to unload abundant inventories in such an event. Private inventories and reserves are abundant, and open markets will respond more efficiently to supply shocks than federally controlled government stockpiles can. Congress should authorize the DOE to completely liquidate these reserves and sell or decommission the supporting infrastructure. So as not to disrupt oil markets, the DOE should sell the SPR oil by periodically auctioning an amount not exceeding 10 percent of the country's previous month's total crude production until the reserve is completely depleted. The DOE should then decommission the storage space or sell it to private companies. This would save $27.573 billion in FY 2018.

The DOE should also liquidate or privatize the Northeast Home Heating Oil Reserve and the Gasoline Supply Reserves. These reserves were established by the Energy Policy and Conservation Act and are held by the DOE. They contain 1 million gallons of diesel and 1 million gallons of refined gasoline to protect against supply disruptions for homes and businesses in the northeast heated by oil, to be used at the President's discretion. Private companies respond to prices and market scenarios by building up inventories and unloading them much more efficiently than government-controlled stockpiles. This saves $216 million in FY 2018.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- Nicolas D. Loris, "Why Congress Should Pull the Plug on the Strategic Petroleum Reserve," Heritage Foundation *Backgrounder* No. 3046, August 20, 2015.

CALCULATIONS

Savings from selling off the SPR are based on the most recently available data on the SPR's inventory, including 266.1 million of barrels (MMB) of West Texas Intermediary sweet crude oil and 429 MMB of Brent sour crude oil, for a total of 695.1 MMB. As of January 26, the market price for oil was $53.76 for sweet and $56.16 for sour. Heritage assumes that inventory and prices remain constant through the beginning of FY 2018 and that 10 percent of the previous month's inventory is sold each month, resulting in a sale of 499 MMB (191 sweet and 308 sour) in FY 2018. Although prices will certainly fluctuate, the direction of those changes is unknown, so Heritage assumes that the most recent selling prices hold constant throughout. This results in total sales of $27.553 billion. Heritage subtracts $200 million from this amount as the CBO projects the SPR will sell off $200 million worth of oil in FY 2018. Thus, the one-time savings equal $27.353 billion in FY 2018 (the SPR would have about 196 MMB remaining at the end of FY 2018—an amount equal to about $10.8 billion with January 2017 oil prices) as well as $220 million in discretionary spending savings. One-time savings in FY 2018 from selling the Northeast Reserves equal $208 million. Both reserves hold 1 million barrels and the current price per gallon for home heating oil is $2.63 (U.S. Energy Information Administration, "Petroleum & Other Liquids: Weekly Heating Oil and Propane Prices (October–March)," January 2, 2017, https://www.eia.gov/dnav/pet/pet_pri_wfr_a_EPD2F_prs_dpgal_w.htm), while the price for gasoline is $2.32 (U.S. Energy Information Administration, "Petroleum & Other Liquids: Gasoline and Diesel Fuel Update," January 30, 2017, http://www.eia.gov/petroleum/gasdiesel/). Heritage assumes that these prices hold constant until the reserves are sold. This proposal also includes $228 million in discretionary savings. Combined, selling off the SPR and Northeast Reserves saves $27.789 billion in FY 2018, including $27.561 billion in one-time savings and $228 million in discretionary savings.

Auction Off the Tennessee Valley Authority

RECOMMENDATION

Auction off all Tennessee Valley Authority (TVA) assets. This proposal saves $30.032 billion in FY 2018.

RATIONALE

The TVA's original purpose of providing navigation infrastructure, flood control, power generation, reforestation, and economic development in a region encompassing nine states, especially in Tennessee, Alabama, Mississippi, and Kentucky, has long been accomplished. Its continuance as a government corporation is an outmoded means of providing rural areas with electricity that enables tremendous special privileges that interfere with market competition. The TVA has had no effective oversight from either the government or the private sector, which has resulted in costly decisions, environmental damage, excessive expenses, high electricity rates, and growing liabilities for all U.S. taxpayers. Americans serviced by the TVA pay some of the highest electricity prices in the region. Despite three major debt-reduction efforts in recent history, the TVA has still not reduced its taxpayer-backed and ratepayer-backed debt.

The most effective way to restore efficiency to the TVA is to sell its assets via a competitive auction that honors existing contracts and continues service for existing customers. Any proceeds should be used solely to pay down the national debt.

ADDITIONAL READING

- Ken G. Glozer, "Time for the Sun to Set on the Tennessee Valley Authority," Heritage Foundation *Backgrounder* No. 2904, May 6, 2014.

CALCULATIONS

It is hard to know the TVA's market value, but comparable assets in the Southeast suggest that the TVA's value is between $30 billion and $40 billion. For an assessment of the TVA's value, see Ken G. Glozer, "Time for the Sun to Set on the Tennessee Valley Authority," Heritage Foundation *Backgrounder* No. 2904, May 6, 2014, http://www.heritage.org/research/reports/2014/05/time-for-the-sun-to-set-on-the-tennessee-valley-authority. Heritage uses the lower end of this estimate, with a one-time savings of $30 billion in FY 2018. Auctioning off the TVA would also generate $32 million in mandatory savings in FY 2018 from contributions to the TVA fund, as estimated by the CBO in its most recent August 2016 baseline spending projections. Thus, total FY 2018 savings from auctioning the TVA equal $30.032 billion.

Auction Off the Four Remaining Power Marketing Administrations

RECOMMENDATION

Auction off all assets of the four remaining Power Marketing Administrations (PMAs): (1) the Bonneville Power Administration, (2) the Western Area Power Administration, (3) the Southeastern Power Administration, and (4) the Southwestern Power Administration. This proposal saves $34.031 billion in FY 2018.

RATIONALE

Electricity production and distribution is primarily a private and local function. The federal government should not be in the business of managing and selling power. The PMAs were organized in the 1930s as part of the New Deal to maintain power generation, dams, reservoirs, and locks. The PMAs sell electricity in the South and West at subsidized prices. They do not pay taxes and enjoy low-interest loans subsidized by taxpayers. Originally intended to pay off federal irrigation and dam construction and to provide subsidized power to poor communities, the PMAs now supply such areas as Los Angeles, Vail, and Las Vegas. Generating and distributing commercial electricity should not be a centralized, government-managed activity; neither should taxpayers be forced to subsidize the electricity bills of a select group of Americans.

Both the Reagan and Clinton Administrations proposed privatizing the PMAs. The Alaska Power Administration was successfully sold off to its customers. The remaining PMAs should similarly be sold under competitive bidding.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 23, 2012.
- Ken G. Glozer, "Time for the Sun to Set on the Tennessee Valley Authority," Heritage Foundation *Backgrounder* No. 2904. May 6, 2014.

CALCULATIONS

It is difficult to estimate the market value of these administrations, but the CBO valued them between $23 billion and $31 billion in FY 1997. See Congressional Budget Office, "A CBO Study: Should the Federal Government Sell Electricity?" November 1997, p. 15, https://www.cbo.gov/sites/default/files/105th-congress-1997-1998/reports/electric.pdf (accessed February 7, 2017). In inflation-adjusted terms, the CBO's FY 1997 estimates translate into a range of $33.3 billion to $44.9 billion in estimated FY 2018 dollars. Heritage assumes the low-end of this estimate at $33.323 billion in FY 2018. This $33.323 billion represents a one-time savings. In addition, auctioning off these PMAs would generate savings from the annual operation and maintenance costs which are projected to total $487 million in FY 2018, as well as $221 million in mandatory savings from the funds contributed to these PMAs, as estimated by the CBO in its most recent August 2016 baseline spending projections. Thus, total savings equal $34.031 billion in FY 2018, including $33.323 billion in one-time savings, $487 million in discretionary savings, and $221 million in mandatory savings.

ENDNOTES

1. Totals may not add due to rounding.
2. U.S. Department of Energy, *FY 2017 Budget Justification*, Vol. 4, February 2016, p. 239, http://energy.gov/cfo/downloads/fy-2017-budget-justification (accessed December 1, 2016).
3. Government Accountability Office, "Department of Energy: Advanced Research Projects Agency–Energy Could Benefit from Information on Applicants' Prior Funding," January 2012, http://www.gao.gov/assets/590/587667.pdf (accessed October 9, 2015), and U.S. Department of Energy, Office of Inspector General, Office of Audits and Inspections, "The Advanced Research Projects Agency–Energy," Audit Report, August 2011, http://science.house.gov/sites/republicans.science.house.gov/files/documents/hearings/2011%2008%20DOE%20IG%20ARPA-E%20Audit.pdf (accessed October 9, 2015).
4. James Jay Carafano, Jack Spencer, Bridget Mudd, and Katie Tubb, "Science Policy: Priorities and Reforms for the 45th President," Heritage Foundation *Backgrounder* No. 3128, June 13, 2016.
5. U.S. Department of Energy, *FY 2017 Congressional Budget Request: Science*, February 2016, p. 111, http://energy.gov/cfo/downloads/fy-2017-budget-justification (accessed December 1, 2016).
6. U.S. Department of Energy, *FY 2017 Congressional Budget Request*, Vol. 4, p. 122.
7. Committee on Science, Space, and Technology, "U.S. Department of Energy Misconduct Related to the Low Dose Radiation Research Program," *Majority Staff Report*, December 20, 2016, pp. 7 and 13, https://science.house.gov/majority-staff-report-department-energy-misconduct (accessed February 4, 2017).
8. Office of Science, "Basic Energy Sciences (BES)," U.S. Department of Energy, http://science.energy.gov/bes/ (accessed December 1, 2016).
9. Carafano, Spencer, Mudd, and Tubb, "Science Policy: Priorities and Reforms for the 45th President."
10. Carafano, Spencer, Mudd, and Tubb, "Science Policy: Priorities and Reforms for the 45th President."
11. Office of Electricity Delivery and Energy Reliability, "Mission," http://energy.gov/oe/mission (accessed December 1, 2016).
12. Office of Energy Efficiency and Renewable Energy, "About the Office of Energy Efficiency and Renewable Energy," http://energy.gov/eere/about-office-energy-efficiency-and-renewable-energy (accessed December 1, 2016).
13. Carafano, Spencer, Mudd, and Tubb, "Science Policy: Priorities and Reforms for the 45th President."
14. Carafano, Spencer, Mudd, and Tubb, "Science Policy: Priorities and Reforms for the 45th President."
15. U.S. Department of Energy, "Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)," http://science.energy.gov/sbir/about/ (accessed October 9, 2015).
16. Carafano, Spencer, Mudd, and Tubb, "Science Policy: Priorities and Reforms for the 45th President."