Energy and Water Development

DISCRETIONARY

$493
SAVINGS IN MILLIONS[1]

Focus DOE National Nuclear Security Administration Spending on Weapons Programs

The DOE is responsible for the nuclear reactors and weapons that are operated by the Defense Department. Each year, the DOE receives between $16 billion and $17 billion to fund defense-related activities. The U.S. must continue to fund nuclear weapons modernization and implement the Trump Administration's Nuclear Posture Review. The National Nuclear Security Administration must prioritize funding for the aging U.S. nuclear weapons complex.

Non-weapons programs and support, however, should not be funded by nuclear weapons accounts. Congress should cancel the Minority Serving Institution Partnership Program, with a savings of $18.8 million in FY 2020, and return the following programs to their FY 2014 budget levels (in nominal dollars):

- Secure Transportation Asset (saves $73 million);
- Information Technology and Cyber Security (saves $30.3 million);
- Warhead Dismantlement and Fissile Materials Transparency (now under "Nuclear Verification") (saves $0.6 million);
- Nuclear Safeguards and Security Programs (saves $1.7 million); and
- Defense Environmental Clean-Up (saves $368 million).[2]

ADDITIONAL READING

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

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	NOT ADDRESSED	

DISCRETIONARY

$193
SAVINGS IN MILLIONS[3]

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

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 U.S. nuclear physics research, and the DOE provides over 90 percent of the nuclear science research funding, which is employed at universities and federally sponsored research facilities (also called user facilities).[4]

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 $497 million in FY 2020 (actual FY 2008 spending was $424 million), a $193 million reduction from its projected FY 2018 level of $690 million.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Reduces funding by $35 million (9%).

DISCRETIONARY

$517
SAVINGS IN MILLIONS[5]

Return DOE Advanced Scientific Computing Research to FY 2008 Levels

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 arguably are some of the most important aspects of basic Energy Department research.

At the same time, however, this program has also been the beneficiary of a consistently expanding budget. In order to live within today's fiscal constraints, funding should be returned to the inflation-indexed FY 2008 levels of $419 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	REJECTED	Maintains funding at FY 2019 levels.

DISCRETIONARY

$366
SAVINGS IN MILLIONS[6]

Eliminate the DOE Advanced Research Projects Agency–Energy Program

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. However, 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. The U.S. Government Accountability Office found that of the 44 small and medium-size companies that received an ARPA–E award, 18 had previously received private-sector investment for a similar technology. The GAO also found that 12 of those 18 companies planned to use ARPA–E funding either to advance or to accelerate already funded work.[7]

The federal government should not be in the business of picking winners and losers among technologies, even if they are in the early stages of research and development. Government projects that have become commercial successes—the Internet, computer chips, the global positioning system (GPS)—were developed initially to meet national security needs, not to meet a commercial demand. 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.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	INCLUDED	

DISCRETIONARY

$705
SAVINGS IN MILLIONS[8]

Eliminate the DOE Biological and Environmental Research Program

The Office of Science BER program funds research for a variety of energy-related subjects, including biology, radiochemistry, climate science, and subsurface biogeochemistry. Many BER programs should be cut drastically and moved to the Office of Science or eliminated entirely because they are activities that are better suited to the private sector, duplicate other research, or do not align with the Energy Department's mission. Specifically, cuts should be made in 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 that it does not adequately understand, and its exercise of such responsibilities as 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 and requested no funds in its final budget. Congress should reconstitute the LDRR program at FY 2008 levels of funding over the next two years, beginning with 75 percent funding in FY 2020 and 100 percent funding in FY 2021.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Funding is reduced by $210 million (30%) but not eliminated.

DISCRETIONARY

$605
SAVINGS IN MILLIONS[9]

Reduce Funding for the DOE Basic Energy Sciences Program

The BES program 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 DOE missions in energy, environment, and national security."[10] The problem is that many BES subprograms stray from fundamental research into commercialization. The government should eliminate such aspects of these programs because private companies are capable of fulfilling these roles, whether through their own laboratories or by funding university research. The proposed cuts would eliminate some subprograms and return others to near-FY 2008 levels.

Federal scientific R&D funding must meet a specific government objective or contribute to basic research where the private sector is not already working. Government projects that have become commercial successes—the Internet, computer chips, GPS—were developed initially to meet national security needs, not to meet a commercial demand. 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. In addition, 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	INCLUDED	

DISCRETIONARY

$39
SAVINGS IN MILLIONS[11]

Eliminate DOE Energy Innovation Hubs

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

Federal scientific R&D funding should be rationalized to cut waste and rein in federal spending either to meet a specific government objective or to contribute to basic research in areas where the private sector is not already working. In 2013, the DOE had the federal government's fourth-largest R&D budget.[12] The federal government should not be in the business of picking winners and losers among technologies, even if they are the early stages of research and development. Government projects that have become commercial successes—the Internet, computer chips, GPS—were developed initially to meet national security needs, not to meet a commercial demand. 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. In addition, policies should be implemented 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	REJECTED	Maintains funding at FY 2019 levels.

DISCRETIONARY

$156
SAVINGS IN MILLIONS[13]

Eliminate the DOE Office of Electricity

The Office of Electricity pursues activities to modernize the nation's power grid "to ensure a resilient, reliable, and flexible electricity system."[14] Under the Obama Administration, much of the funding was used to promote electric vehicles and renewable energy. The OE focuses on advanced grid technology R&D, transmission permitting and assistance for states and tribes, infrastructure security, and cybersecurity research and development. It also serves as a connection point for communication, information, and data between the federal government and the private sector in addressing threats like cybersecurity and permits cross-border transmission line construction.

While upgrading the nation's electricity grid has merit, it should be accomplished at the private, local, state, and regional levels. The OE's role and those of the Federal Energy Regulatory Commission (FERC); the North American Electric Reliability Corporation (NERC); regional independent system operators (ISOs); and the private sector are redundant. Instead of subsidizing advanced renewable energy resources or smart-grid technology, the federal government should reduce the 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 within the purview of the Department of Homeland Security.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 2012.
- Jonathan Lesser, "America's Electricity Grid: Outdated or Underrated?" Heritage Foundation *Backgrounder* No. 2959, October 29, 2014.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	INCLUDED	

DISCRETIONARY

$2.4
SAVINGS IN BILLIONS[15]

Eliminate the DOE Office of Energy Efficiency and Renewable Energy

The EERE funds research and development "to create and sustain American leadership in the transition to a global clean energy economy."[16] Under the Obama Administration, funding went to such projects as "drop-in" biofuels, improvements in engine efficiency, vehicle weight reduction, home energy efficiency, and renewables. Promoting these technologies is not an investment in basic research; it is outright commercialization.

All of this spending is for activities that the private sector can undertake if companies believe that doing so is in their economic interest. 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 multitrillion-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.

Congress should eliminate the EERE. The DOE should conduct research to meet government objectives that the private sector does not undertake, and policies should be implemented 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Reduces spending significantly by $2 billion (86%).

DISCRETIONARY

$985
SAVINGS IN MILLIONS[17]

Eliminate the DOE Office of Fossil Energy

Under the Obama Administration, most of the funding for fossil-energy research and development focused on technologies that will reduce CO2 emissions. Such activities should be the province of the private sector. The FE also authorizes imports and exports of natural gas, which is an outdated and unnecessary function that unnecessarily restricts energy markets. Other funding has been used to manage the government-controlled stockpile of oil, the Strategic Petroleum Reserve, which has been used more for politics than for responding to oil supply shocks and ignores the private sector's ability to unload abundant inventories in such an event.

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 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 and almost without exception fails in some way.

Over time, Congress should sell all of the oil in the SPR and 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.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 2012.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Reduces spending by $178 million (24%).

DISCRETIONARY

$667
SAVINGS IN MILLIONS[18]

Eliminate the DOE Office of Nuclear Energy

The Office of Nuclear Energy aims to advance nuclear power in the U.S. and address technical, cost, safety, security, and regulatory issues. As 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. 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 program is charged with investigating the crosscutting of technologies. Cuts in the NEET budget should include eliminating the unnecessary Modeling and Simulation Hub and cutting tens of millions of dollars from the National Scientific User Facility.

Fuel-cycle R&D should also be decreased by $103.8 million, with the remaining spending reprogrammed to reconstitute the statutorily required Office of Civilian Radioactive Waste Management and support the review of Yucca Mountain. Before the Obama Administration eliminated it, the OCRWM was responsible for managing the permit application for a deep geologic repository at Yucca Mountain. Regardless of the ultimate fate of Yucca Mountain, completing the review makes available all of the information needed to make wise decisions about what to do next.

Congress should provide $50 million each to the DOE and the Nuclear Regulatory Commission for FY 2020 to start up the program and reevaluate concrete funding needs in FY 2021. No funds should be used for the DOE's consent-based siting initiative 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Reduces spending by $500 million (38%).

DISCRETIONARY

$270
SAVINGS IN MILLIONS[19]

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

The DOE Office of Science includes SBIR and STTR programs established by Congress "to support scientific excellence and technological innovation through the investment of Federal research funds in critical American priorities to build a strong national economy." The programs are administered by the Small Business Administration, and "[s]mall businesses that win awards...keep the rights to any technology developed and are encouraged to commercialize the technology."[20]

Using taxpayer dollars to offset higher risk is no way to promote economic development. It ensures that the public pays for the failures, as has been the case 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. Government projects that have become commercial successes—the Internet, computer chips, GPS—were developed initially to meet national security needs, not to meet a commercial demand. 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, and policies should be implemented 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 26, 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	INCLUDED	

MIXED

$25.7
SAVINGS IN BILLIONS[21]

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

The SPR has been used more for politics than for responding to oil supply shocks, and it ignores the private sector's ability 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 liquidate these reserves and sell or decommission the supporting infrastructure.

To avoid disrupting oil markets, the DOE should sell the SPR oil by periodically auctioning an amount not exceeding 10 percent of the previous month's total U.S. 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 $25.6 billion in FY 2020.

The DOE should also liquidate or privatize the Northeast Home Heating Oil Reserve and the Gasoline Supply Reserve. 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 that are 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 can. This saves $156 million in FY 2020.

ADDITIONAL READING

- Nicolas D. Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus," Heritage Foundation *Backgrounder* No. 2668, March 26, 2012.
- Nicolas D. Loris, "Why Congress Should Pull the Plug on the Strategic Petroleum Reserve," Heritage Foundation *Backgrounder* No. 3046, August 20, 2015.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Fully includes the heating oil reserves while reducing the SPR.

MIXED

$30.0
SAVINGS IN BILLIONS[22]

Auction Off the Tennessee Valley Authority

The TVA's original purpose was to provide navigation infrastructure, flood control, power generation, reforestation, and economic development in a region encompassing nine states, especially Tennessee, Alabama, Mississippi, and Kentucky. This goal has long been accomplished. The TVA's 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 lack of effective oversight from either the government or the private sector has led to 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 region's highest electricity prices. 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 in 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.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Takes steps toward privatization by selling transmission assets.

MIXED

$34.6
SAVINGS IN BILLIONS[23]

Auction Off the Four Remaining Power Marketing Administrations

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. They sell electricity in the South and West at subsidized prices. They do not pay taxes, and they 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, California; Vail, Colorado; and Las Vegas, Nevada.

Generating and distributing commercial electricity should not be a centralized, government-managed activity, and taxpayers should not 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 sold to its customers, and 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 26, 2012.
- Ken G. Glozer, "Time for the Sun to Set on the Tennessee Valley Authority," Heritage Foundation *Backgrounder* No. 2904. May 6, 2014.

PROPOSAL	STATUS	EXPLANATION
President's Budget (FY2020)	PARTIALLY INCLUDED	Takes steps toward privatization by selling transmission assets, repeals borrowing authority, and requires selling power at market rates.

POLICY RIDERS

Repeal the Foreign Dredge Act. Passed in 1906, the Foreign Dredge Act requires that all ships engaged in dredging U.S. waters must be built in the United States. The act has ensured that U.S. ports do not have access to the largest and most cost-effective international dredging firms but has failed to stimulate domestic industry. U.S. shipbuilders hold less than 1 percent of the global shipbuilding market (by deadweight tonnage) and produce just 0.2 percent of U.S. gross domestic product. Only two hopper dredges have been built in the past 10 years, despite large demand for maritime improvements. The restriction has created an oligopoly of politically connected dredging companies with little incentive to increase capacity or control costs. Over the 2014 to 2016 period, the average U.S. dredging project received just two bids, and three companies accounted for 56 percent of market share. Repealing this protectionist act would increase competition and reduce costs for American dredging projects while allowing sponsors to select companies that meet their needs without regard to country of origin.

Repeal the Public Utilities Regulatory Policies Act. The electricity sector would benefit from competition and the repeal of current policy, which forces utilities to purchase qualifying renewable energy and arbitrarily limits renewable energy capacity to small scale or geographic proximity. Technology and energy source–neutral competition in the electricity sector encourages companies to meet unique customer energy needs and preferences while protecting customers from unwise investments. Competitive markets have also resulted in the efficient exit of older, expensive units and the entry of innovative technologies.

Repeal the Jones Act. The Jones Act is blatant cronyism by which the government confers special treatment on one group at the expense of everyone else. Repealing this outdated, protectionist law would promote competition, strengthen the economy, and benefit American consumers.

Remove impediments to exports of liquefied natural gas. Currently, companies must obtain approval from the Federal Energy Regulatory Commission and the Department of Energy before exporting natural gas. A facility is automatically authorized if the recipient country has a free trade agreement with the U.S. In the absence of an FTA, the DOE can arbitrarily deny a permit if it believes the volume of natural gas exports is not in the public interest. The decision to export natural gas should be a business decision, not a political one. The U.S. trades regularly with a number of non-FTA countries, and natural gas should be treated as any other globally traded good is treated. Congress should remove the DOE from the permitting process and empower states to permit LNG facilities.[24]

Open access to America's national laboratories. Congress should open access to America's national labs and create a system that allows the private sector, using private funds, to tap into DOE research and explore commercial opportunities. Federal labs should allow basic research to reach the market organically. Congress should establish a more effective management structure to help America's national laboratories work with industry while protecting taxpayer money and the labs' ability to conduct the basic research that the federal government needs.

Complete licensing for Yucca Mountain. Any sustainable, long-term solution for nuclear waste management requires geologic storage. Taxpayers and electricity ratepayers have spent more than $15 billion on the Yucca Mountain site, and no technical or scientific evidence has yet disqualified it as a viable option. Congress should appropriate funds to the Department of Energy and the Nuclear Regulatory Commission to complete their review of the permit application and transition to a more market-based approach.

Prohibit new loan guarantees and any new energy subsidies. Congress should make clear that no taxpayer dollars will be used directly for energy production, storage, efficiency, infrastructure, or transportation for nongovernment consumers, including the extension of existing programs. A market-based energy sector would benefit consumers by delivering reliable, affordable energy while eliminating government favoritism for special interests.

ENDNOTES

1. Estimated savings of $493 million for FY 2020 are based on the requested FY 2018 spending levels for each program as specified in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2019 Congressional Budget Request, Volume 1, National Nuclear Security Administration: Federal Salaries and Expenses, Weapons Activities, Defense Nuclear Nonproliferation, Naval Reactors*, March 2018, https://www.energy.gov/sites/prod/files/2018/03/f49/FY-2019-Volume-1.pdf (accessed March 24, 2019). Savings include $18.8 million for cancelling the Minority Serving Institution Partnership Program, $73 million for reductions in the Secure Transportation Asset, $30.3 million for reductions in Information Technology and Cyber Security, $0.6 million for Nuclear Verification, $1.7 million for International Nuclear Safeguards, and $368 million for reductions in Defense Environmental Clean-Up.
2. Totals may not add due to rounding.
3. Estimated savings of $193 million for FY 2020 are based on the FY 2019 spending level of $690 million as found in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2020 Congressional Budget Request: Budget in Brief*, March 2019, p. 42, https://www.energy.gov/sites/prod/files/2019/03/f60/doe-fy2020-budget-in-brief_0.pdf (accessed March 24, 2019). The FY 2008 level of $424 million would be $497 million in inflation-adjusted 2019 dollars based on the personal consumption expenditures (PCE) index through 2019 and assuming 2.0 percent inflation in 2020).
4. U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2017 Congressional Budget Request*, *Volume 4*, *Science: Advanced Research Projects Agency—Energy*, February 2016, p. 239, https://www.energy.gov/sites/prod/files/2016/02/f29/FY2017BudgetVolume%204.pdf (accessed March 24, 2019).
5. Estimated savings of $517 million for FY 2020 are based on the FY 2019 spending level of $936 million as found in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2020 Congressional Budget Request: Budget in Brief*, p. 42. Heritage experts assume that FY 2019 spending remains constant in FY 2020. The FY 2008 level of $351 million would be $419 million in inflation-adjusted 2020 dollars based on the personal consumption expenditures (PCE) index. Savings equal the difference between projected spending of $936 million and recommended spending of $419 million.
6. Estimated savings of $366 million for FY 2020 are based on the FY 2019 appropriated level as specified in H.R. 5895, Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019, Public Law 115-244, 115th Cong., September 21, 2018, https://www.congress.gov/115/bills/hr5895/BILLS-115hr5895enr.pdf (accessed March 24, 2019). Heritage experts assume that FY 2019 spending remains constant in FY 2020.
7. U.S. Government Accountability Office, *Department of Energy: Advanced Research Projects Agency–Energy Could Benefit from Information on Applicants' Prior Funding*, GAO-12-112, January 2012, http://www.gao.gov/assets/590/587667.pdf (accessed March 24, 2019). See also U.S. Department of Energy, Office of Inspector General, Office of Audits and Inspections, *Audit Report: The Advanced Research Projects Agency–Energy*, OAS-RA-11-11, August 2011, https://www.energy.gov/sites/prod/files/OAS-RA-11-11.pdf (accessed March 24, 2019).
8. Estimated savings of $705 million for FY 2020 are based on the FY 2019 spending level of $705 million as found in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2020 Congressional Budget Request: Budget in Brief*, p. 42. Heritage experts assume that FY 2019 spending remains constant in FY 2020.
9. Estimated savings of $605 million for FY 2020 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 26, 2012, http://thf_media.s3.amazonaws.com/2012/pdf/bg2668.pdf. These cuts would have brought FY 2013 spending to a level of $1.402 billion, which would be $1.561 billion in inflation-adjusted FY 2020 dollars based on the personal consumption expenditures (PCE) index. The FY 2019 spending level was $2.166 billion as found in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2020 Congressional Budget Request: Budget in Brief*, p. 42. The estimated savings of $605 million for FY 2019 equals the difference between the inflation-adjusted FY 2020 recommended level of $1.561 billion and the estimated FY 2019 level of $2.166 billion. Heritage experts assume that the FY 2019 enacted level holds steady in FY 2020.
10. U.S. Department of Energy, Office of Science, "Basic Energy Sciences (BES)," last modified June 29, 2018, http://science.energy.gov/bes/ (accessed March 24, 2019).
11. Estimated savings of $39 million for FY 2020 are based on the FY 2017 spending levels as found in U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2019 Congressional Budget Request, Volume 3, Part 2, Energy Efficiency and Renewable Energy, Nuclear Energy, Advanced Research Projects Agency–Energy, Advanced Tech. Vehicles Manufacturing Loan Program, Title 17–Innovative Tech. Loan Guarantee Program, Tribal Energy Loan Guarantee Program, Energy Information Administration*, March 2018, p. 334, https://www.energy.gov/sites/prod/files/2018/03/f49/FY-2019-Volume-3-Part-2.pdf (accessed March 24, 2019), and U.S. Department of Energy, Office of Chief Financial Officer, *Department of Energy FY 2019 Congressional Budget Request, Volume 4, Science*, March 2018, p. 49, https://www.energy.gov/sites/prod/files/2018/03/f49/DOE-FY2019-Budget-Volume-4_0.pdf (accessed March 24, 2019). Heritage experts assume that FY 2017 spending remains constant through FY 2019. Estimated savings include $15 million for the Fuels from Sunlight Hub; $24.3 million for the Batteries and Energy Storage Hub; nothing for the Nuclear Energy Modeling and Simulation Hub (because it is not listed in the FY 2019 budget request); and nothing for the Critical Materials Institute (because the budget request does not fund this in FY 2019).
12. 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, http://thf-reports.s3.amazonaws.com/2016/BG3128.pdf.
13. Estimated savings of $156 million for FY 2020 are based on the FY 2019 appropriated level as specified in H.R. 5895, Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019. Heritage experts assume that FY 2019 spending remains constant in FY 2020.

14. U.S. Department of Energy, Office of Electricity Delivery and Energy Reliability, "About the Office of Electricity," https://www.energy.gov/oe/about-office-electricity (accessed March 24, 2019).
15. Estimated savings of $2.379 billion for FY 2020 are based on the FY 2019 appropriated level as specified in H.R. 5895, Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019. Heritage experts assume that FY 2019 spending remains constant in FY 2020.
16. U.S. Department of Energy, 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 March 24, 2019).
17. Estimated savings of $985 million for FY 2020 are based on the FY 2019 appropriated level as specified in H.R. 5895, Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019. Savings include $740 million from Fossil Energy Research and Development, $10 million from the Naval Petroleum and Oil Shale Reserves, and $235 million from the Strategic Petroleum Reserves. Heritage experts assume that FY 2019 spending remains constant in FY 2020.
18. Estimated savings of $667 million for FY 2020 are based on the recommended $178 million in FY 2013 spending cuts for nuclear energy as found in Loris, "Department of Energy Budget Cuts: Time to End the Hidden Green Stimulus." These cuts would have brought FY 2013 spending to a level of $592 million, which would be $659 million in inflation-adjusted FY 2020 dollars based on the personal consumption expenditures (PCE) index. The FY 2019 spending level was $1.326 billion as specified in H.R. 5895, Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs Appropriations Act, 2019. The estimated savings of $667 million for FY 2020 equals the difference between the inflation-adjusted FY 2019 recommended level of $659 million and the estimated FY 2020 level of $1.326 billion. Heritage experts assume that the FY 2019 enacted level holds steady in FY 2020.
19. Estimated savings of $270 million for FY 2020 are based on data in *Fiscal Year 2020 Budget of the U.S. Government: Appendix*, p. 378, https://www.whitehouse.gov/wp-content/uploads/2019/03/appendix-fy2020.pdf (accessed March 24, 2019). Heritage experts assume that the FY 2018 enacted level) holds steady in FY 2020.
20. U.S. Department of Energy, Office of Science, Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR), "About," last modified December 21, 2018, http://science.energy.gov/sbir/about/ (accessed March 24, 2019).
21. Estimated one-time savings of $25.487 billion for FY 2020 are based on selling 10 percent of the previous month's inventory each month. In FY 2020, this would mean selling off 477 million barrels (183 MMB sweet and 284 MMB sour) based on the most recently available data on the SPR's inventory (March 15, 2019), including 254.6 MMB of West Texas Intermediary sweet crude oil and 394.5 MMB of sour crude oil, for a total of 649.1 MMB. As of April 27, 2018, the market price for oil was $59.44 for West Texas Intermediate sweet and $53.04 for West Texas sour. Heritage experts assume that inventory remains at that level until the sell-off begins and that prices remain constant through FY 2019. This results in total sales of 25.941 billion MMB (roughly 72 percent of the current inventory). Heritage experts subtract $610 million from this amount because the CBO projects that the SPR will sell off $610 million worth of oil in FY 2020. See Congressional Budget Office, "The Budget and Economic Outlook: 2019 to 2029: Budget and Economic Data: Spending Projections, by Budget Account," January 2019, https://www.cbo.gov/about/products/budget-economic-data#9 (accessed March 26, 2019). Thus, the one-time savings from selling off the SPR equals $25.331 billion in FY 2020 as well as $235 million in discretionary savings. One-time savings in FY 2020 from selling the Northeastern Home Heating and Gasoline Supply Reserves equals $156 million. Both reserves hold 1 million barrels (42 gallons per barrel), and the current price per gallon is $1.95 for home heating oil and $1.76 for gasoline. Heritage experts assume that these prices hold constant until the reserves are sold. Selling the Northeast Reserves also includes $10 million in discretionary savings. See ibid. Selling off both the SPR and Northeast Reserves saves a total of $25.732 billion in FY 2020, including $25.487 billion in one-time savings and $245 million in discretionary savings.
22. Estimated savings of $30.026 billion for FY 2020 are based on the lower end of an estimated value of $30 billion (one-time savings in FY 2020) for the TVA as well as $26 million in mandatory contributions to the TVA fund in FY 2020 as included in the most recent January 2019 CBO baseline spending projections. See Congressional Budget Office, "The Budget and Economic Outlook: 2019 to 2029: Budget and Economic Data: Spending Projections, by Budget Account." 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.
23. Estimated savings of $34.597 billion for FY 2020 are based on the lower-end, inflation-adjusted estimate in a previous CBO study that valued them between $23 billion and $31 billion in FY 1997. See Congressional Budget Office, "Should the Federal Government Sell Electricity?" *CBO Study*, November 1997, p. 15, https://www.cbo.gov/sites/default/files/105th-congress-1997-1998/reports/electric.pdf (accessed March 24, 2019). In inflation-adjusted terms, the CBO's FY 1997 estimates translate into a range of $33.767 billion to $45.512 billion in estimated FY 2020 dollars, based on the personal consumption expenditures (PCE) index. Heritage experts assume the low end of this estimate at $33.767 billion in one-time savings for FY 2020. In addition, auctioning off these PMAs would generate savings from the annual operation and maintenance costs, which are projected to total $190 million in discretionary savings for FY 2020, and another $640 million in mandatory savings from the funds contributed to these PMAs as estimated by the CBO in its most recent January 2019 baseline spending projections. See Congressional Budget Office, "The Budget and Economic Outlook: 2019 to 2029: Budget and Economic Data: Spending Projections, by Budget Account." Thus, total savings equal $34.597 billion in FY 2020.
24. Nicolas D. Loris, "Removing Restrictions on Liquid Natural Gas Exports: A Gift to the U.S. and Global Economies," Heritage Foundation *Backgrounder* No. 3232, July 27, 2017, https://www.heritage.org/sites/default/files/2017-07/BG3232.pdf.