U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

January 5, 2018

TO: Members, Subcommittee on Energy

FROM: Committee Majority Staff

RE: Hearing entitled "DOE Modernization: Advancing DOE's Mission for National, Economic, and Energy Security of the United States"

I. INTRODUCTION

The Subcommittee on Energy will hold a hearing on Tuesday, January 9, 2018, at 10:00 a.m. in 2123 Rayburn House Office Building. The hearing is entitled "DOE Modernization: Advancing DOE's Mission for National, Economic, and Energy Security of the United States." The hearing will examine plans for modernizing and realigning the Department of Energy (DOE) to better execute its various missions. It will provide Members with information to help assess what is necessary to ensure effective execution of the core DOE missions—national security, energy and economic security, environmental cleanup, and the scientific and technological innovation to support those missions.

II. WITNESSES

Panel I

- **Dan Brouillette**, Deputy Secretary, U.S. Department of Energy;
- **Mark Menezes**, Under Secretary of Energy, U.S. Department of Energy;
- **Paul Dabbar**, Under Secretary for Science, U.S. Department of Energy; and
- **Frank Klotz**, Administrator, National Nuclear Security Administration, Under Secretary for Nuclear Security, U.S. Department of Energy.

Panel II

- **Thomas Zacharia**, Director, Oak Ridge National Laboratory;
- **Steve Wasserman**, Director, Lilly Research Laboratories Collaborative Access Team, Advanced Photon Source, Argonne National Laboratory, on behalf of the Society for Science at User Research Facilities;
- **Donald Levy**, Albert A. Michelson Distinguished Service Professor Emeritus, University of Chicago and Co-Chair, Panel to Track and Assess Governance and Management Reforms in the Nuclear Security Enterprise;

- **Sarah Ladislaw,** Director, Energy and National Security Program, Center for Strategic and International Studies;

- **Rich Powell**, Executive Director, ClearPath Foundation; and

- **Dan Reicher**, Executive Director, Stanford University Steyer-Taylor Center for Energy Policy and Finance and Senior Fellow, Brookings Institution

III. BACKGROUND

The U.S. Department of Energy is one of the more diverse Cabinet agencies: it performs critical nuclear weapons, national security, and energy security missions; maintains world-class scientific, technological, and engineering capabilities; operates as the largest non-Defense Department contracting agency in the federal government; and manages some of the most challenging environmental remediation projects in the world.

The Department traces its origins and core nuclear weapons, scientific, and technological missions to the Manhattan Project and subsequently, to the Atomic Energy Commission, which was established by the Atomic Energy Act of 1946, as amended in 1954.[1] By the early 1970s, concerns about domestic energy supplies and shortages led to more focused attention on energy research and development, as well as regulatory interventions to ensure reliable and affordable energy supplies.[2] By 1977, in response to the continued energy concerns of the time, Congress and the Administration sought to develop a structure for implementing a coherent national energy policy. As a result, Congress enacted the Department of Energy Organization Act to establish DOE in its current form.[3] The new agency consolidated the core nuclear weapons and R&D programs of its predecessor agencies with other energy-related programs from throughout the federal government into a single department under the authority of a single Cabinet Secretary.[4]

Today, the Secretary of Energy is responsible for a broad range of national security, scientific, and environmental activities, including maintenance of the nation's nuclear weapons deterrent, supporting the United States' international nonproliferation programs, and nuclear propulsion work for the U.S. Navy. The Secretary oversees environmental cleanup of the nuclear

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[1] *See* Atomic Energy Act of 1954 (42 U.S.C. § 2011 et seq.). The Act established the nation's policy of civilian control of nuclear energy, which maintained that, subject to the needs of common defense and security, the research, development, and control of nuclear energy and related technology would be directed toward "improving the public welfare, increasing the standard of living, strengthening free competition in private enterprise, and promoting world peace." It served as a guiding policy for civilian nuclear power development in the United States and export of U.S. nuclear technology internationally.

[2] In light of the changing energy policy demands, Congress disbanded the Atomic Energy Commission in 1975 and transferred its nuclear regulatory functions to a newly established Nuclear Regulatory Commission and its defense and R&D programs moved with other federal energy research programs to a new agency, the Energy Research and Development Organization.

[3] See Department of Energy Organization Act (August 4, 1977); see also 42 U.S.C Chapter 84.

[4] See A Brief History of the Department of Energy" and "The Institutional Origins of the Department of Energy" available at energy.gov

weapons complex, and management and disposal of commercial and DOE-owned spent nuclear fuel and high-level radioactive waste.

The department supports and conducts basic science research and advanced computing research, promotes scientific and technical innovation, energy conservation, and energy-related research. It maintains the Strategic Petroleum Reserve (SPR) and conducts programs to ensure domestic energy security, reliability, and resilience. It conducts regulatory programs, and provides a central energy data collection and analysis program through the Energy Information Administration.[5]

The Secretary oversees the department's performance of these various missions through a nationwide enterprise that is comprised of 64 sites across 29 states and the District of Columbia, including 17 National Laboratories. (See Attached.) Roughly 13,500 federal employees and 96,000 contractors execute these missions.[6]

Administering DOE. To assist the Secretary in administering the department, the DOE Organization Act established a Deputy Secretary, to stand in for the Secretary and execute the Secretary's duties in his absence or disability, and who has traditionally served as the Chief Operating Officer for the department. There are three Under Secretaries responsible for most of DOE's core security, energy, and science missions:[7]

- An **Under Secretary**: who performs duties and functions prescribed by the Secretary, and in the current Administration serves to oversee applied energy, energy security and reliability, and national energy policy, among other duties;

- The **Under Secretary for Nuclear Security**: who is also the Administrator of the Department's National Nuclear Security Administration (NNSA) and is responsible for certain policy matters across the department and for managing the nuclear weapons, nonproliferation, and materials disposition programs of NNSA;[8] and

- The **Under Secretary for Science:** who serves as the Science and Technology Advisor to the Secretary and is responsible for management of the majority of the Department's national labs and their user facilities, among other duties.[9]

Alignment and organizational structure of the various program offices overseen by the Under Secretaries have shifted over time, consistent with the Secretary's authority to organize the department to meet current and Administration priorities. Secretary Perry announced the current structure on December 15, 2017. In this recent reorganization, applied energy and energy reliability programs that had been organized to report to an Under Secretary for Science and

[5] For links to the offices and descriptions of activities, see DOE Offices.
[6] See Fiscal Year 2016 Agency Financial Report.
[7] The Energy Information Administration and certain other mission and functional offices report directly to the Secretary. See DOE Organization Chart attachment.
[8] See 42 U.S.C Chapter 84
[9] The Energy Policy Act of 2005 established the Under Secretary for Science.

Energy in 2013, now report to the Under Secretary of Energy. Meanwhile, the Under Secretary for Science will now oversee the Office of Environmental Management (which is responsible for remediation of contaminated sites). In addition, certain management functions were moved directly under the Deputy Secretary.[10]

Budget authority. Congress has recently appropriated roughly $30 billion for DOE to perform its missions. Under the enacted Fiscal Year (FY) 2017 appropriation, defense activities—the National Nuclear Security Administration (NNSA) and environmental cleanup—accounted for $19.6 billion or roughly 60 percent of the agency's budget. $11.2 billion was provided for the department's energy and science programs. The Office of Science was provided about $5.4 billion; the Office of Energy Efficiency and Renewable Energy (EERE) was provided about $2 billion, the Office of Nuclear Energy received about $1 billion, Office of Fossil Energy at $670 million; and Office of Electricity Delivery and Energy Reliability was appropriated about $230 million.[11]

The changing energy and security landscape. The United States is now the largest producer of oil and natural gas in the world, and reliance on imports is at a historic low.[12] North America's energy systems are increasingly interconnected. DOE reports the value of energy supplies traded among the United States, Canada, and Mexico exceeded $150 billion annually in recent years.[13] As domestic production of oil and gas reaches record levels, prices have fallen dramatically and have remained low, with nation-wide social, economic, and energy security implications. By these measures, the threats of domestic energy scarcity and supply shocks that propelled formation of DOE 40 years ago are no longer a serious concern. However, new and more complex domestic and global security challenges have been emerging with development of the complex interconnections of the modern energy systems—challenges that were not contemplated in the Department of Energy Organization Act.[14]

In recent years, the Committee addressed DOE's future priorities in light of new challenges. The 114th Congress enacted several pieces of legislation to modernize the nation's energy policy, informed in large part by the Committee's work. For example, the Budget Act of

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[10] See "DOE Announces Plan to Modernize Department," December 15, 2017 at https://energy.gov/articles/doe-announces-plan-modernize-department

[11] For DOE budget specifics, see DOE FY 2018 Budget (Justification and Supporting Documents); See also, "The President's FY2018 budget Request for the Department of Energy," Congressional Research Service, June 5, 2017 and "Energy and Water Development: FY2018 Appropriations," Congressional Research Service, September 20, 2017. (R44895).

[12] U.S. total petroleum and other liquids production averaged 15 million barrels per day (MMbbl/d) in 2016 and U.S. dry natural gas production totaled 25.9 trillion cubic feet (Tcf) in 2014, an increase of about 80% and 44% respectively from 2005. See, U.S. Energy Information Administration, United States' Key Energy Statistics and World Rank ; U.S. net imports of crude oil and petroleum products averaged 4.8MMbbl/d in 2016, a 62% decline from 2005. See, U.S. Energy Information Administration, U.S. Net Imports of Crude Oil and Petroleum Products.

[13] Testimony of Melanie Kenderdine, Director of Energy Policy and Systems Analysis, U.S. DOE, before the House Committee on Foreign Affairs, June 9, 2016.

[14] For a fuller discussion of the changing "energy security paradigm," see DOE's report to Congress: "Valuation of Energy Security for the United States," January 2017 at https://energy.gov/epsa/downloads/valuation-energy-security-united-states-report-congress.

2015[15] and the Fixing America's Surface Transportation Act (FAST Act)[16] each contains provisions to modernize the SPR and improve its emergency response capability. The FAST Act also contains provisions enabling DOE to improve emergency preparedness for energy supply disruptions, protect and secure critical electric infrastructure, and prioritize energy security in federal decision-making. Finally, the Consolidated Appropriations Act of 2015 (P.L. 113-235) lifted the 1970's-era export restrictions on crude oil.[17]

Improving DOE mission management and performance. Many troublesome and well-publicized challenges confronting DOE's mission fulfillment – project delays and billion-dollar cost overruns, safety and security problems, oversight failures – relate to the essential structure and organizational philosophy of the agency, which relies on contractors to perform agency missions. Ensuring effective agency management and performance across its missions has long posed tremendous contract administration and oversight challenges for the Secretary.[18]

Management challenges have been particularly notable in the Nuclear Security Enterprise. In 1999, as a result of serious security lapses and other management failures across the nuclear weapons complex, Congress created the NNSA to manage nuclear weapons research and production activities, as well as other defense-related national security and nuclear non-proliferation activities of the department.[19] The NNSA was established as a semi-autonomous agency within DOE, subject to "the authority, direction, and control" of the Secretary of Energy.[20] In the decade following the formation of NNSA, there had been persistent project management, security, and safety problems within the nuclear weapons complex.[21]

More recent issues concerning cost-overruns, cancelled projects, and oversight failures[22] prompted Congress in January 2013 to establish an advisory panel "to examine options and make recommendations for revising the governance structure, mission, and management of the nuclear

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[15] P.L. 114-74
[16] P.L. 114-94
[17] In this Congress, the Committee continues to work on various DOE authorities across its portfolio. The Committee has already moved DOE related legislation through the House that would strengthen DOE's state energy assurance and emergency preparedness programs (H.R. 3050), would enhance the agency's mission training energy sector workforce (H.R. 338), and would provide DOE the review authority on cross-border electricity projects (H.R. 2883).
[18] At present, the Government Accountability Office (GAO) designates two DOE program elements as "high risk" – the Office of Environmental Management, which is responsible for the safe cleanup of the nation's nuclear weapons complex, and the National Nuclear Security Administration (NNSA), two departmental elements responsible for 64 percent of DOE's annual budget. See GAO's 2017 High Risk Report.
[19] DOE continued to manage separately Environmental Management sites and programs and energy-related research and development activities and sites operated by the Office of Science, which to some extent overlap with some NNSA site and facility operations.
[20] See Section 202 c (3) of the DOE Organization Act, also available at 42 U.S.C. 7132.
[21] Accidents and nuclear safety violations contributed to the temporary shutdown of facilities at both Los Alamos and Lawrence Livermore in 2004 and 2005, respectively, costing taxpayers hundreds of millions of dollars in lost productivity. See for example, "Nuclear and Worker Safety: Actions Needed to Determine the Effectiveness of Safety Improvement Efforts at NNSA's Weapons Laboratories," GAO, October 2007. GAO-08-73.
[22] Subcommittee on Oversight and Investigations hearings in 2012, 2013, and 2015 highlighted DOE's current oversight and contractor management challenges, which were demonstrated by the serious security breach at the Y-12 National Security Complex in July 2012 and the oversight failures behind a radiological incident involving Los Alamos Laboratory in 2014. See September 12, 2012, March 13, 2013, July 24, 2013, and June 12, 2015 hearings.

security enterprise."[23] That panel, co-chaired by Mr. Norman Augustine and Admiral Richard Mies, reported its findings and unanimous recommendations in December 2014. The panel found that the structure of NNSA "semi-autonomy" has not established the effective operations system that Congress intended for DOE's nuclear mission.

The Committee has for a number of years focused on identifying what is necessary to improve DOE management and operational performance throughout the department.[24] Witnesses should be able to discuss what may be necessary to improve contractor management and performance and ensure effective Secretarial administration, at NNSA and across the DOE enterprise.

IV. ISSUES

The following issues may be examined at the hearing:

- What are DOE mission priorities, and how should the department be modernized and aligned to execute them effectively?

- What is the role of the DOE national laboratory system to fulfill mission needs, and how should this system be managed to maximize the cross-cutting benefits of the full enterprise?

- What role should the department have regarding energy supply and reliability (for example concerning the Strategic Petroleum Reserve, energy conservation and efficiency, and protecting the nation from cyber threats to energy systems)?

- What role should the department have regarding energy and technology exports, geopolitical energy interests (e.g. concerning authorization for import and export of natural gas and LNG), and energy security generally?

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Peter Spencer, Andy Zach, or Mary Martin of the Committee staff at (202) 225-2927.

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[23] Section 3166 of the Fiscal Year 2013 National Defense Authorization Act established the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise and tasks the advisory panel to offer recommendations "with respect to the most appropriate governance structure, mission, and management of the nuclear security enterprise."

[24] See, for example, the Committee's September 27, 2017 and March 31, 2017 letters to the GAO. See also, "DOE for the 21rst Century: Science, Environment, and National Security Missions," Subcommittee on Oversight and Investigations, February 25, 2016. Serial No. 114-119.

Attachment 1

DOE Laboratories, Plants, and other Field Sites

*** Federal Field/ Site Offices are co-located with many of the DOE locations listed**
Indicates DOE National Laboratory

Alaska
1. Arctic Energy Office

California
2. Energy Technology Engineering Center
3. Lawrence Berkeley National Laboratory
4. Lawrence Livermore National Laboratory
5. Sandia National Laboratories
6. SLAC National Accelerator Laboratory

Colorado
7. Grand Junction Office
8. National Renewable Energy Laboratory
9. Western Area Power Administration

Connecticut
10. Northeast Home Heating Oil Reserves

District of Columbia
11. DOE Headquarters – Forrestal Building

Georgia
12. Southeastern Power Administration

Idaho
13. Idaho National Laboratory
14. Radiological Environmental Sciences Laboratory

Illinois
15. Argonne National Laboratory
16. Chicago Office
17. Fermi National Accelerator Laboratory

Iowa
18. Ames Laboratory

Kentucky
19. Paducah Gaseous Diffusion Plant

Louisiana
20. Strategic Petroleum Reserve - West Hackberry Site
21. Strategic Petroleum Reserve - Bayou Choctaw Site
22. Strategic Petroleum Reserve Project Management Office
23. St. James Terminal

Maine
24. Northeast Gasoline Supply Reserve

Maryland
25. DOE Headquarters – Germantown Campus

Massachusetts
26. Northeast Gasoline Supply Reserve
27. Northeast Home Heating Oil Reserve

Missouri
28. Kansas City National Security Campus

Nevada
29. Nevada National Security Site

New Jersey
30. Northeast Home Heating Oil Reserve
31. Princeton Plasma Physics Laboratory

New Mexico
32. Inhalation Toxicology Research Institute
33. Los Alamos National Laboratory
34. National Training Center
35. NNSA Albuquerque Complex
36 Sandia National Laboratory
37. Waste Isolation Pilot Plant

New York
38. Separations Process Research Unit
39. Northeast Gasoline Supply Reserve
40. Brookhaven National Laboratory
41. Knolls Atomic Power Laboratory
42. West Valley Demonstration Project

Ohio
43. EM Consolidated Business Center
44. Portsmouth Gaseous Diffusion Plant

Oklahoma
45. Southwestern Power Administration

Oregon
46. Bonneville Power Administration
47. National Energy Technology Laboratory – Albany

Pennsylvania
48. Bettis Atomic Power Laboratory
49. National Energy Technology Laboratory – Pittsburgh

South Carolina
50. Savannah River National Laboratory
51. Savannah River Operations Office

Tennessee
52. East Tennessee Technology Park
53. Oak Ridge National Laboratory
54. Office Scientific and Technical Information
55. Y-12 Plant

Texas
56. Strategic Petroleum Reserve - Big Hill Site
57. Strategic Petroleum Reserve - Bryan Mound Site
58. Pantex Plant
59. National Energy Technology Laboratory - Sugar Land

Utah
60. Moab UMTRA Project

Virginia
61. Thomas Jefferson National Accelerator Facility

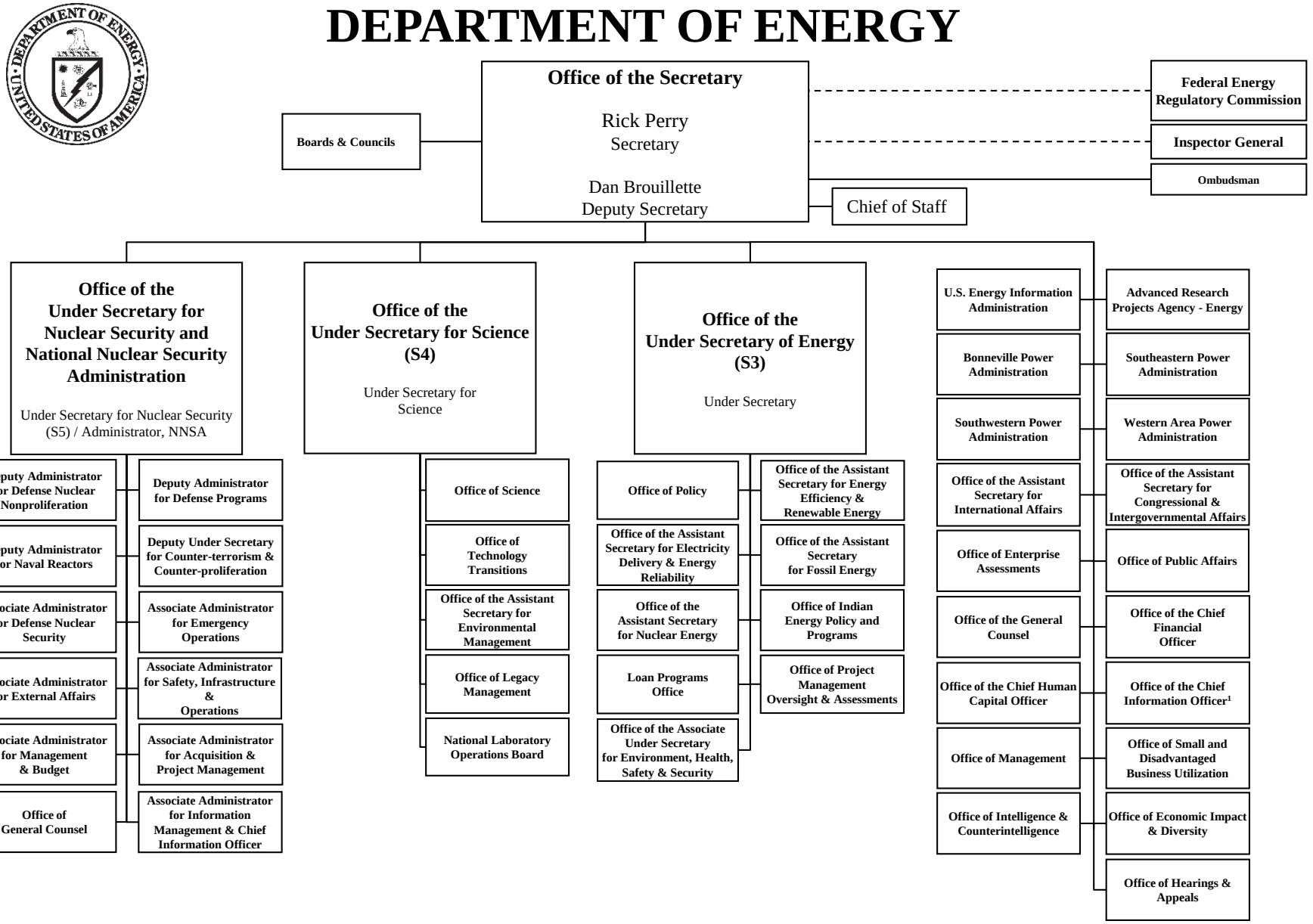
Washington
62. Hanford
63. Pacific Northwest National Laboratory

West Virginia
64. National Energy Technology Laboratory – Morgantown

* EFFECTIVE DATE: NOVEMBER 2016

Source: DOE Cabinet Exit Memo, 2017

DEPARTMENT OF ENERGY



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