



# Work-in-Progress

## National Nuclear Security Administration Tracking and Assessing Governance and Management Reform of the Nuclear Security Enterprise

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### BACKGROUND & PROJECT DESCRIPTION

The National Defense Authorization Act for Fiscal Year 2016 (the Act) directs the Secretary of Energy and the Administrator of the National Nuclear Security Administration to develop and carry out an implementation plan to reform the governance and management of the nuclear security enterprise. The plan will address recommendations—except those requiring legislation—from the November 2014 report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, entitled “A New Foundation for the Nuclear Security Enterprise,” as well as recommendations from an October 2015 study by the Commission to Review the Effectiveness of the National Energy Laboratories and a June 2015 report of the Secretary of Energy Task Force on DOE National Laboratories.

The Act directs NNSA's Administrator to enter into an agreement with the National Academy of Sciences (NAS), Engineering and Medicine and the National Academy of Public Administration (NAPA) to create an Implementation Assessment Panel to:

- 1) Provide guidance to the Secretary and Administrator on the implementation plan content;
- 2) Track implementation plan progress; and
- 3) Assess implementation plan effectiveness.

NAPA and NAS have formed a joint Implementation Assessment Panel. The Panel will oversee the work of the joint NAPA/NAS study team, providing strategic guidance on study approach and focus, and issuing key findings and recommendations. The 14 Panel members bring a wealth of experience from DOE Science Laboratories, Federally Funded Research & Development Centers, the Intelligence Community, Academia, and the Office of Management and Budget.

## PANEL

**Jill Dahlburg (Co-Chair)** is Superintendent of the Space Science Division (SSD) at the Naval Research Laboratory (NRL) and a member of the Senior Executive Service since December 2007. Dr. Dahlburg served as NRL Senior Scientist for Science Applications from June 2003 to December 2007. From 2001 to mid-2003, she left NRL to work for General Atomics (GA) as the Director of the Division of Inertial Fusion Technology (IFT) and Co-Director of the Theory and Computing Center. In 2000, she served as Head of the NRL Tactical Electronic Warfare Division (TEWD) Distributed Sensor Technology Office, where she was co-principal investigator for the first year of development of the small, expendable unmanned aerial vehicle Dragon Eye, which saw active duty in Iraq. Dr. Dahlburg holds a B.A. degree (1978) from St. John's College in Annapolis and an M.S. degree in physics (1980) and a PhD degree in theoretical physics (1985) from the College of William & Mary.

**Robert Shea (Co-Chair)\*** is a Principal at Grant Thornton LLP, an accounting and consulting firm. He is Past Chair of the National Academy of Public Administration. Before joining Grant Thornton, he was with the U.S. Office of Management and Budget as Associate Director for Administration and Government Performance, Associate Director for Management, and Counsel to the Controller. Previously, he had served as Counsel to the Senate Committee on Governmental Affairs, Legislative Director in the Office of Representative Pete Sessions, and Special Assistant/Professional Staff Member for the House Committee on Government Reform and Oversight.

**Elizabeth Cantwell** is Vice President for Research Development at Arizona State University and Professor of Practice in its School for Engineering of Matter, Transport, & Energy. She was previously the director of Lawrence Livermore National Laboratory's Mission Development Engineering Directorate and, before that, deputy associate laboratory director for the National Security Directorate at Oak Ridge National Laboratory. Prior to joining Oak Ridge, Dr. Cantwell was the division leader for the International, Space, and Response Division at Los Alamos National Laboratory. Her career began in building life-support systems for human spaceflight missions with NASA. She received an M.S. in mechanical engineering from the University of Pennsylvania, an M.B.A. in finance from Wharton School, and a Ph.D. in mechanical engineering from the University of California, Berkeley. Dr. Cantwell has extensive NRC experience, including current membership on the Aeronautics and Space Engineering Board and past membership on the Division on Engineering and Physical Sciences Committee.

**Keith A. Coleman** is currently assigned as the chief engineer for Boeing's Cruise Missile Systems within Boeing Global Strike Systems. This organization has a charter to design, build, and test current and new development cruise missiles and support systems. He has worked in Boeing Military Aircraft production and Phantom Works advanced design organizations for over 28 years. He has also worked in the Advanced Weapons division working as the Program Manager for the successful Office of the Secretary of Defense Counter Electronics High Powered Microwave Advanced Missile Project (CHAMP) Joint Concept Technology Demonstration. Before the CHAMP program, Mr. Coleman led the Defense Threat Reduction Agency's UAV-based Beyond-Line-of-Site Biological Combat Assessment System (BCAS) prototype Advanced Technology Demonstration. Mr. Coleman has led and worked on numerous other aircraft and missile proprietary, competitive design efforts. Mr. Coleman has worked in new and production configuration design, manufacturing and testing, and management and is well versed in ongoing and past aircraft and missile acquisitions and recent competitive programs.

**Dona L. Crawford** recently retired as associate director for computation at the Lawrence Livermore National Laboratory (LLNL), where she was responsible for the development and deployment of an integrated computing environment for petascale simulations of complex physical phenomena. This environment includes high-performance computers, scientific visualization facilities, high-performance storage systems, network connectivity, multi-resolution data analysis, mathematical models, scalable numerical algorithms, computer applications, and necessary services to enable laboratory mission goals and scientific discovery through simulation. Prior to her LLNL appointment in July 2001, Ms. Crawford had been with Sandia National Laboratories since 1976, serving on many leadership projects, including the Accelerated Strategic Computing Initiative, the Nuclear Weapons Policy Board, and the Nuclear Weapons Strategic Business Unit.

\*NAPA Fellow

**Martin C. Faga\*** is a retired President and Chief Executive Officer of the MITRE Corporation. As a Federally Funded R&D Center (FFRDC), MITRE's governance has parallels with the governance of NNSA facilities. Before joining MITRE, Mr. Faga served from 1989 until 1993 as Assistant Secretary of the Air Force for Space, where he was responsible for overall supervision of Air Force space matters. At the same time, he served as Director of the National Reconnaissance Office (NRO), responsible to the secretary of defense and the Director of Central Intelligence for the development, acquisition and operation of all U.S. satellite reconnaissance programs. Mr. Faga is a member of the Board of Directors of the Association of Former Intelligence Officers. He served from 2006-2009 on the President's Intelligence Advisory Board.

**David Graham** is Deputy Division Director in the Strategy, Forces, and Resources Division at the Institute of Defense Analyses, an FFRDC. Since 1995, Graham has led several dozen studies addressing post-Cold War national security roles, responsibilities, and organizations for a variety of sponsors. His work on the DOE nuclear weapons complex includes coauthoring IDA's 1996 "120-Day Study" of The Organization and Management of the Nuclear Weapons Program; participating in Admiral Hank Chiles' 1999 Presidential Commission on Nuclear Expertise; co-authoring the Chiles' studies of DOE security in the early 2000s; and serving as a member of the 2008 Defense Science Board Panel on nuclear deterrence skills. Graham served for four years (1999-2003) as the IDA study lead for the Panel to Assess the Reliability, Safety, and Security of the U.S. Nuclear Stockpile (The "Foster Panel"). In 2013-14 he served as the executive director for the congressionally mandated Augustine-Mies Panel and assisted in preparing their 2014 report and testimony, which led to the current study. Most recently, Graham led a congressionally mandated study on the management of security operations at DOE's Category I nuclear sites.

**Paul A. Fleury** is the Frederick William Beinecke Professor of Engineering and Applied Physics, and Professor of Physics at Yale University. He is the founding Director of the Yale Institute for Nanoscience and Quantum Engineering. He served as Dean of Engineering at Yale from 2000 until 2008. Prior to joining Yale Dr. Fleury was Dean of the School of Engineering at the University of New Mexico from January 1996, following 30 years at AT&T Bell Laboratories. At Bell Laboratories he was director of three different research divisions covering physics, materials and materials processing research between 1979 and 1996. During 1992 and 1993 he was Vice President for Research and Exploratory Technology at Sandia National Laboratories. He is a Fellow of the American Physical Society, the American Association for the Advancement of Science, the American Academy of Arts and Sciences, and a member of both the National Academy of Sciences and the National Academy of Engineering.

**William Madia** is a Vice President at Stanford University, where he is responsible for oversight of the Stanford Linear Accelerator Center (SLAC). Until 2008, he was in charge of the Battelle Memorial Institute's Laboratory Operations business, including the management or co-management of four DOE national labs: Pacific Northwest, Brookhaven, the National Renewable Energy Laboratory, and Oak Ridge. In addition, his portfolio included Battelle's Strategic Project Management Business and various lab-based commercialization initiatives. Previous to joining Battelle, he was the director of the Oak Ridge National Laboratory from 2000 to 2003 and, before that, of the Pacific Northwest National Laboratory. Before leading those national laboratories, Dr. Madia managed Battelle's global environmental business, overseeing a portfolio that included developing environmental restoration and waste management technologies, along with environmental systems and planning.

**Kathleen A. Peroff\*** is former Deputy Associate Director of OMB's National Security Division, serving as OMB's senior career official responsible for the Department of Defense, the intelligence community, and DOE nuclear weapons programs. She is a recognized expert in the field of national security budgetary and fiscal policy. Her former positions with OMB include Deputy Associate Director for Energy, Space, Science, & Water Division (responsible for DOE, NASA, and NSF) and positions with the Housing Branch and the Division of Special Studies. Prior to joining OMB, she served as Deputy Director & Visiting University Fellow in HUD's Office of Policy Development & Research and an Assistant Professor of Political Science and Public Policy at the University of Maryland. She received her PhD from the University of Wisconsin.

\*NAPA Fellow

**Elizabeth M. Robinson\*** is currently Chief Financial Officer for the Air Line Pilots Association. Her previous positions include Chief Financial Officer at NASA, Assistant Director for Budget at OMB, Deputy Director of the Congressional Budget Office, Deputy Assistant Director for Budget Review and Concepts, and Program Examiner for Energy Issues, at OMB, and a staff member for the House Committee on Science, Space and Technology. Early in her career she was a Project Director and Expert at the Office of Technology Assessment, a Congressional Science Fellow at the Geological Society of America, and an Assistant Professor of Geophysics at Stanford University. Dr. Robinson earned her B.S. in physics at Reed College and her PhD in geophysics jointly through MIT and the Woods Hole Oceanographic Institution. She has been an NSF Fellow and also studied at Oxford University and the Scripps Institution of Oceanography.

**Barbara Romzek\*** is Dean of American University's School of Public Affairs and a Professor of Public Administration and Policy. She was formerly at the University of Kansas as Interim Senior Vice Provost for Academic Affairs, Interim Dean of the College of Liberal Arts and Sciences, Associate Dean for Social and Behavioral Sciences and Professor and Chairperson of the Department of Public Administration. She is recognized for her expertise in the area of public management and accountability with emphases on government reform, contracting, and network service delivery. Her research has encompassed complex work settings, including NASA, Congress, and the Air Force, as well as state agencies, local governments, and nonprofit agencies. Building on her research on formal accountability, her recent work focuses on informal accountability in collaborative network settings. Dean Romzek has received research awards from the American Society for Public Administration and the American Political Science Association.

**Tammy P. Taylor** is Chief Operating Officer of the National Security Directorate at DOE's Pacific Northwest National Laboratory. Prior to joining PNNL in 2013, she was Acting Deputy Associate Director for Chemistry, Life, and Earth Sciences at Los Alamos National Laboratory (LANL) and, prior to that, Division Director for Nuclear Engineering and Nonproliferation at LANL. In 2007-10, she was assigned to the White House Office of Science and Technology Policy (OSTP). She began her LANL career as a postdoc in 1999, advancing to Group Leader by 2004. Dr. Taylor holds a PhD in Environmental Engineering from Georgia Tech. She is also a Professional Engineer and has authored over 70 papers, reports, and proceedings.

**Merri Wood-Schultz** is a part-time consultant for SAIC and is retired from LANL. Dr. Wood-Schultz's early career focused on the physics design of secondaries of thermonuclear weapons. She was responsible for the conceptual and physics design of numerous nuclear tests and add-on experiments; the areas of focus of these tests included stockpile systems, weapons physics, and advanced development. Dr. Wood-Schultz played an active role in the development of nuclear weapons-related laboratory experiments (AGEX), serving as the lead designer for a series of experiments on the Sandia National Laboratories' SATURN pulsed-power machine and as a member of the inaugural LANCE (neutron scattering facility) Users Group. Later phases of Dr. Wood-Schultz's career included involvement in developing concepts and methods for certification without nuclear testing, notably the quantification of margins and uncertainty (QMU), and an increase in her work in nuclear intelligence. The latter led to a 6-month, change-of-station assignment to a DOE intelligence organization. Dr. Wood-Schultz became a LANL Fellow in 2001, received the DOE Award of Excellence in 1988, 1999, and 2004, the STRATCOM Medal of Excellence in 1997, and the LANL Distinguished Performance Award in 1996. She received B.S., M.S., and PhD degrees in physics from the Georgia Institute of Technology.

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## **NAPA PROJECT STAFF**

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