



The National Nuclear Security Administration

# Strategic Plan

May 2011

Making the world a safer place.

U.S. Department of Energy  
National Nuclear Security Administration

## Message from the Administrator

**M**any things have changed since the last National Nuclear Security Administration (NNSA) Strategic Plan was published in 2004. President Obama has reshaped our national security priorities, placing nuclear security and the NNSA mission high on the agenda. In the midst of continuing wars and persistent proliferation and terrorism concerns, we have spent the past two years laying the groundwork for the next decade. Now, as a result of that effort, for the first time since the end of the Cold War we have a broad national consensus on the role nuclear weapons play in our defense and what is required to modernize our deterrent and the enterprise that supports it.

In many respects, 2010 was a watershed year for our Enterprise. President Obama made clear in his 2009 speech in Prague that the future of the Nation's nuclear security is a high priority for his Administration. He followed that speech with a Nuclear Posture Review that clarified and emphasized NNSA's key mission areas, and with a National Security Strategy that provides direction to the entire U.S. Government on a broad range of national security issues and the Administration's strategies for addressing these challenges.

Building on that policy direction, the Department of Energy (DOE) developed a Strategic Plan that, for national security programs, incorporates the relevant elements of those policy documents and sets the Department's path forward. At the NNSA, we are doing the same thing. In this 2011 NNSA Strategic Plan, we describe our goals for the coming decade and some of the near-term initiatives that will move us toward those goals. Our Strategic Plan will guide our planning, programming, and budgeting process, and form the basis for our future program requests.

We are building on the Nation's renewed commitment to nuclear security. To enhance global and national security, the NNSA is strengthening its ability to ensure that we have the people, tools, and information required to address the broader set of national security needs, including renewal of our facilities. We will execute our mission with the high level of safety, security, ethical, fiscal, and environmental responsibility the Nation expects.

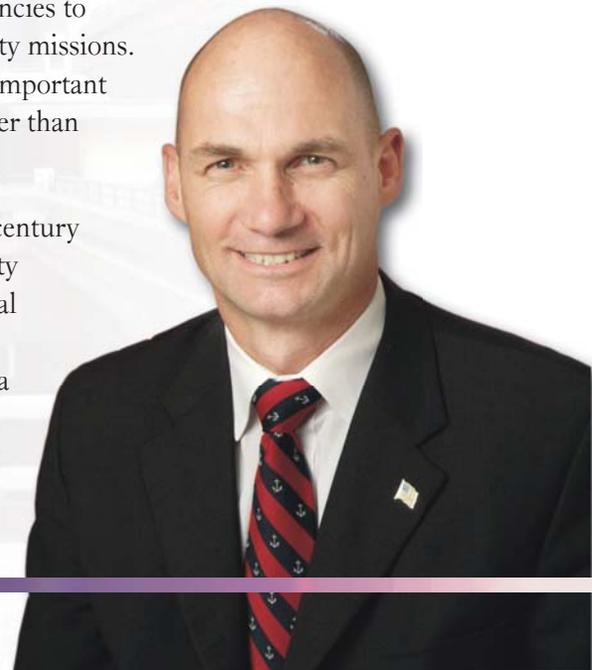
NNSA's laboratories and plants also partner with other government agencies to provide unique technical solutions that will support their national security missions. Our investment strategies support the application of our capabilities to important national problems. And, our relationships with other nations are stronger than ever, as we cooperate to secure nuclear materials worldwide.

The NNSA is truly moving from a nuclear weapons complex to a 21st century Nuclear Security Enterprise, addressing the nuclear and national security challenges of the 21st century. The people of the NNSA are the essential ingredient in all of our solutions. As we move forward, I am blessed to represent the outstanding national security professionals of the NNSA, a team anchored in technical excellence and unwavering commitment.

Thomas P. D'Agostino

**Mission:** Enhance global security through nuclear deterrence, nonproliferation, counterterrorism, naval nuclear propulsion, and national leadership in science, technology, and engineering.

**Vision:** Make the world a safer place.



## Background

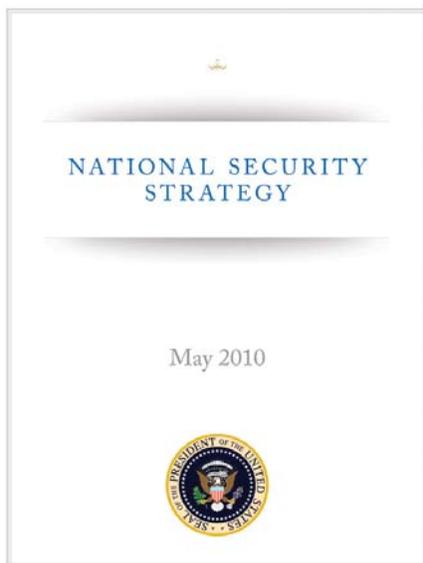
In Prague in April 2009, President Obama highlighted nuclear dangers in the 21st century as the paramount challenge to global security, announcing that in order to overcome these grave and growing threats, the United States will “seek the peace and security of a world without nuclear weapons.” While stressing his commitment to taking concrete steps toward that goal, the President also unequivocally stated that as long as nuclear weapons exist, the United States will maintain a safe, secure, and effective arsenal to both deter adversaries and reassure allies and partners of America’s commitment to their security.



The NNSA carries out three major nuclear security programs in support of the President. Using a state-of-the-art science, technology, engineering, and manufacturing base, the NNSA maintains the safety, security, and effectiveness of the U.S. nuclear weapons stockpile, accelerates efforts to reduce the global threat posed by nuclear proliferation and terrorism, and provides safe and effective nuclear propulsion systems for the U.S. Navy. We also apply our capabilities to a range of other national security programs as well as science, energy, and technology efforts.

## National Policy Direction

The National Security Strategy of May 2010 provides the Administration’s policy with regard to a broad range of national security challenges, particularly stressing the importance of nuclear security:



“There is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states. That is why we are pursuing a comprehensive nonproliferation and nuclear security agenda...”

— National Security Strategy, May 2010, page 4

This comprehensive agenda was described in the 2010 Nuclear Posture Review (NPR) report, prepared by the Department of Defense, in consultation with the Department of Energy and the Department of State. The NPR set out key objectives for our nuclear weapons policies and posture, two of which the NNSA directly contributes to: preventing proliferation and nuclear terrorism, and sustaining a safe, secure, and effective nuclear arsenal.

The 2011 DOE Strategic Plan provides the next layer in the policy framework for the NNSA to carry out its responsibilities as part of the President's nuclear security agenda. The DOE Strategic Plan reinforces the NPR objectives and additionally calls out the need to enhance proliferation resistance through responsible nuclear power development. The NNSA also supports the Department's science and energy missions. In the detail that follows, the examples and time lines reflect the President's Fiscal Year 2012 Budget Request.

## The Role of NNSA's Enterprise in the Nuclear Security Agenda

In order to accomplish the objectives in the National Security Strategy, the Nuclear Posture Review, and the DOE Strategic Plan, the NNSA will draw upon the expertise and infrastructure resident across our Nuclear Security Enterprise. The science, technology, engineering, and manufacturing competencies of our Enterprise, and the complementary suite of facilities and supercomputing capabilities, underpin our ability to assess the safety, security, and reliability of each nuclear weapon system and to address broader national security requirements.

Our Enterprise spans national laboratories, naval atomic power laboratories, manufacturing and experiment sites, and NNSA offices in the United States and around the world. The management and operating (M&O) contractors are the Department's long-term partners, performing the diverse research, development, and manufacturing necessary to carry out our mission. Our Enterprise is a national asset, contributing directly to the missions of the Departments of Defense, State, and Homeland Security, the U.S. Intelligence Community, and other agencies and government entities. Our Enterprise also

supports broader international efforts through the Mutual Defense Agreement with the United Kingdom and agreements with other countries, as part of our collective goals to assure nuclear deterrence with our allies and to reduce the threat of nuclear terrorism.

Regardless of stockpile size, ensuring a safe, secure, and effective nuclear stockpile requires certain core capabilities and technical expertise in science, research and development, and manufacturing. The need to retain these assets across our Enterprise will increase in importance as we work to address the nuclear security challenges of the 21st century. These assets,



NNSA works closely with other Federal agencies to support its mission. Defense Secretary Robert Gates talks with Lab Director Michael Anastasio (left) and head of the NNSA Tom D'Agostino on a visit to the Los Alamos National Laboratory.



NNSA deployed people and equipment — including Consequence Management Response Teams and Aerial Measuring Systems — to Japan in response to the March 2011 earthquake, tsunami, and reactor incident.

ultimate hedge, providing the ability to identify, interpret, and counter emerging threats, whether nuclear, radiological or conventional, and to respond to technical and geopolitical surprise.

## The NNSA Administrator's Key Goals

The NNSA Administrator has derived five key goals for the coming decade as the NNSA implements its responsibilities under the President's comprehensive nuclear security agenda:

- Reduce nuclear dangers;
- Manage the nuclear weapons stockpile and advance naval nuclear propulsion;
- Modernize the NNSA infrastructure;
- Strengthen the science, technology, and engineering base; and,
- Drive an integrated and effective Enterprise.

and the expertise of all of our people, provide the means to conduct stockpile stewardship and to solve the technical challenges of verifying treaty compliance, assessing foreign nuclear weapons activities, combating nuclear terrorism and proliferation, and guarding against the threat posed by technological surprise. Future investments, particularly in our people, will reinforce all elements of the comprehensive nuclear security agenda and provide our workforce the opportunity to engage in challenging and meaningful research and development activities.

Our people and facilities are the



NNSA manages the nuclear weapons stockpile, reduces nuclear dangers globally, supports naval nuclear propulsion, and provides emergency operations and response.

## Reduce Nuclear Dangers

The President has stated “There is no greater threat to the American people than weapons of mass destruction, particularly the danger posed by the pursuit of nuclear weapons by violent extremists and their proliferation to additional states.” The NNSA, working with its partners across the United States and overseas, will accelerate and broaden nonproliferation and arms control efforts to implement the President’s nuclear security agenda.

### **We will engage our domestic and international partners in a global effort to secure the most vulnerable nuclear materials worldwide within four years.**

This objective, articulated by President Obama in his 2009 Prague speech, was reaffirmed in the 2010 Nuclear Security Summit Communiqué and Work Plan. To achieve this objective, we will continue to work with international partners to remove or secure high-priority vulnerable nuclear and radiological material around the world and to minimize the civilian use of proliferation-sensitive materials by converting research reactors and medical isotope production processes to operate on fuel that cannot be used in nuclear weapons. We will continue our partnership with Russia to consolidate and dispose of excess weapons-grade plutonium and highly enriched uranium, while assisting in securing nuclear and radiological facilities in other countries around the world. We will work with the international community to develop and implement best practices and standards for nuclear security through the establishment of centers of excellence for nuclear security, and through work with the International Atomic Energy Agency and other partners.



A security team member in Chile protects a canister containing special nuclear material as it was being removed from the country.



NNSA’s Megaports Initiative portal monitors at Antwerp in Belgium detect illicit trafficking of nuclear and radiological material.

### **We will partner with the international community to impede the proliferation of nuclear weapons technologies, information, and materials.**

We will strengthen domestic and international partner capabilities to detect and prevent illicit trafficking of WMD-related material, equipment, technology, information, and expertise, support the development of legal and operational frameworks for export controls, and



Secretary of Energy Steven Chu outlines the NNSA's nonproliferation strategy at the International Atomic Energy Agency General Conference in Vienna, Austria.

expand programs to install nuclear material detectors at key borders, airports, and seaports.

### **We will provide technical support to the President's arms control and nonproliferation agenda.**

The NNSA has long applied its technical and policy expertise to advise policymakers and to develop technologies to monitor compliance with arms control and nonproliferation commitments. This expertise will be used to develop enhanced methods to better detect and monitor potential clandestine nuclear weapons programs and illicit diversions of nuclear materials. The success of agreements such as the New START, the Nuclear Non-Proliferation Treaty, the Fissile Material Cut-off Treaty, and the Comprehensive Nuclear-Test-Ban Treaty depends, in part, upon having the technical means and policy context to support negotiations and to detect non-compliance.

### **We will contribute to developing a new international framework for civil nuclear cooperation.**

The President has called for such a framework, to include an international nuclear fuel bank and possible fuel leasing arrangements to provide alternatives to fuel cycle development for new

#### **Select Initiatives**

##### **Secure Vulnerable Nuclear Materials:**

- By the end of 2013, secure the most vulnerable nuclear materials worldwide.
- In 2013, complete the downblending of 500 metric tons of Russian surplus highly enriched uranium.

##### **Centers of Nuclear Security Excellence:**

- Work with China, Japan, and South Korea as each country starts up their Center in 2012.

##### **Impede Sensitive Nuclear Trade:**

- By 2015, strengthen export control and border security systems in 32 countries and expand technical engagement with 20 new foreign partners to strengthen international forensics capabilities.
- By 2015, install radiation detection equipment at 650 border crossing sites and 100 Megaports.

##### **Nuclear Materials Detection:**

- By 2013, demonstrate technologies for special nuclear material movement detection.
- By 2016, demonstrate technologies for detecting foreign uranium enrichment.

##### **Arms Control Commitments:**

- By 2014, conduct transparency exercises with other nuclear weapon and non-weapon states to enable verification regimes.
- By 2015, demonstrate characterization capabilities of SNM production facilities.
- By 2016, develop warhead monitoring and chain-of-custody capabilities for end-to-end field demonstrations in support of new arms control commitments.

### Select Initiatives

#### Strengthen Nuclear Safeguards:

- By 2013, deploy new non-destructive assay technologies to directly quantify plutonium in spent fuel.
- By 2016, demonstrate remote monitoring capabilities for reactor operations.

#### Counterterrorism and Nuclear Threat Response:

- By 2012, hold joint nuclear facility or transportation security exercises with two established foreign partners.
- By 2012, establish new partnerships with two additional foreign partners.
- By 2012, complete nuclear materials and energetic materials characterization and prioritization, initiate development of new nuclear counterterrorism render safe tools, and conduct the 100th counterterrorism tabletop exercise.

entrants into the nuclear market. The NNSA partners with the DOE Office of Nuclear Energy and others to consider, and where necessary develop, the legal, institutional, and commercial arrangements necessary to promote the expansion of peaceful nuclear energy without increasing proliferation risks. As part of this process, we will downblend surplus U.S. highly enriched uranium for an Assured Fuel Supply to be used in case of a fuel emergency domestically, and with countries that meet certain nonproliferation criteria, as determined by the U.S. Government.

### **We will assist in minimizing the proliferation risks associated with peaceful nuclear energy cooperation.**

The NNSA is leading a cooperative, comprehensive initiative to develop the technologies, policies,

concepts, expertise, and infrastructure necessary to support and strengthen the international safeguards system over the next 25 years. This initiative to strengthen the safeguards system will help ensure that existing nuclear energy programs are not converted to produce special nuclear materials; that vulnerable materials, once secured, remain secure; and that future nuclear energy programs are conducted in a manner that reduces proliferation risk. In the United States, the NNSA is working to dispose of fissile nuclear materials safely and securely by processing nuclear materials previously used in U.S. nuclear weapons for use in nuclear reactors in a form that has enhanced proliferation resistance.

### **We will provide expert knowledge and operational capability for counterterrorism, counterproliferation, and nuclear threat response, domestically and internationally.**

Leveraging its nuclear weapons expertise, the NNSA has developed state-of-the-art training, operational support, and technical and policy understanding to address nuclear security challenges. We apply these capabilities to nuclear threat identification, emergency preparedness and response, nuclear forensics, and the neutralization of improvised nuclear and radiological devices. We will establish new partnerships with key countries and continue work with interagency partners to provide technical leadership in understanding current and emerging nuclear threats.



Members of the Radiological Assistance Program perform training exercises in Alaska.

# Manage the Nuclear Weapons Stockpile and Advance Naval Nuclear Propulsion

In the National Security Strategy, the President declared that while the United States would seek a world without nuclear weapons, as long as nuclear weapons exist, the United States will maintain a “safe, secure, and effective nuclear arsenal.” Until that vision is achieved, the NNSA will manage the nuclear deterrent by understanding the stockpile, extending the life of warheads, and dismantling retired weapons. In addition to the weapons stockpile mission, the NNSA also provides nuclear propulsion systems for the U.S. Navy nuclear fleet.

## We will understand the condition of the nuclear stockpile.

We use robust surveillance and assessment capabilities enabled by a science, technology, engineering, and manufacturing base to ensure the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without underground nuclear testing. These activities are crucial for revealing anomalies, assessing their impact on warhead performance, and investigating the source and pervasiveness of any defects. Assessment activities include evaluation of surveillance findings using updated baselines of each weapon system based on enhanced non-nuclear experimental data, advanced simulations, and legacy nuclear test data. The results provide critical input to the annual Stockpile Assessment, which is prepared by the three NNSA National Laboratory Directors and the Commander of STRATCOM, and reported through the Secretaries of Defense and Energy to the President.



The B61 bomb is the oldest nuclear weapon in the active stockpile.

### Select Initiatives

#### Surveillance:

- In 2011, apply a Lean Six Sigma surveillance program to ensure adequate data for stockpile assessments and weapon reliability reports.
- By 2014, complete the transformation of the weapons stockpile surveillance program to enable detection of initial design and production defects for life extended weapons, materials aging defects, and predictive performance trends for the enduring stockpile.

#### Assessments and Certification:

- In 2011, increase the rigor of peer reviews in support of the Annual Assessment by including an independent weapons assessment process.
- In 2012, demonstrate a model-based qualification of silicon electronics for weapon use in hostile environments.
- By 2015, incorporate validated capabilities for primary boosting and energy balance in support of stockpile management.

## We will extend the life of U.S. nuclear warheads.

Life extension programs, enabled by the Enterprise base, address aging and reliability issues and incorporate appropriate modern safety and security features into existing warhead systems, consistent with the direction in the Nuclear Posture Review report. Additionally, we will replace materials and technologies in our weapons that use manufacturing processes no longer available or do not meet modern health and safety standards.

## We will continue to dismantle retired warheads.

Dismantling retired weapons is tangible evidence of the U.S. commitment to move toward a world free of nuclear weapons. Some components will be retained as previously tested components, available for potential reuse. Certain nuclear materials and components will be recycled for use as fuel in civilian nuclear power plants and research reactors, and as fuel for our nuclear Navy.

In all stages of managing the nuclear weapons stockpile, we will provide safe, secure transportation of nuclear warheads, components, and special nuclear material across the Enterprise.

## We will design and develop integrated naval nuclear propulsion systems.

The NNSA provides the research, development, design, and operational support for militarily effective naval nuclear propulsion plants. We also provide the enriched uranium for fabrication into fuel for the Navy's propulsion reactors. We will apply new technology to enable lower-cost construction while enhancing reactor plant safety and survivability and reducing life cycle costs.



The USS New Mexico. NNSA provides nuclear propulsion related research, development, operational support, and enriched uranium for the U.S. nuclear submarine fleet.



Team members from the W62 dismantlement program safely and securely retired the W62 nuclear warhead from the U.S. nuclear weapons stockpile.

### Select Initiatives

#### Life Extension Programs (LEPs):

- In 2011, develop the Component Maturation Framework for use across all future LEPs.
- In 2012, deploy a formal process to mature safety and security technologies.
- In 2013, complete a feasibility study for extending the life of the W78 ICBM warhead, including the possibility of using common components and adaptable features to enable inter-operability of the resulting warhead for ICBM and SLBM deployment.
- In 2015, demonstrate maturity of compound semiconductor electronics for insertion into LEPs.
- By 2017, complete the life extension study phase 6.1-6.4 for the B61 bomb to support first production.
- By the end of 2018, complete the W76-1 SLBM warhead LEP.

#### Dismantlement:

- In 2012, complete dismantlement of B53 bombs.
- By 2022, complete the dismantlement of all weapons systems retired prior to 2009.

#### Naval Nuclear Propulsion:

- By 2015, provide the Navy with an A1B reactor plant for the next generation GERALD R. FORD-class aircraft carrier.
- By 2026, provide the Navy with a life-of-the-ship core and reactor plant for the next generation ballistic missile submarine (OHIO-class replacement).

## Modernize the NNSA Infrastructure

The Nuclear Posture Review states, “in order to remain safe, secure, and effective, the U.S. nuclear stockpile must be supported by a modern physical infrastructure.” Since the 1990s, the Department of Energy has accelerated the development of our science-based infrastructure and reduced the footprint of the Cold War-sized facilities that are no longer required. For the future, additional investments in science, technology, engineering, manufacturing, and information technology infrastructure will sustain the capabilities that underpin the stockpile and other national security missions.

**We will shape the infrastructure to assure we have the core capabilities necessary to execute our mission responsibilities and will create a 21st century Nuclear Security Enterprise.**

The United States must maintain capabilities to support a breadth of activities including, but not limited to, science and engineering research, plutonium and uranium component production, non-nuclear component production, high-explosives capabilities, assembly/disassembly, tritium production, secure transportation, and experimental operations. We will drive



Inspecting a heater constructed under the Heating Systems Modernization project at Sandia National Laboratories.



Installation of a rebar curtain at the Mixed Oxide (MOX) Fuel Fabrication Facility.

further consolidation and integration of activities so that surplus and outdated facilities can be removed or repurposed to capture efficiencies and economies.

The NNSA will pursue an Enterprise with integrated management of capabilities. The future Enterprise must also take into account the infrastructure required to address the non-stockpile security challenges within the NNSA mission space, such as nonproliferation and counterterrorism, as well as the work of the broader national security community.

Infrastructure investments will focus on the capabilities that underpin our nuclear security mission including, but not limited to, the National Ignition Facility, the Chemistry and Metallurgy Research Replacement facility, the Microsystems and Engineering Sciences Applications complex, the High Explosives Pressing Facility, the Criticality Experiments Facility, the Mixed Oxide (MOX) Fuel Fabrication Facility, the Uranium Processing Facility, and existing and emerging advanced computing platforms. We will also modernize our information technology infrastructure to ensure that our workforce can access appropriate information in a secure, reliable, and cost-effective manner. There is a broad range of intermediate and small-scale facilities that also serve as resources for national security priorities. The NNSA will work with others to apply our capabilities for national security, science, and energy efforts.

### **We will execute a disciplined reinvestment strategy.**

As requirements for new or expanded capabilities emerge, our reinvestment strategy will use accepted life cycle management standards to integrate maintenance and replacement schedules with needs for new facilities and capabilities. Our strategy will also maximize the efficient use of energy and natural resources at existing facilities, and ensure that whenever built, new facilities are highly energy efficient.

#### **Select Initiatives**

##### **Science, Technology and Engineering:**

- By 2012, remove all Cat I/II material from Lawrence Livermore National Laboratory.
- By 2012, realize the Livermore Valley Open Campus.
- By 2018, provide essential infrastructure required to support exa-scale computing capabilities.

##### **Research, Development, and Manufacturing Capability:**

- By 2013, determine the cost to build the Chemistry and Metallurgy Research Replacement facility based on 90% design maturity.
- By 2013, determine the cost to build the Uranium Processing Facility based on 90% design maturity.
- By 2014, transition to a smaller, leased, non-nuclear manufacturing facility, KCRIMS.
- In 2016, complete construction of the MOX Fuel Fabrication Facility needed to dispose of at least 34 metric tons of surplus weapons-grade plutonium.
- By 2017, complete construction of the High-Explosive Pressing Facility.
- By 2020, recapitalize Naval Reactor's spent nuclear fuel handling infrastructure.



The proposed Uranium Processing Facility will ensure NNSA's long-term capability to safely and securely manage existing highly enriched uranium inventories to meet mission requirements.

## Strengthen the Science, Technology, and Engineering Base

In the National Security Strategy, the President renewed the Nation's commitment to being the global engine of scientific discovery and technical innovation. Further stressing the importance of the science, technology, engineering, and manufacturing base for the nuclear mission, the Nuclear Posture Review notes that our specialized workforce is essential to managing the deterrent and supporting the full range of the President's nuclear security agenda. This excellence is rooted in the DOE system of national laboratories broadly, and within the NNSA at the Lawrence Livermore, Los Alamos, and Sandia National Laboratories, the two naval atomic power laboratories, and our unique manufacturing and experiment sites. The national laboratories are trusted advisors to the government on technical issues. The NNSA will strengthen this base by pushing the boundaries of science, technology, and engineering relevant to national security.

**We will advance the science, technology, and engineering competencies that are the foundation of the NNSA mission.**

Specialized capabilities in nuclear weapon design and manufacturing rely on the expertise of the people and the uniqueness of the facilities across the Enterprise. Intricate technical methodologies are used to address complex issues such as assessing stockpile reliability and validating changes in manufacturing,



Scientists perform experiments at the Microsystems and Engineering Sciences Applications (MESA) complex.



NNSA uses Advanced Simulation and Computing codes to study and address anomalous physical conditions without having to test in a laboratory.

testing and development processes. Confidence in the technical judgment of our people is critical to effective assessments in these areas.

Our Enterprise provides access to some of the world's best research scientists, top computing platforms, and state-of-the-art technologies like inertial fusion, specialized electronics fabrication, and unique diagnostics tools. These assets help attract the necessary technical talent and allow us to assess their competence for future national security work.



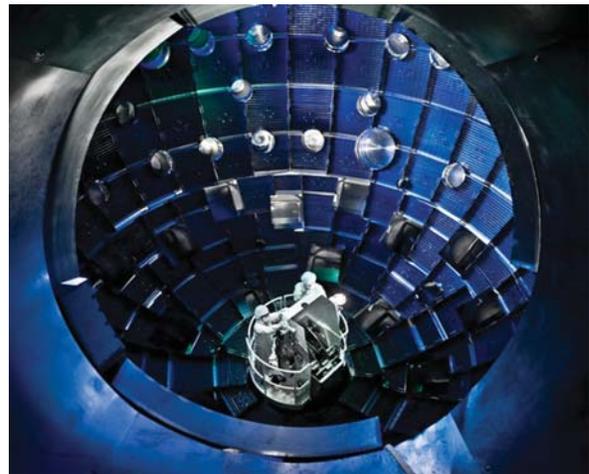
The CAVE Facility allows scientists and engineers to interact with full room 3D simulations and models.

### **We will broaden our understanding of future needs.**

The activities of designing and analyzing nuclear explosive devices encompass a broad spectrum of technical skills, integrating chemistry, mechanical, and electrical engineering, computational mathematics, atomic and nuclear physics, plasma physics, hydrodynamics, and high energy density physics. We have also partnered with industry to advance computing platforms and information technology. Our experience in conducting research in these areas represents the intellectual base that we can apply to the broader scope of NNSA nuclear security goals.

### **We will expand and apply our science and technology capabilities to deal with broader national security challenges.**

We will facilitate the flow of resources and talent to meet national security missions. These missions ensure vitality in our ST&E base and retention of critical infrastructure and skills. Through an interagency forum, the NNSA will engage with partners such as the Departments of State, Defense, and Homeland Security, as well as the U.S. Intelligence Community, to ensure that our technical capabilities are more accessible and applied to meet the needs of the broader national security community. We will develop capabilities and apply expert knowledge for nuclear detonation monitoring in support of the nuclear deterrent, collaborate with stakeholders on nuclear nonproliferation technology development, counterterrorism, and counterproliferation priorities, and partner where appropriate in interagency research, development, and experimental efforts. Within the Department of Energy, NNSA technical capabilities will also assist overall science and energy security efforts, addressing problems at the nexus of energy, climate, environment, and security.



Technicians inside the target chamber of the National Ignition Facility (NIF).

## We will address the needs of emergency response and the threat of nuclear terrorism.

The NNSA has long supported responses to nuclear and radiological emergencies through enhanced technologies and deployment of technical teams trained in effective response methods. Continuing to pursue new technologies in this arena will allow us to apply our ST&E base and strengthen nuclear forensics capabilities to improve our national ability to identify the source of nuclear material used or intended for use in a terrorist nuclear explosive device. Additional ST&E efforts will address non-stockpile nuclear devices, homemade explosives, and nuclear materials detection capabilities.

## We will protect against technological surprise.

The NNSA plays a critical role in the Nation's ability to understand and mitigate strategic threats worldwide. Therefore, we will sustain and invest in essential capabilities to ensure that the United States is recognized internationally as leading in a broad range of technical fields and that gaining advantage by technological surprise is highly unlikely. We will also support the intelligence community by providing technical analysis of foreign weapons programs, and nuclear proliferation and terrorism threats.

## We will invest in a technical workforce to deal with evolving security needs.

The United States must continue to maintain second-to-none nuclear science and technology. Technical challenges and scientific discovery embedded in nuclear deterrence and global nuclear threat reduction missions require that the Enterprise attract and retain the best and brightest scientists, engineers, and technicians. Complementing our mission work, we will provide opportunities to keep people intellectually challenged and to push the boundaries of science. We will work with academia, small business, and industry to ensure a pipeline of technical experts and to foster innovation. Unparalleled experimental and computational capabilities must continue to be developed and applied to enhance knowledge of lifecycle nuclear weapons performance and to train the next generation of weapon scientists and engineers. The next generation of our workforce must have a sense of national purpose in keeping the U.S. nuclear deterrent safe, secure and effective, and of their important and growing role in broader national security efforts.

### Select Initiatives

#### Stockpile Stewardship:

- In 2012, complete National Ignition Campaign and begin to transition the National Ignition Facility to a national user facility for weapon and High Energy Density science.
- In 2012, provide experimental and computational (20 petaflops system) capabilities for science-based assessment.
- In 2015, provide capabilities for primary boosting, validated by experiments at NIF, that will underpin future life extension options and improved stockpile assessment.

#### Partnerships:

- In 2011, implement the new multi-agency Governance Charter with DoD, DHS, and the Intelligence Community for collaboration in strategic planning for critical ST&E capabilities.
- By 2012, streamline funding mechanisms to promote interagency partners' use of NNSA's ST&E base.
- By 2012, establish joint planning efforts for Inertial Fusion Energy Technology and for Exascale Computing.
- In 2012, work with DHS and others to apply science, computing, and technology capabilities to enhance global transportation security.

#### Technical Workforce:

- In 2012, develop enterprise modeling tools for managing our skilled technical workforce.
- By 2012, enhance inter-lab peer review using independent computational analysis for the assessment of the U.S. nuclear weapons stockpile.

# Drive an Integrated and Effective Enterprise

**A**ccomplishing the Administrator’s key goals requires a renewed and continuing commitment to partnership between Federal and contractor management. We will operate as “OneNNSA” by employing a management approach that integrates leadership, people, and processes to better accomplish our goals as a unified Nuclear Security Enterprise.

## We will use more effective governance and business models.

We will improve our NNSA-wide governance to drive the concept of “OneNNSA.” Decisions will take into account the requirements of all elements of our Enterprise, eliminating internal stovepipes within the NNSA. We will use risk-informed, Federal oversight models that clarify roles and responsibilities and eliminate non-value added oversight activities. Our Enterprise partners will have greater flexibility, without compromising accountability, to realize cost savings and to further operational effectiveness. We will actively capture best practices in industry and across our Enterprise to solve problems more efficiently.

## We will improve understanding of the interaction between risk and cost.

The NNSA will execute programs at the lowest cost without sacrificing either critical mission elements or our commitment to operating in a safe, secure, and environmentally sound manner. Our project managers will focus on risk management along with the traditional concerns of scope, cost, schedule, and performance goals. We will require appropriate training to better equip our workforce to provide more effective project management and oversight. Our acquisition strategies will analyze the drivers for safety, security, and environmental requirements and better determine their impacts on program and facility costs.

## We will attract, train, and retain the next generation of Federal nuclear security professionals, technical experts, and business managers.

We must ensure that our Federal workforce has the right skills in the right place at the right time. Taking a proactive approach to succession planning, we will use a comprehensive recruitment strategy that identifies expected workforce needs. To increase our retention rates, we will develop training plans for all Federal employees and focus on developing the next generation of the NNSA senior leadership team. The goal of these efforts is to create an environment that attracts the best and the brightest, and motivates excellence from our Federal workforce.

### Select Initiatives

#### Governance Strategy:

- By 2012, implement the governance reform performance-based model across the Enterprise.

#### Productivity Improvements:

- In 2011, complete secure 802.11 interior wireless infrastructure investments at LANL, LLNL, Pantex, and the Y-12 National Security Complex to allow for cost savings/improved efficiency.
- In 2012, complete the wide-area, high-bandwidth, exterior wireless infrastructure at the Nevada National Security Site.
- By 2012, document savings of \$450 million under the supply chain management initiative.
- In 2012, complete Enterprise assessments for Information Security and Physical Protection in support of the Zero-Based Security Review.

#### Human Capital Planning:

- By 2012, develop and manage a Human Capital Plan to serve as a roadmap for building a “best and brightest” Federal workforce for the future.
- By 2013, become one of the Federal government’s 10 best places to work.

## Conclusion

The Nation has carefully evaluated its security needs in an international landscape that remains challenging and uncertain. We have charted a path forward that shows our unwavering commitment to the Nation's security and enhances our formidable capabilities to address security challenges.

The NNSA is a technically based organization with a strong nuclear heritage that serves as the base for our contribution to a wide range of national security solutions. We are rooted in the management of our Nation's nuclear weapons stockpile and the application of nuclear energy for naval propulsion. Additionally, we apply our capabilities to support a broad range of U.S. and international activities that address existing dangers, and identify and prepare for future challenges. We also advise the U.S. Government and our international partners on nuclear security matters.

We developed this plan to take the NNSA programs into the next decade and to posture our facilities for several decades to come. We will strengthen our capabilities that are themselves integral elements of our nuclear deterrent. Our challenge is to retain the capabilities that continue to be essential, to identify and develop those needed for the future, and to strengthen our capabilities where they have been weakened by age and neglect.

Our people are the heart of our Enterprise and remain the ultimate security hedge for the Nation. A vibrant, motivated workforce working in modern, efficient, and environmentally sustainable facilities will provide the Nation the capability and agility to address any potential threat and to assure the people of the United States, our allies, and all others that we have an unquestioned commitment to global security.



NNSA draws upon a talented team of individuals to address a broad range of national security requirements.

## Appendix: How the NNSA Does Business

**A** key to NNSA's future success is grounded in understanding and exercising key NNSA values that will drive all of our actions each day. The NNSA operating principles reflect the Administrator's commitment to excellence, integrity, respect, and teamwork in NNSA activities throughout the Nuclear Security Enterprise.

The NNSA Operating Principles apply to all elements of our Enterprise. During the course of day-to-day work, each of the elements of the Enterprise has distinct responsibilities necessary to accomplish the NNSA mission. NNSA Headquarters elements provide policy, priority, and program funding guidance to other elements of the Enterprise, along with oversight of progress toward strategic goals. NNSA Site Offices are located in proximity to the laboratory, manufacturing, and experiment sites, and provide direct budget, regulatory and contract oversight, and administrative authorization for those organizations. Site Office personnel, using input from NNSA Headquarters managers, set performance expectations with the M&O contractors to accomplish assigned missions, ensure security of operations, and protect the environment, safety and health of workers and the public, as well as verify the effectiveness of Contractor assurance/performance systems. The NNSA Service Center provides business, human resources, financial, legal, technical, and management advice and services to the Federal NNSA Enterprise, ensures that M&O contractors maintain financial integrity and appropriateness of contract costs, and manages the NNSA Personnel Security Program. The DOE and the NNSA also have employees located in 13 countries to advance the national, economic, and energy security interests of the United States.

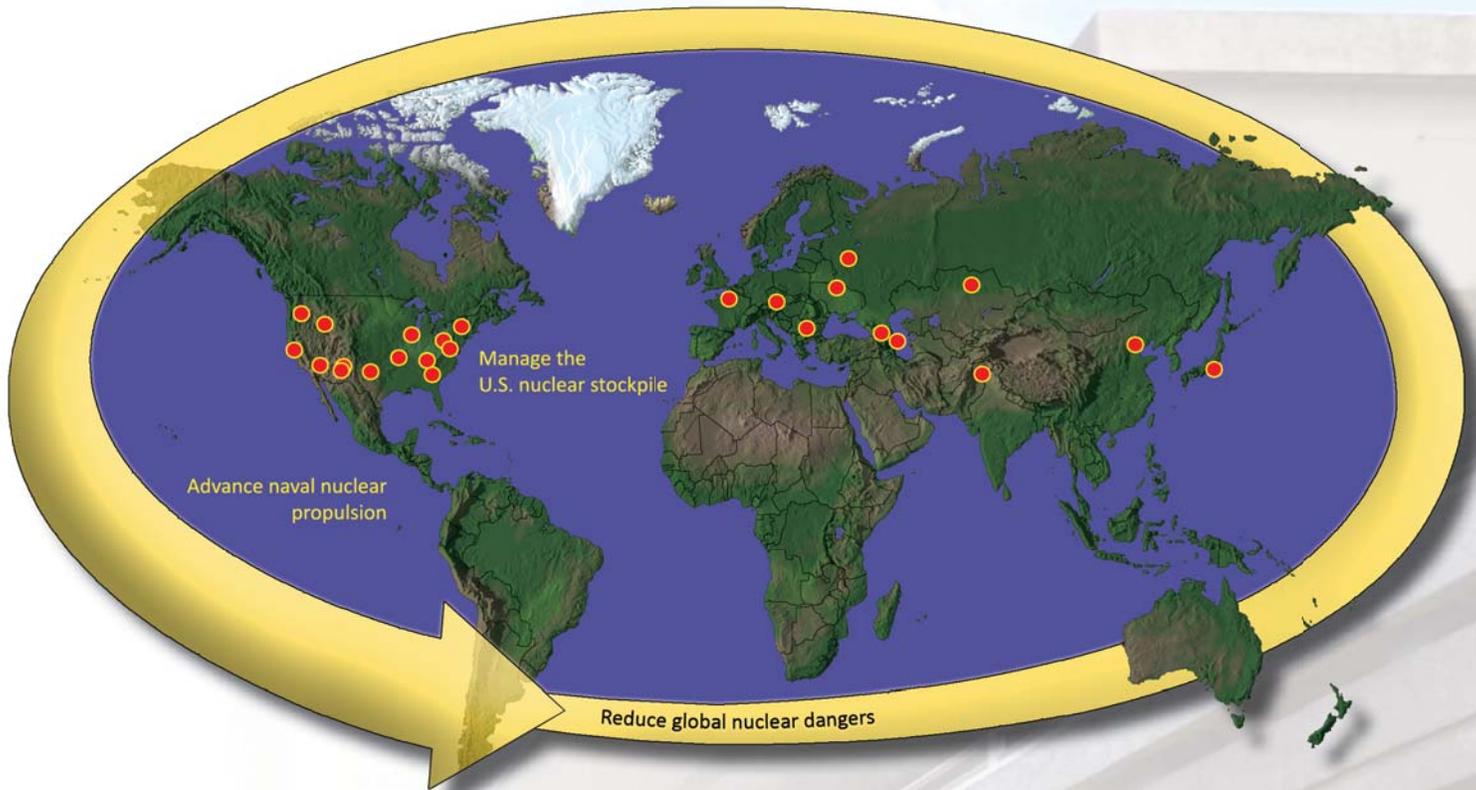
### Operating Principles

- Our Mission is vital and urgent – we must constantly focus on mission outcomes.
- Science, technology, and engineering lie at the heart of our mission.
- We succeed only through teamwork, innovation, and continuous improvement.
- We pursue our mission in a manner that is safe, secure, legally and ethically sound, and fiscally and environmentally responsible.
- We will pursue our mission such that management, staff, and processes are integrated across and exchanged freely within the NNSA.
- We manage risk across program objectives and operational performance to fulfill our mission.
- We apply validated standards and rely on rigorous peer reviews.

The M&O contractors are the Department's long-term partners in carrying out the mission work. As partners, we determine the most cost effective means of accomplishing the NNSA objectives, deliver the products, services and/or outcome necessary to meet requirements set by NNSA management, and attract and retain the highest quality workforce. As partners, we are also responsible to provide and ensure the stewardship and long-term viability, safety, security and health of the workforce, the environment, the facilities, the assets, and the infrastructure of the Enterprise that are entrusted to our care.

The DOE national laboratories drive the DOE and NNSA engine of scientific discovery and technical innovation for reducing nuclear danger and extending the life of the stockpile; provide the annual stockpile assessment to the President; provide national security technical evaluations to a variety of oversight committees and stakeholders; and, leverage NNSA capabilities to address related national security challenges, including intelligence support and energy security. The manufacturing and experiment sites each provide unique facilities, creative engineering and manufacturing capabilities, special handling of nuclear weapons and weapons-related special materials, and provision of specialized nuclear reactor fuel.

# Key NNSA Locations



## Locations

Washington, DC	Department of Energy National Nuclear Security Administration Headquarters		
California	Lawrence Livermore National Laboratory and Site Office		
Idaho	Naval Reactors Facility		
Missouri	Kansas City Plant and Site Office		
Nevada	Nevada National Security Site and Site Office		
New Mexico	Los Alamos National Laboratory and Site Office NNSA Service Center Sandia National Laboratories (NM, CA, NV, HI) and Site Office		
New York	Knolls Atomic Power Laboratory		
Pennsylvania	Bettis Atomic Power Laboratory		
South Carolina	Savannah River Site and Site Office		
Tennessee	Y-12 National Security Complex and Site Office		
Texas	Pantex Plant and Site Office		
Key International Locations	Moscow, Russia Astana, Kazakhstan Vienna, Austria Baku, Azerbaijan	Beijing, China Islamabad, Pakistan Sofia, Bulgaria Paris, France	Tokyo, Japan Kyiv, Ukraine Tbilisi, Georgia
DOE laboratories working with NNSA	Argonne National Laboratory Idaho National Laboratory Oak Ridge National Laboratory Pacific Northwest National Laboratory		



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[www.energy.gov](http://www.energy.gov)  
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