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**Report of a Workshop on Nuclear Forces and Nonproliferation
Woodrow Wilson International Center for Scholars, Washington, DC
October 28, 2010**

Joseph F. Pilat, Los Alamos National Laboratory¹

In Prague's Hradcany Square on April 5, 2009, President Barack Obama offered a bold vision of the nuclear future that encompassed both reducing nuclear dangers and pursuing the goal of a world without nuclear weapons while maintaining, as long as nuclear weapons remain, a safe, secure and effective arsenal to deter potential adversaries and to assure US allies, friends and other partners that they can rely on America's security commitments.

The agenda put forward in Prague involves the full range of nuclear policy issues from deterrence to nonproliferation and disarmament. The 2010 Nuclear Posture Review (NPR) Report, reflecting the twin objectives of the Prague speech, for the first time placed the United States commitment to leading expanded international efforts to strengthen the nuclear nonproliferation regime at the top the US nuclear agenda. This attention underscored the fact that the top priority of the United States is to discourage additional states from acquiring nuclear-weapon capabilities and to prevent terrorist groups from acquiring weapon-usable nuclear materials. It also reinforced the view that positively influencing the 2010 Review Conference (RevCon) of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was a key objective of the Obama Administration.

The NPR developed both the vision and the policy, but details of implementation will need to be developed and key concepts and issues better understood. How will nuclear roles be affected by the new Negative Security Assurance? Will the nuclear forces necessary to support a robust and reliable deterrent and defense capability be available for the long term? How will they be configured? How will the development of forces affect and be affected by nonproliferation, arms control and disarmament obligations and objectives? What will be the impact of increasing reliance on nonnuclear forces and missile defenses on deterrence? What are the effects on extended deterrence and assurance? What are the likely effects of such changes on the health of the NPT in the aftermath of the 2010 NPT RevCon?

A workshop sponsored by the Los Alamos National Laboratory in cooperation with the Woodrow Wilson International Center for Scholars was held at the Wilson Center in Washington, DC, on October 28, 2010. The conference addressed evolving US nuclear forces and their impacts on nonproliferation with special attention to the implementation of the 2010 Nuclear Posture Review and to the long term prospects for the NPT.

Summary

The workshop addressed evolving nuclear forces and their impacts on nonproliferation in the context of the new strategic environment, the Obama Administration's Nuclear Posture Review and the 2010 NPT Review Conference. The discussions reflected the importance of the NPR for defining the role of US nuclear forces in dealing with 21st century threats and providing guidance for National Nuclear Security Administration (NNSA) and Department of Defense

¹ The views expressed are the author's summary of discussions and are not the views of the Los Alamos National Laboratory, the National Nuclear Security Administration, the Department of Energy or any other agency. The views should also not be construed to be those of any individual participants.

(DoD) programs and, for many but not all participants, highlighted its role in the successful outcome of the NPT RevCon. There was widespread support for the NPR and its role in developing the foundations for a sustainable nuclear-weapon program that addresses nuclear weapons, infrastructure and expertise in the broader nonproliferation, disarmament and international security contexts. However, some participants raised concerns about its implementation and its long-term effectiveness and sustainability.

Nuclear Forces, the Nuclear Posture Review and Extended Deterrence

There was general support for the NPR's conclusion that, in the emerging security environment, the numbers and roles and nuclear weapons are being and should be reduced consistent with US national security interests and commitments to allies, and that there will continue to be a need to maintain safe, secure and effective nuclear forces for deterrence, extended deterrence and assurance. Sustaining the US nuclear deterrent and its supporting infrastructure for the foreseeable future was widely viewed as necessary and supported. Many expressed the hope that the NPR offered the prospect of aligning decisions on stockpile management and infrastructure modernization issues with a comprehensive nuclear strategy and strengthen the foundations for long-term, bipartisan support in this area.

The NPR report focused on five key objectives of our nuclear weapons policies and posture:

- Preventing nuclear proliferation and nuclear terrorism;
- Reducing the role of U.S. nuclear weapons in U.S. national security strategy;
- Maintaining strategic deterrence and stability at reduced nuclear force levels;
- Strengthening regional deterrence and reassuring U.S. allies and partners; and
- Sustaining a safe, secure, and effective nuclear arsenal.

One participant noted that these objectives were all Administration priorities and required balance. It was argued that the NPR developed both the vision and the policy, but details of implementation will need to be developed and better understood. As interagency efforts to implement the NPR are underway, effective implementation was seen as critical..

There was general support for the threat assessment embodied in the NPR, which underscored the fact that discouraging additional states from acquiring nuclear-weapon capabilities and preventing terrorists from acquiring weapon-usable nuclear materials or weapons were priorities of the United States. There was also general support for the NPR's argument that promoting strategic stability with Russia and China and improving transparency and mutual confidence were critical. However, some concerns were expressed that this might undermine deterrence, extended deterrence and assurance.

It was widely agreed that, as recognized in the NPR, in the post Cold War world, "nuclear weapons play a much more circumscribed role in U.S. national security strategy, a change reflected in the U.S. nuclear posture today." While there was a general recognition that the role of nuclear weapons had already been reduced significantly, not all agree with the NPR's statement that "further steps can and should be taken."

In the context of US declaratory policy, it was noted that some nonproliferation experts and others advocated an unambiguous no-first-use policy or a sole purpose doctrine before and during the review, arguing that nuclear responses to non-nuclear threats are no longer relevant, while others argued for compliance with all obligations related to WMD. The NPR did not adopt any of these suggestions, but changed declaratory policy to strengthen the long-standing US

negative security assurance (NSA) by removing Cold War and chemical-biological weapon exceptions (although it stated the need to continue to monitor the biological threat in this context). It declared: "The United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations." Although many participants viewed the change in the NSA as positive, some were concerned about its impact on deterrence, extended deterrence and assurance.

While the NSA is not a "sole purpose" declaration, it was noted that it clearly moved in this direction. The NPR specifically stated a US commitment to "continue to strengthen conventional capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks, with the objective of making deterrence of nuclear attack on the United States or our allies and partners the sole purpose of U.S. nuclear weapons." Although there was broad support for the greater role of nonnuclear capabilities in deterrence, there were different views on its impact on deterrence, extended deterrence and assurance, as well as on US national security.

There was considerable support for the NPR's call for a sound Stockpile Management Program for extending the life of US nuclear weapons in order to ensure a safe, secure and effective deterrent without further nuclear testing or the development of new nuclear warheads. Specifically, the NPR declared that "the United States will not develop new nuclear warheads. Life Extension Programs (LEPs) will use only nuclear components based on previously tested designs, and will not support new military missions or provide for new military capabilities." In this context, several participants noted that the NPR endorsed the so-called three R's (refurbishment, reuse and replacement), which will allow the laboratories the necessary flexibility to maintain the current stockpile into the future without testing, with an acceptable level of risk. It was argued that it was absolutely imperative that this technical flexibility be assured if the laboratories were to achieve their mission and to exercise their nuclear designers and engineers.

It was also noted that the NPR endorsed the need to rebuild and maintain the nuclear-weapon infrastructure, which is necessary after many years of neglect. There was broad support for the view that recapitalizing the infrastructure is necessary, as was the need for recruiting and transferring knowledge to a new generation. Reinvestment in the science, technology and engineering (ST&E) base was also seen as critical. Long-term, sustainable investment in US human and infrastructure capabilities was generally agreed to be needed, as the existing facilities could not be relied upon in the future. One participant argued that if modernization did not occur, the United States risked losing technological options for future policy. This, it was argued, would effectively mean policy making by default. Several participants stated that the NPR was a good start, but that future challenges were daunting and planned funding was insufficient to enable the NNSA and the national security laboratories to fulfill their responsibilities. One participant also addressed the challenges of follow-on delivery capabilities.

The need to create sustained congressional support, to address competing demands on a budget share that is unlikely to grow and could be reduced and to deal with other difficulties were recognized to be critical challenges to NPR implementation. In this context, some expressed concern that the economic problems of the United States, the budget deficit and the prospect of the Senate failing to ratify New START could undermine continued support and jeopardize funding. However, it was noted that if the implementation of the NPR reconciled investments in the nuclear-weapon complex with the administration's nonproliferation and disarmament agenda, it could be a foundation for stability in US nuclear policies and budgets.

It was noted that although modernization of the nuclear infrastructure has been criticized in some quarters as inconsistent with US arms control and nonproliferation objectives, the NPR argued it was absolutely essential to realize those objectives.

According to the NPR: “By certifying the reliability of each weapon type we retain, the United States can credibly assure non-nuclear allies and partners they need not build their own, while seeking greater stockpile reductions than otherwise possible.”

Moreover, the NPR argued that infrastructure modernization and science, technology and engineering programs allow the United States to “improve the analysis of the reliability of our warheads, ...[and] enhance our ability to assess and render safe potential terrorist nuclear devices and support other national security initiatives, such as nuclear forensics and attribution. Expert nuclear scientists and engineers help improve our understanding of foreign nuclear weapons activities, which is critical for managing risks on the path to zero. And, in a world with complete nuclear disarmament, a robust intellectual and physical capability would provide the ultimate insurance against nuclear break-out by an aggressor.”

Finally, by modernizing the aging US nuclear weapons-supporting facilities and investing in human capital, the NPR argued, “the United States can substantially reduce the number of stockpiled nuclear weapons we retain as a hedge against technical or geopolitical surprise, [and] accelerate the dismantlement of nuclear weapons no longer required for our deterrent.” In this context, the NPR also argued that this capability would allow us to understand and better address the technical challenges of verification of deeper cuts along the path to zero.

There was considerable support for this view and some participants pointed out that the ST&E needed to maintain the US deterrent is absolutely necessary for understanding current and future threats and developing responses, including new possibilities for detecting and countering nuclear proliferation and terrorism.

The NPR recognized the need to “strengthen regional security architectures and reinforce security commitments to allies and partners by maintaining an effective nuclear umbrella.” However, it declared that it would do so “while placing increased reliance on non-nuclear deterrence capabilities.” Most agreed that missile defenses and conventional long-range capabilities would play an increasing role in deterrence, but some noted Russian and Chinese criticism of these capabilities and raised concerns about their impact on strategic stability. As noted, others challenged this view and noted the NPR’s call for strategic stability dialogues with Russia and China.

Extending deterrence to allies was seen to be critical. One participant noted that the objectives of extended deterrence and assurance were not identical, but were more like two sides of the same coin.

It was noted that extended deterrence and assurance to allies can differ substantially according to region. It was argued that for some allies, the most important role of nuclear weapons was the assurance of US engagement. Although the remaining importance of the nuclear component of deterrence was generally recognized, as it was widely held that nonnuclear capabilities cannot alone be the basis of a credible deterrent, it was recognized that deterrence and assurance will

increasingly rely on non-nuclear tools ranging from missile defenses to strong relations with allies to so-called soft power.

It was also recognized that declaratory policy must be reassuring to allies and credible to potential adversaries. In this context, one participant stated that the consultations leading to, and the substance of, the NPR strengthened US relations with allies, and that allied reactions to the new NSA were positive. However, it was noted that many allies had questions about the impact of the NPR on extended deterrence and assurance: What would be the effect of the reduced role of nuclear weapons and increased reliance on non-nuclear capabilities? What does the pursuit of strategic stability vis-à-vis Russia and China portend? One participant ~~noted~~ argued that if the implementation of the NPR did not address these questions and continue the consultation process, relations with allies could be weakened. Another participant argued that other issues than nuclear capabilities were at the forefront of allies' thinking, including concerns about energy security, cyber threats, etc. In this context, several participants raised concerns about Russian nonstrategic nuclear forces (NSNF) and about Russian and Chinese nuclear modernization efforts.

Implications for Nonproliferation, Arms Control and Disarmament

The workshop discussions suggested the positive impact of the NPR on NPT diplomacy. The success of the 2010 RevCon, it was widely held, was facilitated at least to some degree by the NPR. Others challenged this view. Most participants viewed the lead up to the 2015 RevCon as challenging, especially because of the unresolved threats of proliferation in the Middle East and Northeast Asia and the uncertain prospects for the 2012 Middle East conference called for in the RevCon's Final Document.

The Nuclear Posture Review and the NPT Review Conference were two of a series of events that gave rise to hopes that 2010 would be a watershed year for nonproliferation, arms control and disarmament, and the NPR needs to be seen in the context of the NPT RevCon. It was noted that success at the RevCon was not assured and that memories of the RevCon in 2005, which was seen by nearly all parties as a failure, weighed on those involved in the negotiations. Iran was clearly positioning itself for a fight with the United States and other parties on disarmament and peaceful uses of nuclear energy, among other issues. It was feared that Iran and other states would use the consensus rule to prevent a final declaration or even substantive discussion and debate. There was an effort by the United States and other parties to explore alternative ways to define success and to manage expectations.

A tally sheet before the conference seemed weighted to failure, with a deep North-South divide and Nonaligned Movement (NAM) skepticism on the implementation and interpretation of, and initiatives related to, Articles IV, VI and X of the treaty.

While the Prague speech and the Administration's arms control and disarmament agenda were well received, and the basis for NPT outreach, it was recognized that arms control successes would likely be limited at the time of the RevCon. In this environment, it became increasingly clear that the tone and language of the NPR, which was scheduled to come out early in 2010 and finally appeared one month before the RevCon began in May, would be a signal of the Administration's commitment to the treaty regime in both domestic and international audiences.

It appeared that the NPR would have to go well beyond the scope of the Clinton and Bush NPRs, if it were to address these issues and concerns. Reflecting the twin objectives of the Prague speech, the NPR for the first time placed the US effort to strengthen the international nuclear nonproliferation regime as one of the highest priorities of the US nuclear agenda. This attention underscores the fact that discouraging additional states from acquiring nuclear-weapon capabilities and stopping terrorists from acquiring weapon-usable nuclear materials or weapons are critical for the United States. It also reinforced the view that positively influencing the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons was a key objective of the Obama Administration.

With its focus on combating nuclear proliferation and terrorism, and language that appears designed to positively influence the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, the NPR clearly demonstrated that the United States strongly supported the NPT and made the case that US policy is consistent with Article VI.

It was noted that the NPR endorsed the President's arms control and disarmament agenda, committing the United States to the lowest numbers of weapons consistent with security, stability and nonproliferation objectives. The NPR recommitted the United States to forego nuclear testing and to pursue ratification and entry into force of the CTBT. It supported the negotiation of a verifiable FMCT. It also supported "measures to reinvigorate the Nuclear Non-Proliferation Treaty (NPT) and the broader non-proliferation regime, and secure vulnerable nuclear materials worldwide against theft or seizure by terrorists." It provided the basis for negotiating New START, and declared that the President directed a review of post-New START arms control objectives, to consider future reductions that included non-strategic and non-deployed nuclear weapons on both sides. In this context, the further reduction or elimination of nonstrategic nuclear forces was discussed and received some support. Others noted that because any distinctions between strategic and tactical weapons were increasingly irrelevant the large numbers of Russian NSNF are a complicating factor in terms of long-term strategic reductions and could pose dangers if not addressed.

It was widely held that the NPR was an element in the successful outcome of the RevCon. However, the extent of its influence was debated and the view that the US nuclear policy and posture increased support in key states for nonproliferation efforts and US nonproliferation initiatives was challenged by some participants. The NPR did not end the Article VI debate and did not encompass a No-First-Use doctrine, a Nuclear Weapons Convention, disarmament timelines or legally binding NSAs, which were all discussed at the RevCon but not endorsed in the consensus Final Declaration. One participant noted in this context that the NPR signaled to the world what the United States could accept on disarmament at the RevCon.

It was noted that US NPT diplomacy was based on all three pillars of the treaty—nonproliferation, disarmament and nuclear energy—and that the United States was highlighting the fact that they are mutually reinforcing and interdependent. The United States believed it was important to set norms and pursue a substantive agenda such as progress on dealing with Iran, North Korea, withdrawal from the treaty (Article X), strengthening safeguards, fuel assurances, multilateralization of the fuel cycle, etc., and look to other venues for following up initiatives if there was no consensus at the RevCon.

The US was able to put Iran on the defensive and to get positive language (if not consensus) on the need to deal with noncompliance, on safeguards and the Additional Protocol, on

multinational fuel banks and the need to prevent abuse of the withdrawal clause of the treaty. It was noted that the Administration believes this outcome began the process of restoring the global authority of the NPT and of increasing cooperation to strengthen the rules and to dissuade bad actors from proliferating.

Looking at the Final Declaration and the limited consensus on issues of particular interest to the United States, one participant argued that there is not the kind of connection between disarmament progress and nonproliferation progress that many critics of US policy have long asserted. On the other hand, this participant argued that there is more continuity than change between the Obama policies and those of his predecessor. Although the 2010 NPR Report discusses disarmament more than previous NPRs, the administration continued to pursue life extension programs for US nuclear weapons, to modernize the US nuclear-weapon infrastructure, to develop ballistic missile defenses, to develop new conventional long-range strike capabilities, to keep US nonstrategic nuclear forces in Europe, and to explore follow-on strategic delivery systems. Even the shift in declaratory policy and the Administration's arms control initiatives were seen as limited.

Looking to 2015, some participants expressed concerns about the prospects for arms control successes. Some participants expressed concerns that New START might not be ratified but most believed it would receive the advice and consent of the Senate. The prospects for follow-on negotiations, yet alone any movement to multilateralizing arms reductions, were not seen as good by many participants. CTBT ratification and the beginning of FMCT negotiations both appeared unlikely. One participant noted that the United States was consequently thinking about alternatives to FMCT negotiations in the Conference on Disarmament.

In these circumstances, and with the Iran, Syria and North Korea issues unresolved and the prospects for a meeting in 2012 on a Middle East Weapons of Mass Destruction Free Zone uncertain, it was argued that we may expect a difficult road to the 2015 NPT RevCon. It was seen as important to continue US leadership, to reinforce the US message and to build support for US positions. It was widely agreed that managing expectations will be critical as we look to the 2015 NPT RevCon and work for a successful outcome. It will be important for the United States to be seen as doing everything possible to allow the conference to succeed.

Most participants viewed the lead up to the 2015 RevCon as challenging, especially because of the challenges of addressing proliferation in the Middle East and Northeast Asia. However, some argued that, as the NPR is being implemented, its five- to ten- year planning horizon does not allow great departures in policy and programs. There will be a need to view the development of the policy and concrete achievements of the United States and other parties in the next years realistically. In this context, there was little support for the view that changes in US nuclear forces or posture could fundamentally change this dynamic. The value of US nuclear guarantees for strengthening nonproliferation was seen as more important if proliferation worsened.

Many participants stated the goal of disarmament was an important aspiration, which has changed the debate among nuclear weapon states and the nonaligned movement, and can be expected to have near-term benefits for nonproliferation efforts across the globe. Some participants noted that without a dramatically changed global security environment, significant progress toward disarmament was simply not achievable. In this context, some challenged the goal of disarmament itself, arguing that the goal was unrealistic and could affect modernization, extended deterrence and other security issues; they argued that instead the focus should be on

further reductions. Many participants noted that France, Russia, China, India, Pakistan, Israel and others do not share the US view of the goal of disarmament.

Whether or not one supported abolishing nuclear weapons, understanding and pursuing the conditions and requirements for ultimately achieving a nuclear-free world was seen as important. Several participants stated the need to begin the debate over the conditions needed to achieve a nuclear-free world in earnest, including the relationship of disarmament to the growth of nuclear energy, the continuation of US conventional superiority, etc. There was widespread support for the NPR's pledge to initiate a "comprehensive national research and development program to support continued progress toward a world free of nuclear weapons, including expanded work on verification technologies. This will be essential if we are to realize the objective of a nuclear-weapon-free world."

It was recognized that efforts to achieve a nuclear-weapon-free world required greater attention to verification and compliance issues. Even if disarmament is not likely, it was noted by some participants that further reductions will eventually lead to levels of arms where the verification and compliance challenges increase dramatically, and the ability to detect and respond effectively to cheating are absolutely essential. Developing the needed technical verification and monitoring tools that would allow deeper reductions was seen as very important and several participants suggested the need for a concerted effort to address verification challenges of disarmament.

It was noted that effective verification of disarmament would raise unprecedented scientific, technological and political challenges. Verification would have to address warheads, components, materials, testing, facilities, delivery capabilities, virtual capabilities from old weapon and existing energy programs, as well as undeclared and clandestine capabilities. Moreover, it would likely have far more stringent requirements as stockpiles are further reduced. The verification of dismantlement or elimination of nuclear warheads and components is probably the most pressing problem. There has been considerable research and development done in the United States and elsewhere on warhead and dismantlement transparency and verification since the early 1990s, from the Black Sea experiment, to the Trilateral Initiative to the UK-Norway exercise. Although many pieces of the puzzle are believed to be in place or are understood, we do not today know how to verify low numbers, let alone zero. We need to develop the needed verification tools and systems approaches that would optimize them to meet this complex set of challenges. In this context, several participants noted the role of the technologies developed in the US weapon program for addressing monitoring and verification challenges as well as nonproliferation, counterproliferation and counterterrorism.

It was widely held that there is a real opportunity to explore verification options and, given any realistic time frame for disarmament, considerable scope to invest resources at the national and international levels to undertake research, development and demonstrations in an effort to address the anticipated and perhaps unanticipated verification challenges of disarmament now and for the next decades. Technologies, procedures and systems all need to be developed. The NPR's promise of a new, funded US R&D program to explore treaty verification along with counterterrorism and nonproliferation was well received. It was argued by many participants that cooperative approaches have the greatest possibility for success, and the Group of Scientific Experts that worked on CTBT verification and the International Panel on Fissile Materials working on an FMCT were held up by one participant as models for proceeding.

Workshop on Nuclear Forces and Nonproliferation
Woodrow Wilson International Center for Scholars, Washington, DC
October 28, 2010

Agenda

8:30-9:00 am

Welcome/Introduction

9:00-9:30 am

Keynote Address

Thomas D'Agostino, National Nuclear Security Administration

9:30-11:00 am

Panel I. Nuclear Forces, the Nuclear Posture Review and Extended Deterrence

Bradley Roberts, Department of Defense

W. Steven Goodrum, National Nuclear Security Administration

M. Elaine Bunn, National Defense University

George Perkovich, Carnegie Endowment for International Peace

John Harvey, Department of Defense

Charles Ferguson, Federation of American Scientists

Charles McMillan, Los Alamos National Laboratory

11:00-11:15 am

Break

11:15 am-12:45 pm

Panel I continues

12:45-1:45 pm

Lunch

1:45-3:15 pm

Panel II. Implications for Nonproliferation, Arms Control and Disarmament

Susan Burk, Department of State

Adam Scheinman, National Security Council

Christopher Ford, Hudson Institute

Benn Tannenbaum, American Association for the Advancement of Science

Rhys Williams, National Nuclear Security Administration

Linton Brooks, Consultant

3:15 -3:30 pm

Break

3:30-5:00 pm

Panel II continues

5:00-6:30 pm

Reception