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**Future Options for the U.S. Nuclear Deterrent
In a Highly-Dynamic Threat Environment**

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Hearing: Future Options for the U.S. Nuclear Deterrent—Views from Project Atom

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Testimony Prepared By:

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The study *Project Atom* included four independent and separate assessments of US nuclear force requirements. These four separate assessments agree on several critical points, including that:

- US nuclear weapons remain “indispensable” for US deterrence goals;
- The United States should maintain the strategic nuclear triad of ICBMs, submarine-launched missiles and strategic bombers because each leg of the triad provides unique attributes important for deterrence; and, finally,
- The United States should pursue new missile defense technologies for both theater and national missile defense.

There also are, however, fundamental differences in these studies. The assessment led by my friend Dr. Barry Blechman reached some conclusions quite different from the other three analyses. It included recommendations for further unilateral deep US nuclear force reductions and the elimination of US tactical nuclear weapons by the mid-2020s.

The self-expressed presumptions underlying Dr. Blechman’s assessment are:

- The “primary objective” of US nuclear policies should be the elimination of nuclear weapons globally (p. 37);
- There will be no dramatic shifts in international politics or the conventional military balance (p. 44);
- “Nuclear weapons do not achieve US policy objectives” while “dominant conventional forces do” (p. 49), and;
- “It is high time to acknowledge that [nuclear weapons] do very little and adapt US nuclear policy, strategy and forces to those facts.” (p. 49).

The specific adaption recommended in this particular assessment is for the United States to continue moving away from nuclear capabilities to set a good non-nuclear example for the world and to rely increasingly on a US superiority in conventional capabilities to provide the necessary deterrent effect in most situations.

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In contrast, the other three independent assessments generally start from different premises and reach contrary conclusions. For example, the assessment by Tom Scheber and myself is based on the proposition that the size and character of the US nuclear force posture must be driven first and foremost by a realistic appraisal of international conditions and threats, not by presumptions of benign continuity, unending US conventional force superiority, or an overriding commitment to global nuclear disarmament.

This is a key presumption because today's international threat environment is extremely dynamic and challenging. The *Foreword* to the 2015 *National Military Strategy of the United States*, written by the Chairman of the Joint Chiefs of Staff, describes the contemporary reality well: "Today's global security environment is the most unpredictable I have seen in 40 years of service...global disorder has increased significantly while some of our comparative military advantage has begun to erode. We now face multiple, simultaneous security challenges from traditional state actors and transregional networks of sub-state groups—all taking advantage of rapid technological change." These will have, "increasing implications to the U.S. homeland."

It is far from clear that reliably superior US conventional forces will exist in some key geographical areas to provide the desired deterrent or assurance effects, now or in the future. In 2014, then-Secretary of Defense Chuck Hagel stated that "We are entering an era where American dominance in key warfighting domains is eroding." Then-Commander of PACOM, ADM Sam Locklear, stated that, "Our historic dominance that most of us in this room have enjoyed is diminishing, no question...We need to think about all scenarios, not just the ones we've been dealing with over the last several years where we've enjoyed basic air superiority and basic sea superiority. There are places in the world where in this century we won't have them." Under Secretary of Defense Frank Kendall similarly said, "Our technological superiority is very much at risk, there are people designing systems to defeat us in a very thoughtful and strategic way."

This year, Deputy Secretary of Defense Robert Work warned that, US military "technological edge" is "steadily eroding" and Secretary of Defense Ash Carter testified that, Russia, China, Iran and North Korea have been "pursuing long-term, comprehensive military modernization programs to close the technology gap that has long existed between them and the United States."

Further, for almost a decade now we have seen very dangerous and even radical developments in international relations, with the expansion of potential opponents' nuclear and non-nuclear capabilities playing a leading role. Russia is forcibly changing established European borders under the cover of nuclear first-use threats and a nuclear build-up, while China expands its appetite dramatically in Asia. A senior Chinese Admiral recently told the Japanese that the South China Sea "belongs to China."

Two foreign observations perhaps best capture these threat developments. The first is by the noted Russian journalist, Alexander Golts, who observed, "The West has forgotten how it had used nuclear deterrence to coexist with the Soviet Union. Now it will have to open up that playbook once more." The second is by the Socialist President of France: "The international context does not allow for any weakness. . . .The era of nuclear deterrence is therefore not over. .

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. . . In a dangerous world—and it is dangerous—France does not want to let down its guard. . . . The possibility of future state conflicts concerning us directly or indirectly cannot be excluded.”

The comforting assumption of a relatively benign post-Cold War world order and a perpetual “peace dividend” has been overtaken by the reality of these particularly threatening developments, and many others. And, as Secretary of Defense Ashton Carter recently noted, there is no apparent end in sight for these developments. We need to plan our deterrence and assurance strategies and capabilities according to these realities—not past hopes and expectations.

Given this security environment, the United States must prepare its forces to deter foes and assure allies across many possible dramatic negative shifts in international relations and the erosion of US conventional military superiority in some key areas.

In this context, the proposition that the goal of nuclear disarmament should be the overarching driver of US nuclear policies is misguided, even dangerous. Why? Because nobody has offered even the vaguest credible outline of how to make nuclear disarmament a reality in an international system characterized by hostility, mistrust and conflict. When you get through all the nuclear zero slogans in this regard, remaining is the assertion that nuclear disarmament will be possible when the international system becomes so enlightened, cooperative and reasonable that nuclear disarmament is possible. This is a breathtaking tautology.

As James Madison said in support of the US Constitution in 1788: “if all men were angels, there would be no need for government.” Madison’s point was not that there is a coming world without governments, but that all men self-evidently are *not* angels and thus governments are necessary. Similarly, because all countries self-evidently are *not* cooperative, enlightened and reasonable, effective nuclear deterrence is necessary. There is zero evidence of any profound positive change to that fundamental reality.

There is instead considerable evidence to the contrary, which is why the bipartisan Strategic Posture Commission, the Perry-Schlesinger Commission concluded in its 2009 final report that, “The conditions that might make the elimination of nuclear weapons possible are not present today and establishing such conditions would require a fundamental transformation of the world political order.” Until that fundamental transformation of the world order takes place, we must make nuclear deterrence as effective as possible.

What are the pertinent implications of these realities? The US force posture must be sufficiently adaptable, flexible and resilient to deter a variety of foes and assure a variety of allies across a dramatically shifting threat environment. As former STRATCOM Commander, General Robert Kehler has observed, “Surprise is a problem in a constantly changing world environment. In my view, the future requires adaptive and flexible [US] capabilities to respond to unanticipated threats.”

Precisely so; which is why in the contemporary threat environment the US must work to sustain or expand its force posture qualities of adaptability, flexibility and resilience. This is the standard of adequacy we need to meet now and for the future. There are several steps that could

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be taken to increase the adaptability of the US nuclear force. Further deep reductions in US nuclear forces, however, would likely instead undercut these very qualities that may be critical to deterring war and assuring nervous allies.

In addition, further deep US nuclear reductions and the elimination of US tactical nuclear capabilities in particular would likely further undermine the credibility of the US nuclear umbrella for some understandably very nervous allies and friends, especially if done unilaterally. The result could be a future “cascade” of nuclear proliferation. An example of this dynamic in action is the current manifest desire of some in South Korea for the return of US nuclear capabilities and/or for independent South Korean nuclear capabilities. If you care about non-proliferation, you **must** also care about the continuing capability and credibility of US extended deterrence: the US nuclear umbrella is the single most important non-proliferation tool.

Finally, a critical but little-recognized element of US resilience is the readiness of the US nuclear infrastructure. This was the subject of a 2015 bipartisan report entitled, *Assessment of U.S. Readiness to Design Develop and Produce Nuclear Warheads* by Tom Scheber of the Bush Administration and John Harvey of the Obama Administration (Summary attached). Key conclusions of the study are that:

Establishing a nuclear weapon readiness program should be a national priority in order to provide resilience for new and unforeseen challenges ahead. The [US] nuclear infrastructure and personnel could be called upon to diagnose and fix an unexpected reliability problem in a warhead type, replace older warheads with similar or different warhead types, increase the number of deployed warheads, or design with different military capabilities. Currently, it is not ready to respond.

And

...today’s nuclear stockpile is essentially composed of warheads left over from the Cold War...No other important US military capability has been “frozen” for over two decades and not been adapted to the emerging security environment.

Indeed, in 2008, then-Secretary of Defense Gates and Secretary of Energy Bodman reported to Congress that, “The United States does not have the ability to produce new nuclear weapons.” In this regard, I am pleased to report that senior civilian and uniformed officials, including Secretary of Defense Ashton Carter, now state explicitly that the US nuclear deterrent is DoD’s number one priority.

In conclusion, US forces must be able to adapt to an increasingly dangerous and unpredictable threat environment—not geared to set expectations of a benign world order, great US conventional force superiority, a never-ending peace dividend, or the goal of nuclear disarmament.

The now-apparent dangers of the post-Cold War threat environment have come as a great surprise to many. For two decades, Western defense thinking about nuclear weapons has been based on the expectation of a benign new world order in which nuclear weapons would play an

EMBARGOED PRIOR TO DELIVERY

ever-smaller role on the path to nuclear zero. That belief has been the backdrop for decades of deep US nuclear reductions and a general lack of attention to US nuclear forces. As former Secretary of Defense Gates recently stated, “I spent virtually the entire four and a half years that I was secretary of defense trying to get first, the executive branch, and then Congress, to figure out a way to modernize the nuclear weapons we already have. That effort was a signal failure.” The realities of contemporary threats now argue strongly in favor of modernizing US nuclear forces and emphasizing their adaptability, not further reductions and greater rigidity. That is the primary take-away of the assessment contributed by Tom Scheber and myself.

Thank you.

Assessment of U.S. Readiness to Design, Develop, and Produce Nuclear Weapons: Current Status and Some Remedial Steps*

Co-authors:
Thomas Scheber
John R. Harvey

Foreword By: Dr. John S. Foster, Jr.

The National Institute for Public Policy has conducted an assessment of the U.S. readiness posture to design, develop, and produce modern nuclear weapons, if necessary.

- The study does not advocate for any specific new nuclear capability.

The approach for the assessment is bipartisan in nature. The two principal investigators are Dr. John Harvey, who held senior positions in the Clinton and Obama Administrations, and Mr. Thomas Scheber, the Director of Strategic Strike Policy during the Bush Administration.

Why important? The goal is to reduce risk in the future. Different types of nuclear capabilities may be needed, perhaps with little advance warning, for example, to respond to a reliability failure in a warhead or weapon, or to a U.S. vulnerability resulting from new developments by potential adversaries.

Why now? Currently, programs in NNSA or between NNSA and DoD do not exercise the full range of skills necessary to sustain a responsive capability to design, develop and produce modern nuclear warheads. Remedial action is needed.

Over the past twenty years, a number of studies on potential future deterrence needs and sustaining a professional nuclear workforce have warned consistently that nuclear skills are atrophying and the United States needs a determined effort to:

- Clarify U.S. policy for developing new or different nuclear capabilities;
- Modernize the nuclear infrastructure;
- Transfer knowledge and judgment to the next generation of developers; and
- Exercise DoD-NNSA weapon/warhead integration skills.

The report:

- Reviews relevant nuclear policies of the Clinton, Bush, and Obama Administrations;
- Summarizes consistent and relevant findings from 20 years of studies;
- Characterizes the current U.S. nuclear weapon development readiness posture; and
- Provides some near- and longer-term recommendations to improve that readiness posture.

*Thomas Scheber and John R. Harvey, *Assessment of U.S. Readiness to Design, Develop, and Produce Nuclear Weapons: Current Status and Some Remedial Steps* (Fairfax, VA: National Institute Press, 2015). Available at <http://www.nipp.org/wp-content/uploads/2015/10/Assessment-of-US-Readiness-for-web.pdf>.

Summary findings:

- The Clinton, Bush, and Obama administrations have all supported the goals of modernizing the nuclear infrastructure and sustaining key nuclear weapon development skills. Maintaining these skills has been seen as a hedge against technical and geopolitical uncertainties.
- A future president may determine that the nation's security requires design, development, and production of a new type of nuclear warhead or modification of an existing warhead to provide new military capabilities in support of deterrence and assurance. The nuclear weapons enterprise must be prepared to respond.
- The current program of refurbishment LEPs does not exercise all of the design and engineering skills and judgment that would be needed to field new warheads. Additional efforts (described in this paper), beyond what is underway today, are needed to retain critical skills and build expert judgment for the future.
- Broadening design and development challenges for young designers, including potential development of prototype warheads, is a necessary component of training. To be an effective training tool, prototype development must include two important development challenges:
 - Collaboration of laboratory warhead design teams with production plants to actually build prototype warhead components; and
 - Close NNSA-DoD collaboration at both the policy level and in the integration of the warhead (developed by NNSA) with the delivery system (developed by DoD), to include flight testing.
- The new generation of nuclear weapon designers and engineers needs increased opportunities to carry out complex experiments and, thereby, build the technical judgment that in the past was provided through the underground nuclear test program. Advanced computer modeling and simulation is an important tool for stockpile stewardship; the ultimate challenge, however, is to reconcile computer simulation with empirical data generated in experiments.
- As documented in numerous other reports, continuing and persistent delay in modernizing the nuclear weapon manufacturing infrastructure and atrophy of skills in the workforce will impede the ability of the United States to respond to unplanned challenges that call for changes to U.S. nuclear forces and posture.

Follow-on assessments, probably in a classified setting, are warranted to examine more deeply nuclear weapon design, development, and production issues.