

# ***Strategic Weapons in the 21<sup>st</sup> Century***

*Rethinking Nuclear and Non-Nuclear Elements of Deterrence (SW21)*

**January 25 & 26, 2007**

**Sponsored by  
Lawrence Livermore and Los Alamos  
National Laboratories**

## **Conference Structure**

George H. Miller, Director, Lawrence Livermore National Laboratory (LLNL) and Michael R. Anastasio, Director, Los Alamos National Laboratory (LANL) served as official hosts and attended the entire session.

Keynote addresses were made by: Ambassador Linton Brooks, former Under Secretary of Energy and Administrator, National Nuclear Security Administration (NNSA); the Honorable Ellen Tauscher, United States House of Representatives, 10<sup>th</sup> Congressional District – California; and the Honorable J.D. Crouch, II, Assistant to the President for National Security and Deputy National Security Advisor.

Conference attendees (<http://int.lanl.gov/conferences/sw/docs/participants07.pdf>) participated in plenary sessions and in four working groups, each with two co-chairs. The working groups considered material prepared in advance by the co-chairs and discussed the following issue-areas:

### **International and Domestic Dynamics**

What *geo-strategic changes* present the most significant post-NPR challenges, including assuring and defending our allies and friends and dissuading, deterring and defeating our adversaries?

Chairs:

Michael Nacht, **University of California, Berkeley** (unable to attend)  
John Reichert, National Defense University

### **Doctrine and Operations**

How should we address the policy and operational complexities associated with a global strike element of our strategic deterrent that has both *nuclear and non-nuclear components*?

Chairs:

Walter B. Slocombe, Caplin & Drysdale  
Keith B. Payne, National Institute of Public Policy

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### **Implementation Strategy**

Within the New Triad concept in the NPR, what is required and what obstacles need to be overcome to transform strategic capabilities in order to optimize *readiness and responsiveness* in the 21<sup>st</sup> Century?

Chairs:

Miriam E. John, SNL

Robert Barker, Consultant (unable to attend)

### **Science and Deterrence**

What are the *science and technology opportunities and challenges* associated with maintaining a credible strategic deterrence in the 21<sup>st</sup> Century?

Chairs:

William Schneider Jr., Defense Science Board

John D. Immele, TechSource, Inc.

The working groups met both in the morning and early afternoon of 25 January. The co-chairs began their sessions with prepared briefs, which the working groups discussed along with related issues raised by working group members. The conference re-convened in plenary session in the late afternoon of 25 January and provided feedback to presentations by the chairs of the discussions in the working groups. On 26 January, working groups presented their conclusions, and cross cutting issues were discussed. The conference concluded with remarks from the LLNL and LANL directors, who agreed that the first SW21 conference was a clear success and generated lessons for preparations leading to the second SW21 conference, which will be held in early 2008.

The conference was conducted under the Chatham House Rule – the content and substance of the proceedings would be preserved and made available to all, but not for direct quotation or attribution to any of the conference participants. The conference summary presented below first addresses the issues directly raised by each of the four working groups (the briefs and preparatory papers are available on the SW21 website), and then identifies specific, often crosscutting themes raised during the day-and-a-half event. Although the discussions were focused on clarifying issues and views, no effort was made to press for or record a consensus.

### **Working Group on International and Domestic Dynamics**

John Reichert's brief entitled Nuclear Proliferation: Once a Decade, or One a Year <http://www.lanl.gov/conferences/sw/docs/reichert07.pdf>, underscored that the slow rate of nuclear proliferation from 1960 to the present was not an accident, but was the result of deliberate policy. Not only was proliferation opposed by the Cold War superpowers, who believed that it was harmful to their interests, but also the United States worked very hard at preventing proliferation by creating alliances, extending deterrence, creating a non-proliferation regime (including the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the International Atomic Energy Agency (IAEA)) and persuading or, when needed, pressing allies. It was argued that the United States and its allies focused on preventing the "second wave" of proliferators (e.g., Taiwan and South Korea)

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that could have been touched off by the first state in a region to acquire nuclear weapons (e.g., China).

The risks appear to have increased today for an accelerated rate of nuclear proliferation, in part because non-nuclear regional aggressors (the so-called “rogue states”) seek nuclear weapons to coerce neighbors, sustain regimes against domestic pressures, and offset an enduring U.S. conventional superiority. There also appears to be increasing elite and popular support for “things” nuclear, which spans everything from nuclear weapons to nuclear power as symbols of status and national pride and unity. For many conferees, the key to avoiding a hyper-proliferated world was Japan’s continued status as a non-nuclear state. Most agreed that if Iran succeeded in its apparent pursuit of nuclear status, the proliferation dynamics in the Middle East would be more complex and destabilizing than they appear to be so far in either South Asia or Northeast Asia.

Conference participants did address the question of why a world of proliferating nuclear powers mattered to the United States. Most agreed that proliferation itself creates more complex and uncertain deterrence dynamics, because there are more opportunities for miscalculation between many smaller nuclear powers that have different strategic cultures than the Cold War nuclear powers. Moreover, the acquisition of nuclear capabilities by more unstable states (such as Pakistan) provides more opportunities for nuclear material and technology to pass to non-state actors, who are seeking nuclear capabilities in order to use them. Finally, some argued that a future world that consisted of several regional nuclear balances-of-terror would be a world in which the security calculations for everyone would be more complex and unstable. For example, U.S. would be a less influential actor, because some its friends would rely on their own nuclear deterrents instead of an extended U.S. deterrence), and its adversaries would be more confident in deterring the United States from intervening in its regional affairs.).

For some participants, the adverse effects associated with accelerated nuclear proliferation makes it imperative that the United States put greater emphasis on its obligation (under Article VI of the Non-Proliferation Treaty) to pursue nuclear disarmament. From this perspective, Article VI matters because it is important in sustaining the legitimacy of the NPT regime, shaping the psychology of potential proliferators and non-proliferators, and generating political support abroad and at home for U.S. nuclear modernization. Several participants cited the *Wall Street Journal* op-ed in early January 2007, by a bi-partisan group led by former Secretaries of State George Schultz and Henry Kissinger, former Secretary of Defense William Perry and former Senator Sam Nunn that urged that the United States make the pursuit of a nuclear-free world one of its top strategic priorities. While skeptical about the prospects for total nuclear disarmament, most conferees agreed that the policy community needs to address this subject seriously and bring it into the public discussion, including a need to highlight steps already taken by the US and Russia in reducing weapons and meeting Article VI obligations.

A key issue for further discussion that emerged from the conference deliberations is the need to assess the interactions between nuclear and non-nuclear states more

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systematically in order to provide a stronger analytic basis for policy decisions. Although Michael Nacht was unable to attend he prepared some material highlighting the need for examining more carefully and analytically the role US nuclear weapons play in deterring our adversaries (See <http://www.lanl.gov/conferences/sw/nacht07.pdf>).

### Working Group on Doctrine and Operations

Walt Slocombe and Keith Payne began the working group discussion on the interaction between the nuclear and non-nuclear components of deterrence by using the recent debate over the Conventional Trident Modification (CTM) program as an illustrative case. In a short paper distributed in advance to attendees (See [http://www.lanl.gov/conferences/sw/slocombe\\_payne07.pdf](http://www.lanl.gov/conferences/sw/slocombe_payne07.pdf)), Slocombe and Payne identified the key issues for conventional Prompt Global Strike (PGS). They argued that CTM was really an instance of substituting one conventional weapon (that is, a conventionally-tipped ballistic missile) for another conventional weapon (that is, a conventional cruise missile). Others pointed out that supporters of CTM were arguing that it provided the President another option versus the current choice between a nuclear response and no response at all.

On the CTM issue, both the conference and the working group believed that the so-called “misinterpretation” or “attribution” problem – that a conventional Trident missile launch might be interpreted as a nuclear attack was grossly overstated, if not totally without merit given the fact that nuclear powers had launched over a thousand submarine-launched ballistic missiles without any misinterpretations. Several participants observed that the CTM operational concept and the likely targets for CTM made this even more unlikely. Nevertheless, the political power of the attribution problem was so great that working group participants believed it must be addressed head on. Some held that it was important to consider a shorter-range, single-stage ballistic missile as a conventional PGS capability.

Most participants agreed that conventional PGS was a niche, but still very important, capability that the President would need for a limited set of time-urgent, extremely-important contingencies.

In order to assess the needs for CTM and other non-nuclear components of the New Triad, the working group discussed the broader question of the political role of nuclear weapons in the 21<sup>st</sup> century. The working group agreed (and presented to the conference) that U.S. nuclear weapons, *inter alia*:

- Deter nuclear (and possibly other WMD) attacks on the United States
- Provide extended deterrence to its allies and friends against nuclear (and possibly other WMD) attacks
  - The credibility of the U.S. extended deterrence was widely viewed as critical to assuring non-nuclear allies and reducing the likelihood of hyper-proliferation
- Provide capability for rapid termination of any war causing catastrophic casualties

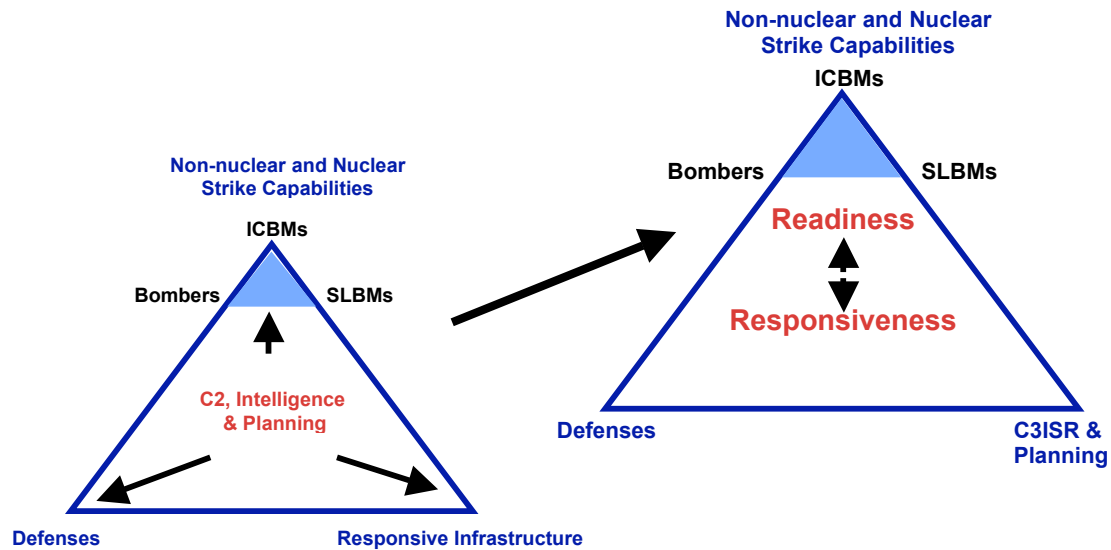
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- Are part of how the world defines a global superpower

Beyond PGS and the continuing role of nuclear weapons, this discussion raised the issue of what deterrence means in the emerging security environment, as well as how elements of the triad support deterrence and other strategic objectives.

### Working Group on Implementation Strategy

Mim John and Bob Barker prepared a paper (See [http://www.lanl.gov/conferences/sw/implement\\_doc.pdf](http://www.lanl.gov/conferences/sw/implement_doc.pdf)) that began with a re-interpretation of the New Triad, which Ms. John briefed to the conference.



Their analysis first drew a distinction between readiness – defined as the ability to execute strategic missions promptly with existing forces and capabilities – and strategic responsiveness – the ability to augment existing forces with increased numbers and/or improved capability more rapidly than evolving threats. They then characterized the “new New Triad” as having three legs – non-nuclear and nuclear strike, defenses, and C3ISR & planning (instead of responsive infrastructure) -- that should be assessed on separate continuums of operational readiness and strategic responsiveness.

The conference briefly assessed the state of implementation of the New Triad and agreed that a more detailed assessment, perhaps using a balanced scorecard approach, was needed. Conference discussion also reinforced the view that implementation of the 2006 Nuclear Posture Review (NPR) would remain fragile until there was a clear articulation of the role of strategic forces in general, and nuclear weapons in general, that was well understood and agreed to by national leadership (this issue will be addressed further below). Moreover, the Department of Defense (DoD) had to take greater ownership of the implementation strategy and develop concrete, actionable plans to put substance to the decisions made by the 2006 QDR with respect to “Tailored Deterrence/New Triad.” DoD also needed to pay much more attention to how it integrated the various components

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of the New Triad, particularly defenses and information operations, into its strategy and doctrine for global deterrence.

### Working Group on Science and Deterrence

Bill Schneider and John Immele synthesized a significant amount of work by the Defense Science Board into a pre-conference paper (See [http://www.lanl.gov/conferences/sw/sciencedeter\\_doc.pdf](http://www.lanl.gov/conferences/sw/sciencedeter_doc.pdf) [paper]) and conference brief (See [http://www.lanl.gov/conferences/sw/sciencedeter\\_ppt.pdf](http://www.lanl.gov/conferences/sw/sciencedeter_ppt.pdf) [presentation]) that demonstrated how the application of science for non-nuclear and nuclear capabilities are converging to:

- Enable lower numbers of active and inactive nuclear weapons.
- Enable responsiveness/adaptation to new threats or technical surprise as well as new opportunities (e.g., nonproliferation, nuclear weapons security).

And are essential to:

- Understanding nuclear intelligence/threat of proliferation.
- Anticipating vulnerabilities to nuclear terrorism.
- Sustaining stockpile confidence without nuclear testing.

Noting that the three technology vectors of speed, stealth and precision were creating decisive new military capabilities, the DSB had identified four additional enabling capabilities – human terrain preparation, ubiquitous observation and recording, contextual exploitation and rapidly tailored effects – to meet the needs of 21<sup>st</sup> century deterrence. Not all of these new capabilities were discussed.

The working group and the conference discussed extensively how RRW could be a key enabler for sustaining a nuclear stockpile for another generation, consolidating and modernizing the nuclear complex, and replenishing the human capital necessary for best-in-the-world, peer-reviewed weapons science and engineering. Since the likely spread of nuclear power production expertise/technology could help fuel nuclear proliferation, the conference addressed how science and technology could reduce proliferation concerns and strengthen the intrinsic resistance of the nuclear complex and stockpile to terrorism, and identified the technology challenges ahead.

### Crosscutting Themes and Issues

- *There is a need for a national dialog, leading to a clear articulated statement by US leadership, on the role of nuclear weapons in the 21<sup>st</sup> century and the contributions that U.S. nuclear weapons make to U.S. security.*

Conference participants largely agreed that, from a strategy and policy perspective, the 2002 Nuclear Posture Review (NPR) was basically on the mark and provided a sound foundation for 21<sup>st</sup> century nuclear policy. However, many conferees, including many participants actively involved in formulating and

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implementing the NPR, stated that the public discussions did not characterize U.S. policy accurately, and have been dominated by critics of the NPR. It was argued that the NPR had failed to spark a national discussion on the role of U.S. nuclear weapons or develop firm Congressional support for sustaining the U.S. nuclear deterrent. Noting the 2006 decisions by France and the United Kingdom to modernize their nuclear arsenal, both of which were announced in highly-publicized speeches by French President Chirac and British Prime Minister Blair, numerous conferees suggested that senior-level policy-makers in the U.S. Government and the Department of Defense had to take a lead in the public discussion of nuclear issues. Several participants stated that, in addition to the NPR, the U.S. needed a short, clearly-stated rationale for its nuclear weapons that would be articulated by US leadership, similar to that included in the [British White Paper](http://www.mod.uk/NR/rdonlyres/AC00DD79-76D6-4FE3-91A1-6A56B03C092F/0/DefenceWhitePaper2006_Cm6994.pdf) (See [http://www.mod.uk/NR/rdonlyres/AC00DD79-76D6-4FE3-91A1-6A56B03C092F/0/DefenceWhitePaper2006\\_Cm6994.pdf](http://www.mod.uk/NR/rdonlyres/AC00DD79-76D6-4FE3-91A1-6A56B03C092F/0/DefenceWhitePaper2006_Cm6994.pdf)) on its nuclear deterrent. Many agreed that this public statement was needed, but it could not come from the nuclear complex itself, because it was vulnerable to the allegation made in a 15 January 2007 *New York Times* editorial that the RRW program was merely “Busywork for Nuclear Scientists.” Not surprisingly, several participants expressed both irritation with this characterization and amazement that knowledgeable opinion leaders would assert this at a time when Russia was elevating the role of nuclear weapons in its national security strategy, China was modernizing its nuclear forces, North Korea was testing a nuclear weapon and Iran appeared to be pursuing nuclear status despite the imposition of U.N. sanctions. All of this reinforced views that a greater dialog within the U.S. is needed.

- *Myths and misperceptions about U.S. nuclear strategy, policy and posture are widespread both at home and abroad and have a significant impact on how key countries including the U.S. make and implement decisions on nuclear issues.* Many conference participants observed that of all the nuclear powers, only the United States is not producing nuclear weapons (the last nuclear weapon actually produced, rather than refurbished by the U.S. was in 1992). Moreover, since the end of the Cold War, the United States has sharply reduced its nuclear stockpile, made marked reductions in the resources and attention devoted to nuclear matters, and has repeatedly stated that it is reducing its reliance on nuclear weapons. A recent SAIC study demonstrates that foreign elites and publics believe that the U.S. is actively pursuing new nuclear capabilities and new roles for nuclear weapons, and that the 2002 NPR lowered the nuclear threshold. Discussion reinforced the view that these nuclear myths and misperceptions are strongly held, are not easily changed, serve as tactical tools for governments opposing U.S. policy, and deeply affect the political context within which the U.S. Government operates. There is a clear need for a public diplomacy strategy to address these misperceptions.

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- *International acceptance and domestic support for U.S. nuclear modernization are politically linked to perceptions of U.S. Government policy and positions on nuclear arms control, disarmament and nonproliferation.*

Conference participants discussed visions of a 21<sup>st</sup> century nuclear stockpile that was significantly smaller, safer, reliable and secure, and that might win domestic support for a transformed complex built around an RRW approach. If an administration vigorously campaigned for it, however, many believed Congressional support may be contingent on whether this vision can be realized without producing new nuclear capabilities, as opposed to new weapons replacing existing ones, and without resuming nuclear testing. Conferees also discussed how U.S. policy on arms control and disarmament would affect international and domestic perceptions of U.S. nuclear strategy, policy and force posture. This public discussion is also affected by misperceptions about U.S. policy and corresponding actions, and needs to be countered as well.