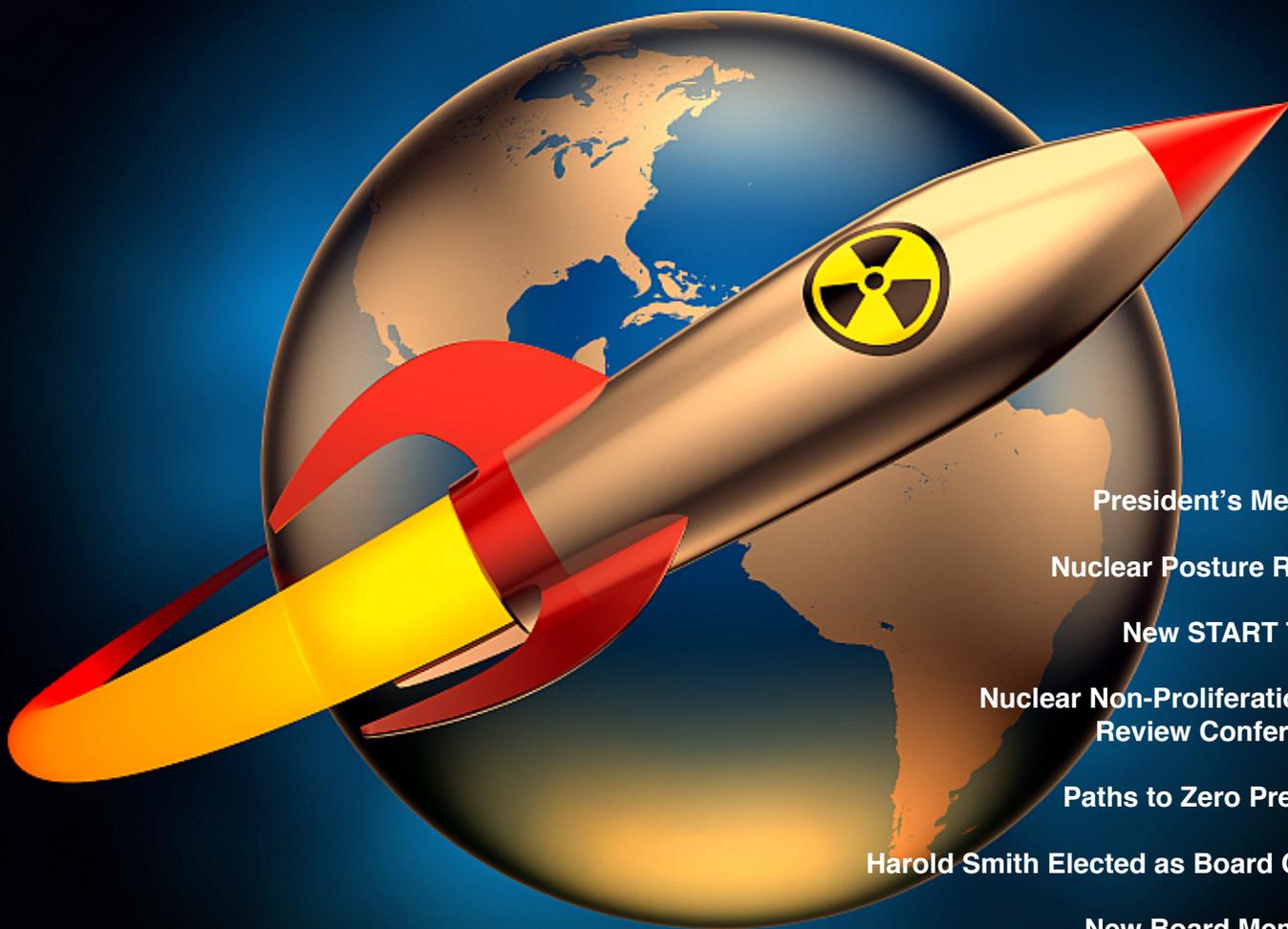


# Public Interest Report

THE FEDERATION OF AMERICAN SCIENTISTS

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## Nuclear Posture Review

Hans Kristensen, director of the Nuclear Information Project, explains the new Nuclear Posture Review released by the Obama administration in April. This NPR contains strong language that commits the U.S. to work for nonproliferation. And for the first time, the goal of elimination of nuclear weapons is enshrined into the NPR.

Read more on page 4.

## New START Treaty

On April 8, 2010, President Obama joined Russian President Dmitry Medvedev in Prague to sign the New START Treaty, a new arms reduction pact that will reduce the nuclear stockpile in the United States and Russia, and commits both countries to new procedures to verify the weapons each possesses.

Read more on page 7.

## Non Proliferation Treaty Review Conference

FAS's Alicia Godsberg reports live from NYC at the 8th Review Conference (RevCon) of the Nuclear Non-Proliferation Treaty. The conference opened with Secretary of State Clinton revealing the size of the U.S. nuclear arsenal.

Read more on page 10.

## About FAS

The Federation of American Scientists (FAS), founded in 1945 as the Federation of Atomic Scientists by Manhattan Project Scientists, works to ensure that advances in science are used to build a secure, rewarding, environmentally sustainable future for all people by conducting research and advocacy on science public policy issues. FAS is a tax-exempt, tax deductible 501(c)3 organization.

## FAS

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## PRESIDENT'S MESSAGE

# Transparency in Nuclear Weapons



Transparency is one the most important concepts in nuclear weapons policy. Certain nations have the luxury of being transparent about their nuclear arsenals and doctrines, and others do not. Because of U.S. conventional military superiority and because of the large number of U.S. nuclear arms, the administration can be more transparent while not jeopardizing U.S. security. Indeed, President Obama believes that transparency can enhance security and has emphasized this theme in his nuclear security agenda. In contrast, China, Israel, and Pakistan are three countries that have derived benefits from nuclear opacity. Because transparency is a prerequisite to have any hope of achieving global nuclear disarmament, it is worth shining a spotlight on this concept.

In April, the Obama administration published its Nuclear Posture Review (NPR). Mandated by Congress, this NPR was the third ever in the history of the United States. The first and second were done during the start of the Clinton and George W. Bush administrations. By openly publishing the NPR, the Obama administration departed from the previous administration, which never officially published its nuclear review. (Some aspects of the administration's nuclear policy will remain classified such as specific targeting guidance.) Thus, the mere act of open publication demonstrated the commitment to greater transparency.

In fact, the NPR mentions the word transparency 17 times. Several different issues are connected to this term. In general, the NPR's view is that transparency may help "create the conditions for moving toward a world without nuclear weapons and build a stronger basis for addressing nuclear proliferation and nuclear terrorism."

Concerning proliferation of nuclear weapons to other states, the NPR underscores the need for "much greater transparency into the programs and capabilities of key countries of concern." "Countries of concern" is code for states with nuclear weapons programs or suspected programs such as Iran, North Korea, and Syria, and perhaps Burma, which may be seeking to acquire nuclear technologies with potential weapons applications.<sup>1</sup> Of course, these states have a vested interest in not being transparent. When a state is threatened by more powerful states or is isolated from the international community, it can derive security benefits from opacity and strategic ambiguity.

Similarly, China has benefited from remaining mum about its nuclear capabilities but has reiterated a no-first-use of nuclear weapons policy. The Obama NPR highlights that "the lack of transparency surrounding [China's] programs – their pace and scope as well as the strategy and doctrine guiding them – raises questions about China's future strategic intentions." Because China has a much smaller arsenal than the United States, Chinese leaders understandably have no incentive to broadcast their arsenal's precise relative weakness. Nonetheless, the NPR rightly points out that a strategic dialogue could serve the interests of both sides by communicating views about strategies, policies, and programs. The objectives are "to enhance confidence, improve transparency, and reduce mistrust."

Speaking of reducing mistrust, in such a dialogue, the fundamental nuclear strategic question for the United States is whether China is a "small Russia" that has a mutual nuclear deterrent relationship

with the United States or whether it is a “large North Korea” that should be defended against.<sup>2</sup> While many have argued that it is a strategic fact that China and the United States are mutually vulnerable, it is not clear that this view is accepted consensually within the U.S. government although encouragingly the Obama NPR underscores maintaining “stable strategic relationships” with both China and Russia.

With respect to Russia, the NPR yet again emphasizes transparency. Specifically, the new Strategic Arms Reduction Treaty (START) has “verification and transparency measures” to help “ensure stability and predictability in the U.S.-Russia strategic relationship.” But New START is an evolutionary not a revolutionary treaty in that it is a lineal descendant of the species of arms control treaty spawned in the Cold War. Such treaties dealt with counting weapon delivery systems, including ballistic missile silos, bombers, and submarines: things that are easy to see from satellites and thus easy to verify their dismantlement. Philosophically, New START preserves strategic parity and in effect confirms that the main reason each side still has thousands of warheads is to counter the other side’s warheads. This is despite the statement in the NPR that “Russia and the United States are no longer adversaries.”

Importantly, though, the NPR calls for quick progress toward a follow-on treaty to New START to achieve “substantial further nuclear force reductions and transparency that would cover all nuclear weapons – deployed and non-deployed, strategic and nonstrategic.” But to do so will require addressing Russia’s concerns about conventional force imbalances. Conventional military weakness has spurred Russian military planners to hold onto nonstrategic or so-called tactical nuclear weapons. This is a role reversal from the Cold War when a numerically weak NATO adopted nuclear weapons for potential battlefield use to counter the Warsaw Pact’s forces.

A revolutionary or truly transformative treaty would bring both sides together in the mutual endeavor to defuse the legacy of the Cold War’s bloated arsenals. As leading FAS nuclear analyst Ivan Oelrich recently said to me, imagine “two people locked in a room with a big bomb and they have to agree on a set of procedures for the two of them to work together to disarm the bomb.” Such a treaty would also focus on verifying warhead dismantlement, an area in which FAS researchers have done some path finding work. Laudably, the NPR envisions “a comprehensive national research and development program to support continued progress toward a world free of nuclear weapons, including expanded work on verification technologies and the development of transparency measures.” The NPT notes that this verification system is essential to have confidence in detecting possible clandestine nuclear weapons programs.

If the United States can achieve greater arms reductions with Russia and can bring China into the arms control process – two daunting challenges – the NPR then foresees that these endeavors “should include efforts to improve transparency of states’ nuclear policies, strategies, and programs.” To extend such transparency to all states will, however, require fundamental changes in the security environment in regions prone to armed conflict, including the Middle East, and Northeast and South Asia. Israel, for example, will need the utmost confidence that its existence is secure. This example underscores that the fundamental issue is security and that a main driver for certain states to acquire nuclear weapons is to ensure their security.

But even the United States is prepared to use nuclear weapons to respond to non-nuclear threats under certain conditions. The NPR has carved out exemptions for non-nuclear weapon states not “in compliance with their nuclear nonproliferation obligations.” The administration wants such a policy to act as an incentive for such states to adhere to their nonproliferation commitments. Moreover, the NPR goes on to affirm that

states eligible for the security assurance would not face a nuclear response if they used chemical or biological weapons. But this implies that states that have violated their nuclear nonproliferation obligations such as Iran and possibly Syria could be subject to threats of nuclear weapons use even if they did not have nuclear weapons and if they used chemical or biological weapons. Furthermore, another exemption deals with the special nature of the biological threat. Specifically, the NPR underscores, “Given the catastrophic potential of biological weapons and the rapid pace of biotechnology development, the United States reserves the right to make any adjustment in the assurance that may be warranted by the evolution and proliferation of the biological weapons threat and U.S. capacities to counter that threat.”

In closing, while the Obama administration’s NPR has made progress in clarifying several aspects of U.S. nuclear policy, these exemptions show that even the United States, with the world’s strongest conventional military, still is not ready to assign nuclear weapons to the sole purpose of deterring others’ nuclear weapons. And it is debatable whether the salience and roles of nuclear weapons have fundamentally been reduced as the Obama administration says it seeks to do. **FAS**



FOOTNOTES:

<sup>1</sup> Robert E. Kelley and Ali Fowle, “Nuclear Activities in Burma,” *Report for Democratic Voice of Burma*, May 25, 2010.

<sup>2</sup> William J. Perry and Brent Scowcroft, *Chairs*, and Charles D. Ferguson, *Project Director, U.S. Nuclear Weapons Policy, Independent Task Force Report No. 62, Council on Foreign Relations*, May 2009, p. 45.

## 4 A Step in the Right Direction: The Obama Administration's 2010 Nuclear Posture Review

By Hans M. Kristensen, Director of the Nuclear Information Project



In April 2010, the Obama administration released its Nuclear Posture Review (NPR) -- a review that determines the role of nuclear weapons and establishes U.S. nuclear policy and strategy for the next five to ten years. This NPR contains strong language that commits the United States to work for nonproliferation. And for the first time, the goal of elimination of nuclear weapons is enshrined into the NPR.

By incorporating a broader range of policy issues in setting the nuclear posture, the review represents a break with the Bush administration's NPR, which was more focused on military capabilities. As such, the new NPR is more a nuclear policy review than a nuclear posture review.

At the same time, the new NPR comes across as a surprisingly cautious document that recommends curtailing the U.S. nuclear posture further in the future but for now preserves many of the key nuclear weapons force structure and policy elements of the previous administration.

### Proliferators and Peer Adversaries

What is truly new in this NPR is that a good portion of it has very little to do with the U.S. nuclear posture and more to do with policies intended to curtail the spread of nuclear weapons to others. As such, this NPR has a much broader horizon than previous versions and provides a much needed update.

The NPR illustrates how proliferation has had and continues to have a real effect on U.S. nuclear weapons policy. This is most vivid in the sections dealing with the role of nuclear weapons and regional deterrence.

In the end, however, the NPR illustrates that proliferation is a side-chapter for the sizing and characteristics of the U.S. nuclear posture, which continues to be dominated by planning against Russia and China.

As such, it is in the regional mission that most of the change that President Obama has promised may eventually emerge.

### Clarifying the Nuclear Carrot

The NPR adopts a much needed simplification and clarification of the U.S. negative security assurance, an important "carrot" intended to help persuade countries not to acquire nuclear weapons. This is not a new policy by any means, but the NPR surely clarifies it:

The "United States will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty and in compliance with their nuclear non-proliferation obligations."

Compare that to the Cold War version most recently repeated by the Bush administration in 2002:

The United States "will not use nuclear weapons against non-nuclear weapon states parties to the Treaty on the Nonproliferation of Nuclear Weapons [NPT], except in the case of an invasion or any other attack on the United States, its territories, its armed forces or other troops, its allies or on a state toward which it has a security commitment, carried out or sustained by such a non-nuclear weapon state in association or alliance with a nuclear weapon state."

There were so many exemptions buried in the old version that it was hard to understand what it meant. The new version fixes that: sign and abide by the NPT and you're covered!

Yet as soon as you begin thinking about how this policy would be applied in the real world, questions arise.

Take Iran, for example, a non-nuclear weapon state that has signed the NPT, but is not on the best terms with the regime. How much in breach of its obligations under the NPT does Iran have to be before the policy kicks in? At what point would the president decide to include or exclude Iran from the list of potential adversaries he orders the military to plan nuclear strikes against? Likewise, the negative security assurance only relates to Iran's *nuclear*



status. But Iran is already a target for U.S. nuclear planning because of its chemical and biological weapons capabilities. And as the NPR makes clear, U.S. nuclear weapons continue to play a role in deterring chemical and biological weapons. So could a country that has signed the NPT and abide by its obligations still be a target because it has chemical and biological weapons?

### Reducing the Role of Nuclear Weapons?

President Obama pledged in his Prague speech last year that he would “reduce the role of nuclear weapons” to “put an end to Cold War thinking.”

At first glance the NPR appears to reduce the role of nuclear weapons. The document states in the executive summary that, the “fundamental role of U.S. nuclear weapons is to deter *nuclear* attack on the United States, our allies, and partners.”

While most of the debate so far has focused on what “fundamental” means, the important part of that statement is the word “nuclear.” The two previous administrations used a broader role: to deter *weapons of mass destruction* attacks.

Weapons of mass destruction (WMD) is a much broader category that includes nuclear, biological, chemical, and radiological weapons. Nuclear strike plans against regional adversaries armed with WMD were added to the strategic war plan in 2003.

Under the section “Reducing the Role of U.S. Nuclear Weapons” the NPR lists three overall conclusions about the role:

- The United States will continue to strengthen conventional capabilities and reduce the role of nuclear weapons in deterring non-nuclear

attack, 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.

- The United States would only consider the use of nuclear weapons in extreme circumstances to defend the vital interests of the United States or its allies and partners.

- 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 proliferation obligations.

The “deter *nuclear* attack” and pursuit of “sole purpose” is new language, and if implemented, constitute a roll-back of the Clinton and Bush administrations’ policy of using nuclear weapons to deter all forms of WMD.

But further into the document, it becomes clear that the actual reduction in the nuclear mission is rather modest. In fact, it’s difficult to see why U.S. nuclear planning would not continue much the way it is now.

The NPR explicitly rejects the adoption of a “sole purpose” policy for now, and leaves it up to future presidents to possibly change the policy in that direction.

Changes in the role of nuclear weapons are much harder to see when it comes to Russia and China. The retention of the Triad and an upload capability seem explicitly tied to those scenarios. Indeed, the NPR bluntly states that “Russia’s nuclear force will remain a significant factor in determining how much and how fast we are prepared to reduce U.S. forces.”

### Reducing the Number of Nuclear Weapons?

President Obama also pledged in the Prague speech that he would “reduce the number of nuclear weapons” to “put an end to Cold War thinking.”

The NPR force structure analysis was the basis for the New START limits of 1,550 deployed strategic warheads and 700 deployed strategic delivery vehicles. Those limits represent a reduction compared with previous limits set by the 1991 START and 2002 Moscow Treaty. The New START reduces the *limit* for how many warheads can be deployed but not the actual *number* of warheads in the arsenal.

Surprisingly, the NPR does not identify how the New START limits will be achieved. Potential areas for the reductions are: a retirement of two SSBNs from the nuclear mission; a cut of about 50-100 additional Minuteman III ICBMs; conversion of some of the B-52s to conventional-only aircraft.

The NPR does not clearly direct a reduction in the size of the total nuclear weapons stockpile, which currently contains about 5,000 warheads. The Bush administration reduced the stockpile by nearly 50 percent between 2004 and 2007, and announced an additional 12 percent reduction by 2012, leaving about 4,600 warheads.

Overall, the NPR retains the Cold War force structure of nuclear weapons deployed on a Triad of delivery vehicles and concludes that, “the current alert posture of U.S. strategic forces – with heavy bombers off full-time alert, nearly all ICBMs on alert, and a significant number of SSBNs at sea at any given time – should be retained for the present.” President Obama’s campaign pledge to “work with Russia to take U.S.

and Russian ballistic missiles off hair trigger alert” appears to have been put on hold.

No doubt, retaining a Cold War posture with only modest reductions and delaying decisions about where the cuts will fall will help win crucial votes in the Senate for ratification of the New START treaty and the CTBT.

With the modest reductions recommended by this NPR, the report states that President Obama has already directed a review of future reductions of nuclear weapons. But potential reductions are conditioned on further strengthening regional deterrence, maintain strategic stability with Russia and China, provide nuclear umbrellas over allies, and building new bomb making factories.

### **Extended Deterrence and Nuclear Weapons**

The NPR underscores that extended deterrence is much more than nuclear weapons. There has been an unfortunate tendency in the public debate to equate extended deterrence for NATO allies with a need to forward deploy tactical nuclear weapons in Europe.

Unfortunately, the NPR does not recommend reducing or withdrawing the approximately 200 nuclear bombs currently deployed at six bases in five European countries. Instead, it says the U.S. “will consult with our allies regarding the future basing of nuclear weapons in Europe, and is committed to making consensus decisions through NATO processes.” This is probably intended to formally leave a decision to NATO’s Strategic Review process scheduled for completion in November.

For a document that emphasizes nonproliferation and adherence to NPT obligations, the description of “NATO’s unique nuclear sharing arrangements under which non-nuclear members participate in nuclear planning and possess specially configured aircraft capable of delivering nuclear weapons” does come across as somewhat out of sync. Training and equipping non-nuclear countries to deliver nuclear weapons is not a standard the Obama administration should support.

Regardless of what NATO might decide, the NPR concludes that some of the Joint Strike Fighters (F-35) will be equipped to deliver the new B61-12 nuclear bomb to “retain the capability to forward-deploy non-strategic nuclear weapons in support of its Alliance commitments.” So even if NATO decides the weapons can be withdrawn, a tactical nuclear fighter capability will remain.

Nuclear Tomahawk sea-launched land-attack cruise missiles (TLAM/Ns) that previously supported extended deterrence of NATO and Pacific allies will be retired and the NPR correctly concludes that the remaining nuclear forces provide ample capability to both signal and deter. As for the future role of nuclear weapons in regional scenarios, the NPR states:

“U.S. nuclear weapons will play a role in the deterrence of regional states so long as those states have nuclear weapons, but the decisions taken in the NPR, BMDR, and QDR reflect the U.S. desire to increase reliance on non-nuclear means to accomplish our objectives of deterring such states and reassuring our allies and partners.”

### **Warhead Dismantlement and Production**

There are currently about 4,500 retired nuclear warheads in queue to be dismantled. At the low dismantlement rate currently used (200-400 warheads per year) it will take more than a decade to dismantle the backlog. More retired warheads will come from the decision to “significantly reduce” the hedge, further extending the timeline.

Dismantlements compete with warhead maintenance and production for limited capacity at the Pantex Plant in Texas. The NPR recommends full-rate production of the W76-1 warhead, followed by the B61-12, and possibly the W78.

These programs are described as extending the lives of existing warhead designs, although modifications can be significant. The NPR pledges that “The United States will not develop new nuclear warheads. Life Extension Programs will use only nuclear components based on previously tested designs, and will not support new military

missions or provide for new military capabilities.”

This policy leaves the door open for extensive modifications of nuclear warheads – it would even permit production of the Reliable Replacement Warhead (RRW), although officials insist that program is “dead” – and the NPR states that the full range of warhead work will be considered: refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components.

Mindful of how controversial a decision to build replacement warheads is, the NPR assures that decisions to modify warheads “will give strong preference to options for refurbishment or reuse” rather than replacement.

### **Conclusion**

The NPR elevates nonproliferation to the same level in U.S. nuclear policy as the nuclear weapons posture. It enshrines eventual nuclear disarmament as a central goal for U.S. nuclear weapons policy for the first time, and it sets the stage for possible future reductions in the role and numbers of nuclear weapons.

For those of us who looked forward to the NPR to clearly and significantly reduce the role and numbers of nuclear weapons, however, the report is a disappointment. President Obama has cautioned that his vision of a nuclear free world might not happen in our lifetime and the NPR shows why he might be right.

The options for how to reduce nuclear weapons are vague in the NPR but probably buried in the classified version. Some of those options, including how deep many reserve warheads will be retired, and how many ICBMs, SSBNs and bombers will be cut, will be made in the months and years ahead.

This NPR is a pragmatic document that combines maintaining a strong nuclear arsenal, modest reductions in nuclear weapons, nonproliferation efforts, and a vision of a world free of nuclear weapons to position the Obama administration for the May NPT Review Conference, and ratification of the New START treaty and Comprehensive Test Ban Treaty. **FAS**

# New START Treaty Reduces *Limit* for Strategic Warheads But Not *Number* <sup>7</sup>

By Ivan Oelrich, FAS Vice President, and Hans Kristensen, Director of the Nuclear Information Project

On April 8, 2010, President Obama joined Russian President Dmitry Medvedev in Prague to sign the New START Treaty, a new arms reduction pact that will reduce the nuclear stockpile in the United States and Russia, and commits both countries to new procedures to verify the weapons each possesses.

The new treaty limits the number of warheads on deployed ballistic missiles and long-range bombers on both sides to 1,550 and the number of missiles and bombers capable of launching those warheads to no more than 700. While not the huge step hoped for, it *is* an essential step.

The modest reductions mandated by the long-awaited treaty did require the United States and Russia to talk about nuclear weapons again. The U.S. and Russia have at least 95 percent of the world's nuclear weapons and they must lead the world in nuclear reductions. It represents a significant arms control milestone that both countries should ratify as soon as possible so they can negotiate deeper cuts. Without this first step there cannot be a second step, and there are yet many

steps between where we stand today and eventually achieving the elimination of nuclear weapons.

This treaty is different, with real limits and real verification. Yet while the treaty reduces the *legal limit* for deployed strategic warheads, it doesn't actually reduce the *number* of warheads. A peculiar counting rule increases the importance of bombers: each bomber counts only as one nuclear bomb although the B-52 can carry 20 nuclear-armed cruise missiles and the Russian bombers, for example the Backfire and Blackjack, have similar payloads. This rule reportedly resulted from Russia's refusal to allow the necessary on-site inspections at its bomber bases. If a bomber with 20 bombs is defined as a single bomb, then suddenly we get a substantial reduction in the nuclear of weapons.

Indeed, the treaty does not require destruction of a single nuclear warhead and actually permits the United States and Russia to deploy almost the same number of strategic warheads that were permitted by the 2002 Moscow Treaty.

## Verification Extended

The most important part of the new treaty is that it extends a verification regime at least a decade into the future. According to the White House, the inspections and other verification procedures in this Treaty will be simpler and less costly to implement than the old START treaty.

This includes on-site inspections. Each side gets a total of 18 per year, ten of which are actual warhead counts of deployed missiles and the remaining eight being "Type 2" inspections of storage and dismantlement facilities.

Exchange of missile test telemetry data has been limited partly because it is not as necessary for verification as previously; there are other means for collecting this information. Even so, the treaty includes exchange of telemetry data for five test flights each year.

## The Fine Print: Limits Versus Reductions

The new limit of 1,550 deployed strategic warheads is 74 percent lower than the 6,000 warhead limit of the 1991 START Treaty, and 30 percent lower than the

## The major provisions of the New START Treaty are:

- 1,550 deployed strategic warheads: Warheads on deployed ICBMs and deployed SLBMs count toward this limit and each deployed heavy bomber equipped for nuclear armaments counts as one warhead toward this limit.
- A limit of 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers equipped for nuclear armaments.
- A limit of 100 non-deployed ICBM launchers (silos), SLBM launchers (tubes), and heavy bombers equipped for nuclear armaments.





2,200 deployed strategic warhead limit of the 2002 Moscow Treaty.

That is correct, but the *limit* allowed by the treaty is not the actual *number* of warheads that can be deployed. The reason for this paradox is a new counting rule that attributes one weapon to each bomber rather than the actual number of weapons assigned to them. This “fake” counting rule frees up a large pool of warhead spaces under the treaty limit that enable each country to deploy many more warheads than would otherwise be the case. And because there are no sub-limits for how warheads can be distributed on each of the three legs in the Triad, the “saved warheads” from the “fake” bomber count can be used to deploy more warheads on fast ballistic missiles than otherwise.

The Moscow Treaty attributed real weapons numbers to bombers. The United States defined that weapons were counted as “operationally deployed” if they were “loaded on heavy bombers or stored in weapons storage areas of heavy bomber bases.” As a result, large numbers of bombs and cruise missile have been removed from U.S. bomber bases to central storage sites over the past five years, leaving only those bomber weapons that should be counted against the 2,200-warhead Moscow Treaty limit.

Since the new treaty attributes only one warhead to each bomber, it no longer matters if the weapons are on the bomber bases or not; it’s the bomber that counts not the weapons. As a result, a base with 22 nuclear tasked B-52 bombers will only count as 22 weapons even though there may be hundreds of weapons on the base.

According to U.S. officials, the United States wanted the New START Treaty to count real warhead numbers for the bombers but Russia refused to prevent on-site inspections of weapons storage bunkers at bomber bases. As a result, the 36 bombers at the Engels base near Saratov will count as only 36 weapons even though there may be hundreds of weapons at the base.

*“This ‘fake’ counting rule frees up a large pool of warhead spaces under the treaty limit that enable each country to deploy many more warheads than would otherwise be the case.”*

If the New START Treaty counting rule is used on today’s postures, then the United States currently only deploys some 1,650 strategic warheads, not the actual 2,100 warheads; Russia would be counted as deploying about 1,740 warheads instead of its actual 2,600 warheads. In other words, the counting rule would “hide” approximately 450 and 860 warheads, respectively, or 1,310 warheads. That’s more warheads than Britain, China, France, India, Israel, and Pakistan possess combined!

The paradox is that with the “fake” bomber counting rule the United States and Russia could, if they chose to do so, deploy more strategic warheads under the New START Treaty by 2017 than would have been allowed by the Moscow Treaty by 2012.

### **Force Structure Changes**

How the new treaty and the “fake” counting rule will affect U.S. and Russian nuclear force structures depends on decisions that will be made in the near future. In the negotiations both Russia and the United States resisted significant changes to their nuclear forces structures.

Russia resisted restrictions on warheads numbers to keep some degree of parity with the United States. It achieved this by the “fake” bomber weapon count and the delivery platform limit that is higher than what Russia deploys today. Under the New START Treaty, Russia can deploy more strategic warheads on its ballistic missiles than it would have been able to under the Moscow Treaty, although it probably won’t do so due to retirement of older systems.

The United States resisted restrictions on its upload capability, which it achieved by the high limit on delivery platforms. The “fake” bomber count enables more weapons to be deployed on ballistic missiles and more weapons to be retained at bomber bases than would have been possible under the Moscow Treaty.

Although Russia has thousands of extra weapons in storage, all its deployed missiles are thought to be loaded to near capacity. As a result, under the New START Treaty, Russia will have little upload capacity. The United States, on the other hand, has only a portion of its available warheads deployed and lots of empty spaces on its missiles. The large pool of reserve warheads available for potential upload creates a significant disparity in the two postures.

### **Conclusions and Recommendations**

The New START Treaty is an important achievement in restarting relations with Russia after the abysmal decline during the Bush administration. And extending and updating the important verification regime creates a foundation for transparency and confidence building.

## That's ONE Nuclear Bomb

The New START Treaty counts each nuclear bomber as one nuclear weapon even though U.S. and Russian bombers are equipped to carry up to 6-20 weapons each. This display at Barksdale Air Base shows a B-52 with six Air Launched Cruise Missiles, four B-61-7 bombs, two B83 bombs, six Advanced Cruise Missiles (now retired), and eight Air Launched Cruise Missiles. Russian bombers can carry up to 16 nuclear weapons.



BARKSDALE AFB, La. - Munitions are on display to show the full capabilities of the B-52H Stratofortress. (U.S. Air Force photo by Tech. Sgt. Robert J. Horstman)

## Estimated U.S. and Russian Strategic Warheads, 2017:

Although the New START Treaty reduces the limit for deployed strategic warheads, a “fake” bomber weapon counting rule enables both countries to continue to deploy as many weapons as under the Moscow Treaty. A high limit for delivery vehicles protects a significant U.S. upload capacity, whereas Russia will have essentially none.

Future force structure decisions might affect the exact numbers but this graph illustrates the paradox.

The treaty will also, if ratified quickly and followed up by additional reductions, assist in strengthening the international nonproliferation regime and efforts to prevent other countries from developing nuclear weapons

The United States and Russia must be careful not to “oversell” the treaty as creating significant reductions in nuclear arsenals and strategic delivery systems. Although the treaty reduces the limit, the achievement is undercut by a new counting rule that enables both countries to deploy as many strategic warheads as under the Moscow Treaty.

The New START Treaty is not so much a nuclear *reductions* treaty as it is a *verification and confidence building* treaty. It is a ballistic missile focused treaty that essentially removes strategic bombers from arms control.

Because the treaty protects current force structures rather than reducing them, it will inevitably draw increased attention to the large inventories of non-deployed weapons that both countries retain under the new treaty. Whereas the U.S. force structure is large enough to permit uploading of significant numbers of reserve warheads, the Russian force is too small to provide a substantial

upload capacity. Even with a significant production of new missiles, it is likely that Russia’s entire Triad will drop to around 400 delivery vehicles by 2017 – fewer than the United States has today in its ICBM leg alone.

To that end it is amazing to hear some people complaining that the U.S. deterrent is dilapidating and that the United States doesn’t gain anything from the New START Treaty.

In the words of one senior White House official, the United States came away as a “clean winner.”

What next?

This has long been described as a transitional treaty. It was meant to be a bridge between the expired START Treaty and the next treaty, which is going to fundamentally reshape the nuclear relationship of the Cold War legacy nuclear powers.

This New START Treaty has a ten-year limit with the option to extend for another five.

The good news is that a modest treaty will hopefully be easier to ratify. **FAS**

# 10 Nuclear Non-Proliferation Treaty Review Conference Concludes in Final Document

By Alicia Godsberg, Research Associate for the Strategic Security Program and United Nations



*“The U.S. made great strides in transparency by de-classifying the number of nuclear weapons in the stockpile, announcing the administration would seek the ratification of two nuclear weapon-free zone (NWFZ) treaty protocols, and reaffirming the administration’s desire to seek ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT).”*



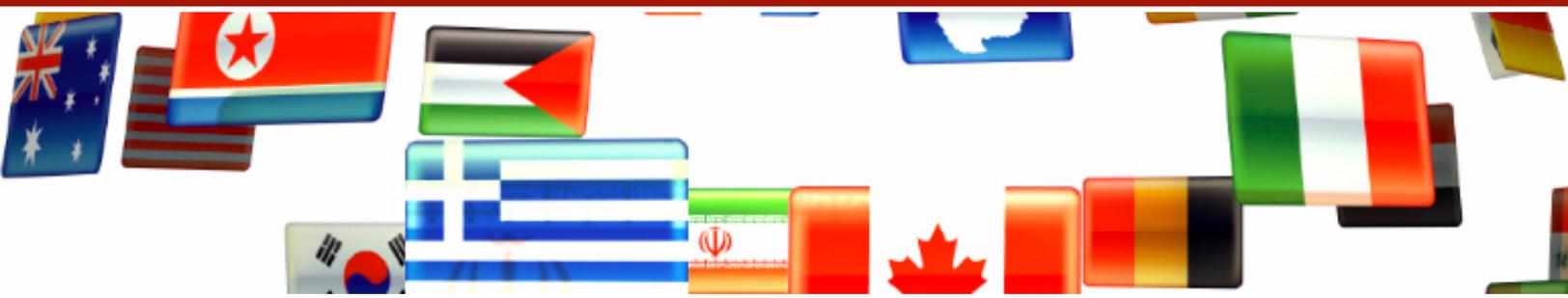
The 8th Review Conference (RevCon) to the Treaty on the Non-Proliferation of Nuclear Weapons took place at the United Nations in May 2010. The conference opened with Secretary of State Hillary Clinton revealing the size of the U.S. nuclear arsenal and the number of weapons it has dismantled since 1991. It closed with the adoption by consensus of a Final Document that includes both a review of commitments and a forward looking action plan for nuclear disarmament, non-proliferation and the promotion

of the peaceful uses of nuclear energy.

At first it was unclear if consensus would be reached, as states entered last-minute negotiations over contentious issues. While the consensus document represents a real achievement and is a relief after the failure of the last Review Conference in 2005 to produce a similar document, much of the language in the action plan has been watered down from previous versions, leaving the world to wait until the next review in 2015 to see how far these initial steps will take the global community toward

fulfilling the Nuclear Non-Proliferation Treaty’s (NPT) goals.

The United States delegation worked tirelessly in the months preceding the RevCon and at the conference itself to advance the agenda President Obama outlined in his Prague speech in April 2009. To that end, the U.S. made great strides in transparency by de-classifying the number of nuclear weapons in the stockpile, announced the administration would seek the ratification of two nuclear weapon-free zone (NWFZ) treaty protocols, reaffirmed the administration’s desire to seek



ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT), highlighted the signing of the New START agreement, and announced a new negative security assurance (NSA) policy meant to decrease the salience of nuclear weapons in U.S. security policy.

The U.S. also engaged in difficult behind-the-scenes negotiations with Egypt (on behalf of the Non-Aligned Movement and the Arab Group) to ensure there would be an acceptable compromise on the issue of a NWFZ in the Middle East, an issue that threatened to block consensus from the outset of the conference.

While these are all welcome achievements, a large gap still remains between what nuclear weapon states parties (NWS) and non-nuclear weapon states parties (NNWS) see as progress and as important in terms of the NPT. Nowhere is this gap wider than in perceptions about nuclear disarmament and the fulfillment of the obligation to work toward negotiations in good faith on nuclear disarmament found in Article VI of the NPT.

While some nuclear weapons states point to unilateral and bilateral reductions in their arsenals, agreement to seek the security of a nuclear weapon-free world, and qualified negative security assurances as good faith efforts toward progress on nuclear disarmament, the vast majority of the world view these measures as incremental at best, leading down a long path toward nuclear

disarmament, with no specified time frame, during which nuclear weapons are still wielded as instruments of power and coercion.

Much like the issue of creating a nuclear weapon-free zone in the Middle East -- in which Israel signals that progress cannot be made until a comprehensive peace is achieved in the region and the Arab States say comprehensive peace in the region cannot be achieved until there is progress on creating the NWFZ -- such diametrically opposed viewpoints not only make compromise difficult, but also leave the sides without a common understanding from which to even begin trying.

***“The U.S. now must assert great pressure on Israel to attend the upcoming conference, participation in which the Israeli government has already rejected.”***

There was some good news in terms of progress on implementing the 1995 Resolution on the Middle East. In that resolution, the 1995 Review and Extension Conference reaffirmed the importance of universal adherence to the NPT and called for practical steps to establish an effectively verifiable Middle East zone free of weapons of mass destruction and their delivery systems. This resolution was meant to address concerns over Israel, a regional state that has an undeclared nuclear weapons program and is not a party to the NPT.

The action plan of the Final Document endorses the implementation of the Middle East resolution. This plan includes the convening of a Conference in 2012 by the United Nations Secretary-General and the co-sponsors of the Resolution (Russia, U.S. and U.K.) to be attended by all states of the Middle East on the establishment of a “weapons of mass destruction free zone” (WMDFFZ) in the region. In addition, the convening parties will appoint a facilitator to support implementation of the 1995 resolution by conducting consultations with the states of the region and preparing for the conference.

The facilitator will also assist in implementing follow-on steps agreed by the participating regional states and report to the 2015 Review Conference and its Preparatory Committee meetings. These measures were the minimum Egypt and the other Non-Aligned Movement and Arab States required

## 12 Nuclear Non-Proliferation Treaty Review Conference



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in order to not block consensus at RevCon. While the U.S. and Egypt worked hard to get compromise language on this issue, the U.S. now must assert great pressure on Israel to attend the upcoming conference, participation in which the Israeli government has already rejected. Failure to convene this conference with Israel in attendance could be the final straw that breaks the NPT in 2015.

Non-nuclear weapon states emphasized the need to make substantive progress on nuclear disarmament during this RevCon. Many commitments made at the 1995 and 2000 conferences have yet to be fulfilled.

Several states pushed for the inclusion of deadlines in the framework for nuclear disarmament, such as a Nuclear Weapons Convention (NWC), to be included in the Final Document. While the Final Document did include some reference to this idea in the review section,<sup>1</sup> the language only “notes” new proposals and initiatives for a nuclear weapon-free world, which in “UN-speak” is a lesser endorsement than if these proposals and initiatives had been “welcomed.”

The Final Document also “notes” the UN Secretary-General’s Five Point Plan for Nuclear Disarmament that includes consideration of negotiating a NWC or “agreement on a framework of separate mutually reinforcing instruments, backed by a strong system of verification,” and “affirms that the final phase of the nuclear disarmament process and other related measures should be pursued within an agreed legal framework, which a majority of States parties believe should include specified timelines.” This language is strongly diluted from previous committee drafts that called for the negotiation of a NWC or other nuclear disarmament agreements within a specified timeframe.

Again differences in interpretation become apparent, as the U.S. has stated that it is indeed engaging in such negotiations of “separate mutually reinforcing instruments” by pursuing ratification of the CTBT and the New START. While many NNWS expressed appreciation for these efforts, they certainly do not view these steps as progress toward the irreversible and verifiable total elimination of nuclear weapons.

It is encouraging that the Final Document states: *All States parties commit to pursue policies that are fully compatible with the Treaty and the objective of achieving a world without nuclear weapons.*

This aspiration is important because it directs future good faith efforts and provides a measure to which states can be held accountable. The U.S. delegation has been telling society just that for the months leading up to and at the RevCon – judge us in 2015 on what we will have accomplished. Let’s hope this administration has the weight to do what they say they want to do so we don’t end up right back where we started 5 years from now. **FAS**

*1 Action 82: The Conference “notes the new proposals and initiatives from Governments and civil society related to achieving a world free of nuclear weapons... [and] notes the proposals for nuclear disarmament of the Secretary-General of the United Nations to inter alia consider negotiations on a nuclear weapons convention or agreement on a framework of separate mutually reinforcing instruments, backed by a strong system of verification.”*

By Monica Amarelo

On May 11, the Federation of American Scientists premiered the documentary “Paths to Zero” at the United Nations during the 2010 Review Conference of the Parties to the Treaty on the Non-proliferation of Nuclear Weapons (NPT RevCon). The film screening was part of FAS’s official presence through the UN Office of Disarmament Affairs. The video is available online at <http://www.fas.org/press/tools/video.html>.

One of the biggest challenges facing our world this century is the erosion of global security in a nuclear-armed world. The world’s combined stockpile of nuclear weapons – more than 24,000 – remains at a frighteningly high level despite being two decades past the end of the Cold War.

In this video, FAS Vice President Dr. Ivan Oelrich explains the history of how the nuclear-armed world got to this point, and how to move down a global path toward zero nuclear weapons.

The screening was followed by an engaging conversation between the audience and Dr. Oelrich, who was in NYC to promote the film.

As a result of some suggestions, the narration will be translated to different languages. In addition, FAS is developing a new tool, using this video at its core. The online interactive feature will allow users to find additional information as topics are mentioned in the video. **FAS**



## U.S. and Britain Disclose Size of Nuclear Weapons Stockpile

On May 3rd, the Obama administration formally disclosed the size of the Defense Department’s stockpile of nuclear weapons: **5,113 warheads** as of September 30, 2009.

For a national secret, estimates by FAS analysts were only off by **13 warheads**.

By the end of May, the new British government disclosed its total military stockpile of nuclear weapons. Foreign Secretary William Hague told the House of Commons that “the total number of warheads” will not exceed 225. Of those, “up to 160” are

operationally available for deployment.

These disclosures are a monumental step toward greater nuclear transparency that breaks with outdated Cold War nuclear secrecy and will put pressure on other nuclear weapon states to reciprocate. **FAS**

# 14 Harold Smith Elected New Chairman of the FAS Board

By Monica Amarelo



## HAROLD SMITH

*“We are entering a new era where the intersection of science and policy will be just as critical to peace and stability as it was in 1945 when the FAS began. These will be exciting times.”*

Harold Smith was elected as the new Chairman of the Board of Directors. He is a technology, foreign policy, and defense expert who is a distinguished visiting scholar with the Goldman School of Public Policy at the University of California at Berkeley (UCB).

Asked about his new role at FAS, Dr. Smith said, "I very much look forward to working with our new president, Charles Ferguson, in guiding the Federation in the new and challenging era that lies before us."

In addition to his work at UCB, Dr. Smith serves as an advisor to numerous governmental boards on national security policy.

"FAS will greatly benefit from Dr. Smith's leadership to become a leading credible, authoritative, and nonpartisan organization dedicated to

using scientific analysis to make the world more secure," said Dr. Ferguson.

***“FAS will greatly benefit from Dr. Smith's leadership to become a leading credible, authoritative, and nonpartisan organization dedicated to using scientific analysis to make the world more secure,” said Dr. Ferguson.***

Previously, from 1993 - 1998, he worked for the Clinton Administration as Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs. In that

role he was responsible for reducing the American and NATO arsenals of nuclear weapons, dismantling the chemical weapon stockpile, chemical and biological defense programs, and managing treaties related to strategic weapons. Dr. Smith was also responsible for implementing the Cooperative Threat Reduction program, which assists the former Soviet Union in the dismantlement of their weapons.

"We are entering a new era where the intersection of science and policy will be just as critical to peace and stability as it was in 1945 when the FAS began. These will be exciting times," said Smith.

In 1960, Dr. Smith received his Ph.D. degree from the Massachusetts Institute of Technology in nuclear engineering. **FAS**

By Monica Amarelo



## Martha Krebs Joins FAS Board as Vice Chair

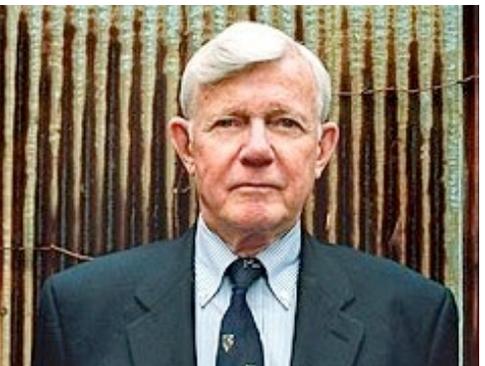
Martha Krebs is the Deputy Director of the California Energy Commission for Research. She is the former Associate Vice Chancellor for Research at UCLA and Founding Director of the California NanoSystems Institute at UCLA and UC Santa Barbara. Krebs is a former Assistant Secretary of Energy at the U.S. Department of Energy and Director of the Office of Science. There she was responsible for the research program that underlay the Department's energy, environmental and national security missions. She is a member of Phi Beta Kappa, a Fellow of the American Physical Society, a Fellow of the American Association for the Advancement of Science, and a Fellow of the Association of Women in Science.

## Alton Frye



Frye is the first presidential senior fellow emeritus at the Council on Foreign Relations. In over 30 years at the Council, he has served in many roles including president, senior vice president, and national director. He founded both the Council's Washington program and its national program, leading the organization's development into a national institution. The author of numerous books and articles, Frye's contributions to national security policy include the strategic build-down concept and design of a possible Zero-Ballistic-Missile regime.

## Robert G. Gard, Jr



Lt. General Robert G. Gard, Jr. is Chairman of the Center for Arms Control and Non-Proliferation where his policy work focuses on nuclear nonproliferation, missile defense, Iraq, Afghanistan, Iran, military policy, nuclear terrorism, and other national security issues.

During his military career, he saw combat in the Korea and Vietnam wars, and served a three year tour in Germany. He also served as executive assistant to two secretaries of defense; the first Director of Human Resources Development for the U.S. Army; Special Assistant to the Assistant Secretary of Defense for International Security Affairs; and President of the National Defense University (NDU).

## New FAS Board Members

### Lisa Gordon-Hagerty



Gordon-Hagerty is the President and Chief Executive Officer of LEG Inc., a consulting firm. The firm provides strategic advice and counsel in domestic and national security, global energy issues, counterterrorism, crisis and consequence management, strategic planning and assessment, and homeland security.

She also served as executive vice president and chief operating officer of USEC Inc., a supplier of enriched uranium fuel for commercial nuclear power plants. She was responsible for regulatory affairs and its subsidiary, NAC International, which specialized in nuclear materials transport, spent fuel storage and transport technologies, nuclear fuel cycle consulting, and fuel cycle information services.

### Lawrence M. Krauss



Krauss is the Foundation Professor in the School of Earth and Space Exploration and Physics Department, and Inaugural Director of the Origins Initiative at Arizona State University. He is an internationally known theoretical physicist with wide research interests, including the interface between elementary particle physics and cosmology, where his studies include the early universe, the nature of dark matter, general relativity and neutrino astrophysics. Krauss has investigated questions ranging from the nature of exploding stars to issues of the origin of all mass in the universe.

### Rodney Nichols



He is the President Emeritus of the New York Academy of Sciences. Nichols has advised the White House Office of Science and Technology Policy; State, Defense, and Energy Departments; NIH; NSF; Peace Corps; UN; Congressional Office of Technology Assessment; and the National Academies of Science and Engineering. He has also testified before Congress on civilian and defense R&D.

Nichols co-authored two books and many papers, and has spoken to corporate, academic, and governmental groups on: research strategy; international scientific cooperation; K-12 education for economic development; and ethical issues in R&D.

### Scott Sagan



Sagan is the Caroline S.G. Munro Professor of Political Science, co-director of Stanford's Center for International Security and Cooperation, and a senior fellow at FSI. Before joining the Stanford faculty, Sagan was a lecturer in the Department of Government at Harvard University and served as a special assistant to the director of the Organization of the Joint Chiefs of Staff in the Pentagon. He has also served as a consultant to the office of the Secretary of Defense and at the Sandia National Laboratory and the Los Alamos National Laboratory.

## Maxine L. Savitz



Savitz is a member of the President's Council of Advisors on Science and Technology (PCAST) and the former Deputy Assistant Secretary for Conservation at the U.S. Department of Energy from 1979 - 1983. She is recently retired as the General Manager for Technology Partnerships at Honeywell, Inc.

During her career at Honeywell, Savitz oversaw the development and manufacturing of innovative materials for the aerospace, transportation, and industrial sectors.

## Devabhaktuni Srikrishna



Sri was the founder and Chief Technology Officer of Tropos Networks, which builds metro-scale wireless broadband (Wi-Fi) systems based on cellular mesh technology and is deployed in several cities across the United States.

His publications have spanned quantum computing, parallel computing, wireless data communications, and nuclear detection.

## Michael Telson



Telson is the Director of National Laboratory Affairs and the Science Advisor for the Office of Federal Government Relations at the University of California in Washington, DC. Prior to joining UCLA, he served as Special Assistant to the Secretary of Energy and then Chief Financial Officer of the U.S. Department of Energy, with responsibilities including the preparation of the DOE's nearly \$20 billion annual budget.

## Valerie Thomas



Thomas is the Anderson Interface Associate Professor of Natural Systems, with a joint appointment in the School of Industrial and Systems Engineering and the School of Public Policy, at the Georgia Institute of Technology. Her research interests include the efficient use of materials and energy, sustainability, industrial ecology, technology assessment, international security, and science and technology policy. Current research projects include the environmental impacts of alternative fuels, the potential for renewable energy development, and the use of information technology in recycling and product lifecycle management.

**FAS**

# Call for Articles

In an effort to provide timely articles about security policy, nonproliferation, earth systems, educational technologies and other areas of science and technology policy, FAS members are invited to submit proposals for articles (maximum of 1,500 words).

Selection of articles is at the discretion of the editor and completed articles will be peer-reviewed.

Proposals should be sent to:

Editor, PIR  
Federation of American Scientists  
1725 DeSales Street, NW  
6th Floor  
Washington, DC 20036

Or via email to [press@fas.org](mailto:press@fas.org).

Upcoming Events 2010	July	August	September
	<p><b>23</b> The film "Countdown to Zero" premieres in select cities nationwide.</p>	<p><b>1</b> FAS Earth Systems Program travels to Yemen</p> <p><b>6</b> Anniversary of atomic bombing of Hiroshima</p> <p><b>9</b> Anniversary of atomic bombing of Nagasaki</p>	<p>U. S. Senate floor action on New START Treaty</p> <p><b>Save the Date:</b> FAS Awards Ceremony in Washington, DC on October 6, 2010.</p>

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**YES** I want to join the thousands of FAS members working to ensure that science and technology are used to address a broad spectrum of security issues and to promote humanitarian uses of science and technology.

Email James Wright, Manager of Development and Membership Services at the Federation of American Scientists, to learn how you can make a difference at [jwright@fas.org](mailto:jwright@fas.org).

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