Toward True Security
A US Nuclear Posture for the Next Decade

Federation of American Scientists
Natural Resources Defense Council
Union of Concerned Scientists
Founded in 1945, the **Federation of American Scientists** is dedicated to ending the worldwide arms race and reducing the dangers of nuclear weapons. Over the years it has played a key role in ensuring that the public debate over arms control, and other science and technology policy issues, is informed by clear, reliable, and unbiased information and analysis drawing on the skills of the US scientific community. It has also been active in advocating positions supported by its board of sponsors, which includes 58 American Nobel laureates.

The **National Resources Defense Council** uses law, science, and the support of more than 400,000 members nationwide to protect the planet’s wildlife and wild places and to ensure a safe and healthy environment for all living things. For more than 25 years, NRDC has played a major role in the formation of US nuclear nonproliferation, arms control, energy, and environmental policies. In addition, NRDC has established vital precedents in the application of environmental laws to US nuclear and national security programs. The overarching goal of NRDC’s Nuclear Program is the reduction, and ultimate elimination, of unacceptable risks to people and the environment from the exploitation of nuclear energy for both military and peaceful purposes.

The **Union of Concerned Scientists** is a nonprofit partnership of scientists and citizens combining rigorous scientific analysis, innovative policy development, and effective citizen advocacy to achieve practical environmental solutions. Established in 1969, UCS seeks to ensure that all people have clean air, energy and transportation, as well as food that is produced in a safe and sustainable manner. UCS strives for a future that is free from the threats of global warming and nuclear war, and a planet that supports a rich abundance of life. Sound science guides our efforts to secure changes in government policy, corporate practices and consumer choices that will protect and improve the health of the environment globally, nationally, and in communities throughout the United States. In short, UCS seeks a great change in humanity’s stewardship of the earth.

The full text of this report is available on the UCS website ([www.ucsusa.org/publications](http://www.ucsusa.org/publications)) or may be obtained from

- UCS Publications
- Two Brattle Square
- Cambridge, MA 02238-9105

Or email pubs@ucsusa.org or call 617-547-5552.

Printed on recycled paper
Contents

Acknowledgements v

1. The Proposal in Brief 1
   The Need for Wider Debate 2
   A Nuclear Posture for the Next Decade 3
   The Future 4

2. The Problem 5
   Dangers from Russia 5
   Future Russian Dangers 7
   Threats from China 8
   Future Chinese Threats 9
   Threats from Other Countries 10

3. The Solution 13
   Goals of US Nuclear Posture for the Next 5-10 Years 13
   Specific Recommendations 14
   Looking Ahead 27

Contributors 29
Acknowledgements

The authors would like to thank Anita Spiess for her thorough and thoughtful editing and patience in dealing with last-minute changes; Brent Robie for his care in designing the cover; and Eryn MacDonald for her invaluable research assistance.

The authors would also like to thank Harold Feiveson and George Lewis for useful discussions on this topic and Zia Mian and Sharon Weiner for helpful comments on the report.

CHAPTER 1
The Proposal in Brief

This report proposes a nuclear weapons policy for the United States for the next decade that reflects today’s political and strategic realities. By contrast, the official policies and doctrines of both the United States and Russia are mired in Cold War patterns of thought. Eleven years after the fall of the Berlin Wall, both countries still maintain massive nuclear arsenals ready for nearly instant use. Although nuclear war plans differ in size and detail from those drawn up 20 or more years ago, their basic structure remains unchanged.

The US nuclear arsenal and doctrine were designed to deter a deliberate large-scale Soviet nuclear attack on the United States and a massive Soviet conventional attack on US European allies, as well as to preserve the option of a disarming first strike against Soviet nuclear forces. This force structure and doctrine are obsolete and jeopardize American national security.

The greatest nuclear danger to the United States today and in the near future is a Russian attack resulting from an error in Russia’s warning system or a failure in its command-and-control system. The current US policy of maintaining large numbers of highly accurate nuclear weapons that can be launched promptly to attack Russia’s nuclear forces stands in the way of reducing this risk. So too would the US deployment of any missile defense system that Russia believes capable of intercepting a significant number of its survivable strategic missiles, thereby undermining its nuclear deterrent.

In the longer term, the greatest dangers to US and international security stem from the risk of nuclear proliferation. Although countries will make their own decisions about acquiring nuclear weapons, US nuclear weapons policy can have a substantial impact on future nuclear proliferation. By design, current US policy is ambiguous about whether US nuclear weapons have purposes beyond deterring other countries’ use of nuclear weapons. In addition, US policy includes no significant measures to comply with US commitments under the Non-Proliferation Treaty to pursue negotiations to prohibit nuclear weapons in conjunction with the other nuclear weapon states. This creates the strong impression that the United States plans to maintain nuclear weapons for the indefinite future. For these reasons, continuation of the current US nuclear policy would ultimately weaken the nonproliferation regime and increase the incentives for other countries to acquire nuclear weapons.

The greatest nuclear danger to the United States today is a Russian attack resulting from error.

1 Whether Russia believed that a specific US missile defense could undermine its deterrent would depend on its assessment of how many of its strategic missiles would survive a US first strike and how many of those missiles the US defense might be able to intercept. It would also depend on Russia’s assessment of the degree of confidence the United States had in its first strike and defensive capabilities.
Worldwide verifiable and permanent prohibition of nuclear weapons would greatly benefit the military security of all countries, not least the United States. Accordingly, the United States can make a valuable contribution to its national security and that of other countries by working to establish the conditions needed to permit such enduring prohibition. However, even under the best of circumstances, prohibition of nuclear weapons would take far longer than ten years, the period under consideration in this report.

In the meanwhile, the United States should adopt a new nuclear policy that directly enhances US national security and that promotes nonproliferation—regardless of whether or when nuclear prohibition is achieved. A central element of this policy would be a US declaration that the sole purpose of US nuclear weapons is to deter and, if necessary, respond to the use of nuclear weapons by another country.

No plausible threat can be foreseen that justifies the United States maintaining more than a few hundred survivable nuclear weapons over the next decade or beyond. Nor does any plausible threat require the United States to maintain the ability to launch large numbers of its nuclear weapons promptly, in a matter of minutes, or even in a matter of hours. We recommend that the United States unilaterally reduce its nuclear arsenal to a total of 1,000 nuclear warheads and take measures to increase the amount of time required to launch these weapons. By easing Russia’s concerns about the potential vulnerability of its nuclear deterrent, these steps would give Russia an incentive to adopt a safer nuclear posture for its own nuclear arsenal. They would also provide an incentive to other nuclear weapon states to engage in multilateral negotiations for deeper, verified nuclear reductions.

The Need for Wider Debate

US policymakers of both major parties recognize that the US nuclear posture must change to reflect today’s world and future challenges to US security. Last year, the US Congress passed legislation mandating that the Secretary of Defense conduct a nuclear posture review to clarify US nuclear policy for the next five to ten years. This review is to be completed by December 1, 2001. Congress specified that the review be broad-ranging and that it consider

- the role of nuclear forces in US military strategy
- the requirements for the United States to maintain a safe nuclear deterrence posture
- the relationship among US nuclear deterrence policy, targeting strategy, and arms control objectives

Even without this requirement, it is clear the Bush administration would have initiated such a review. During his campaign, President George W. Bush stated his interest in making significant nuclear reductions and in reducing the alert status of strategic missiles, indicating a possibility that these reductions might be unilateral. He reiterated this interest in his May 1 speech at the National Defense University. The administration has indicated that it will complete its review of US nuclear policy and make its plans public well before December 2001.
Thus, there is both a great need and an opportunity to craft a new US nuclear policy to enhance US security and move the world in a safer direction. Because nuclear weapons are so central to the future security of the United States and the wider international community, it is important that US nuclear policy be discussed more widely and that decisions about a new US nuclear posture be informed by such broader discussions. The three nongovernmental organizations that authored this report have for decades been devoted to promoting a sound US nuclear weapons policy and to enhancing the public debate over national security issues. In this report, we lay out a new nuclear posture for the United States that is achievable in the next decade, to encourage an informed debate of US nuclear policy among both US policymakers and the public.

A Nuclear Posture for the Next Decade

Our analysis shows that US security would be substantially improved by adopting a nuclear posture for the next five to ten years in which the United States would:

• Declare that the sole purpose of US nuclear weapons is to deter and, if necessary, respond to the use of nuclear weapons by another country.

• Reject rapid-launch options, and change its deployment practices to provide for the launch of US nuclear forces in hours or days rather than minutes.

• Replace its reliance on pre-set targeting plans with the capability to promptly develop a response tailored to the situation if nuclear weapons are used against the United States, its armed forces, or its allies.

• Unilaterally reduce its nuclear arsenal to a total of 1,000 warheads, including deployed, spare, and reserve warheads. The United States would declare all warheads above this level to be in excess of its military needs, move them into storage, and begin dismantling them in a manner transparent to the international community. To encourage Russia to reciprocate, the United States could make the endpoint of its dismantlement process dependent on Russia’s response. The deployed US warheads should consist largely of a survivable force of submarine-based warheads.

• Promptly and unilaterally retire all US tactical nuclear weapons, dismantling them in a transparent manner. In addition, the United States would take steps to induce Russia to do the same.

• Announce its commitment to further reductions in the number of nuclear weapons, on a negotiated and verified multilateral basis.

• Commit to not resume nuclear testing and to ratify the Comprehensive Test Ban Treaty.

• Reaffirm its commitment to pursue nuclear disarmament and present a specific plan for moving toward this goal, in recognition that the universal and verifiable prohibition of nuclear weapons would be in the US national security interest.

• Recognize that deployment of a US missile defense system that Russia or China believed could intercept a significant portion of its survivable long-range missile forces would trigger reactions by these countries that could result in a net decrease in US security. The United States should therefore commit to not deploy any missile defense system that would decrease its overall security in this way.
The Future

If this nuclear posture is adopted and its goals accomplished, the United States will have greatly enhanced its national security and that of other countries. In addition, it will have set the stage for multilateral negotiations to reduce the nuclear arsenals of other countries. The next nuclear posture review, undertaken five to ten years from now, will then be able to craft a new US policy that will further reduce the whole range of nuclear dangers to the United States and other countries. The next nuclear posture review will have to tackle new challenges involved in negotiating and implementing verifiable, multilateral reductions to levels well below 1,000 nuclear warheads, as well as take further steps to lay the groundwork for the prohibition of nuclear weapons.
The global security environment has changed profoundly since the end of the Cold War. During the Cold War, US policymakers were deeply concerned about the danger of a massive, deliberate Russian conventional or nuclear attack on the United States or its allies. Today, this danger is acknowledged to be virtually nonexistent. Other nuclear dangers to the United States do, however, remain, and new threats could emerge.

To safeguard the security of its citizens, the US government must protect against and reduce current dangers while preventing or minimizing potential future dangers. Thus, any nuclear posture review must begin with a realistic assessment of the current and potential nuclear dangers to US security, keeping in mind that the nuclear policy the United States adopts now will affect the dangers it will face in the future. To an extent without precedent since the beginning of the Cold War, the United States can now shape the nuclear future.

Dangers from Russia

While Russia retains the ability to conduct a deliberate nuclear attack against the United States, it has no political incentive to do so, and it would, in any case, be deterred by the certain US capability to retaliate.

Yet Russia's nuclear weapons remain the greatest military danger to the United States—in consequence if not in probability. Rather than a deliberate attack, the danger today is that of a mistaken, unauthorized, or accidental attack. Some of Russia's nuclear-armed missiles could be launched at the United States deliberately, under an official order but in response to a mistaken warning of an incoming US attack. Such a mistaken retaliatory launch would likely involve a large number of nuclear warheads—perhaps thousands. Another possibility is that one or a few individuals could seize control of some weapons and launch them, acting without authorization. An unauthorized launch would also likely be large, with a plausible launch ranging from many tens to several hundreds of warheads. Or an accident, due to equipment malfunction or operator error, could result in a launch of anything from a single missile to a large portion of Russia's missile force.

2 One scenario for an unauthorized attack would be the launch of missiles from a single Russian submarine. The Delta IV submarines each carry 64 warheads, and the Delta III submarines carry 48. Another would be the launch of land-based missiles under control of a single commander. A Russian regiment of SS-18 land-based missiles is typically six missiles with ten warheads each, for a total of 60 warheads. However, all Russian land-based missiles in a division are interconnected and can be launched by any of the regimental launch control centers or by division command posts and their alternates in the field. A regiment commander who devises a way to launch the six missiles under his or her control could also fire all the missiles in the interconnected regiments. Russia maintains four fields of SS-18 missiles; each has from 30 to 52 missiles, with 300 to 520 warheads. Thus, an unauthorized attack could involve 48 to 520 warheads.
Well over a thousand Russian nuclear weapons are deployed on missiles kept on high alert and could be launched within a few minutes of a decision to do so. Russia maintains this capability so it can launch its nuclear-armed missiles promptly upon receiving a warning that the United States has launched—or is about to launch—a first strike. Such an immediate launch is intended to prevent its nuclear weapons from being destroyed and to ensure the dissemination of launch orders before its command centers are destroyed.

Launch on warning is a risky posture: the decision time is so short that it leaves little time in which to rule out a mistaken warning. In Russia, the dangers of mistaken launch are exacerbated by a deficient warning system: Russia's radars do not cover attack corridors from the North Atlantic and the Pacific where US nuclear-armed submarines are normally on patrol. In addition, its satellite-borne sensors for detection of missile launches provide incomplete coverage.³ As a result, Russia has little ability to cross-check the validity of attack indications from one sensor against those of another. Moreover, most of Russia’s nuclear forces are deployed in such a way that they would be destroyed in a US first strike. Nearly all Russia’s deployed strategic nuclear weapons are on vulnerable missiles: land-based missiles in silos, mobile missiles in garrisons, and missiles on submarines kept in port. Because of this, Russia has an incentive to react quickly to warning of attack and therefore could be fooled by false alarms. Declining morale and training in the Russian military further increase the risk of human and technical error in the performance of its early warning systems.

Similarly, the United States is prepared for a Russian “bolt-from-the-blue” attack: the United States maintains the capability to launch its weapons within minutes of receiving coordinated signals from its network of radars and early-warning satellites indicating that an attack against the United States is in progress.

The United States is, however, in a position to keep a more relaxed finger on its nuclear trigger, for two reasons. First, its warning and communication systems are more reliable and sufficiently complete to provide redundant worldwide coverage. Second, the United States maintains more than 1,000 missile-launched nuclear weapons on submarines safely hidden at sea. These would survive any Russian first strike.

Nevertheless, the US policy of maintaining its nuclear forces so they can be launched promptly reflects a predisposition to launch on warning. This posture is inherently dangerous—and not only because it could result in a mistaken US launch. This posture, in combination with the high accuracy and large number of deployed US nuclear weapons, gives Russia an incentive to keep its forces on hair-trigger alert to protect its vulnerable nuclear missiles. This, in turn, increases the very real risk of a mistaken, unauthorized, or accidental launch of Russian missiles.

This is not just a hypothetical problem: In 1995, Russia’s early warning system indicated a possible US missile attack. This triggered Russia’s emergency nuclear decision process—in response to the launch of a scientific research rocket fired from

³ One of Russia’s early warning radars was built on Latvian territory. It was dismantled following the breakup of the Soviet Union. Because of its economic difficulties, Russia has been unable to replace all of its early-warning satellites as they age and stop functioning. In 1995, its fleet included nine functioning satellites; now there are only four. These satellites can detect launches of US land-based missiles, but not those of US submarine-based missiles.
The Problem

Norway. Russia’s radars apparently could not rule out the possibility that the rocket was a US nuclear-armed missile fired from a submarine in the Norwegian Sea. The alarm traveled all the way up the chain of command to President Boris Yeltsin, activating his nuclear suitcase, which would be used to authorize nuclear retaliation. About eight minutes into the rocket launch, the operators of Russia’s warning radars reported that the rocket did not threaten Russia, and the alarm was cancelled.

The safe outcome of this false alarm is scant consolation. The mere fact that a peaceful scientific rocket could trigger an emergency launch procedure in Russia points to a real danger. Moreover, Russia’s command and early warning systems have deteriorated since then: It now has only four early warning satellites; at that time it had nine. The next time a benign event is interpreted as a potential nuclear attack, it is not clear that Russia will have sufficient information to decide that it can afford to wait. A false alarm involving a single rocket or a small number of incoming warheads presumably would not precipitate a Russian decision to launch. However, a false alarm could also result in the impression of a massive US attack, in which case Russia may be less willing to wait before launching a counterattack.

Maintaining forces on high alert also increases the risk of unauthorized launches. An unauthorized attack is more likely if fewer steps are needed to implement it, as would be the case if weapons are primed for rapid launch. With nuclear missiles armed, fueled, and ready to fire upon receipt of a few short computer commands, the need for strict safeguards to prevent unauthorized launch is obvious. But no safeguards are foolproof, and maintaining nuclear forces in a way that required additional physical steps to launch a missile would offer greater protection.

Future Russian Dangers

Russia appears to want to decrease its deployed strategic forces to 1,000 to 1,500 warheads over the next decade because of economic constraints. However, Russia could choose to maintain far more nuclear warheads for the next 15 years if it does not adhere to the START II prohibition against land-based missiles with multiple warheads. For just this reason, Russia has threatened to ignore the START II agreement in response to the deployment of a US national missile defense system that Russia believes might be effective against its missiles.

The danger Russia’s weapons pose to the United States and other countries will depend as much—if not more—on their operational status as on their numbers. For example, 1,000 Russian nuclear weapons on high alert may pose a much more serious risk to the United States than 3,000 that could not be launched quickly.

Tactical nuclear weapons could again become a threat. As a result of NATO expansion and the deterioration of its conventional forces, Russia has expressed renewed interest in tactical nuclear weapons and could redeploy some of the thousands currently in storage. Because tactical nuclear weapons are generally under less secure control than strategic weapons, this could increase the risk of unauthorized or accidental use as well as the risk of theft.

Political changes in Russia could also lead to increased nuclear dangers. Russia’s transition to democracy may not be completed or may even be reversed in the next decade. In such a case, increased tensions between the United States and Russia could result in Russia maintaining greater numbers of nuclear weapons at higher alert levels. But the revolutionary changes in Europe’s political landscape mean that Russia
could not readily reconstruct the conventional threat to central or western Europe the Soviet Union once posed.

Russian Reaction to US Policy

The nuclear policy the United States adopts for the next five to ten years will affect the choices Russia will make about its nuclear weapons—regardless of how the overall US-Russian relationship evolves over this time period. While the role of nuclear deterrence may change in the overall US-Russian relationship over the next decade, it is almost certain to continue in some form during this time period. This has several implications, both military and political, for how the nuclear threat from Russia will evolve.

Russia is unlikely to try to maintain strict numerical parity at a high level with the United States, as the Soviet Union did during the Cold War. Nevertheless, domestic political constraints will almost certainly keep it from reducing its deployed forces to below 1,000–1,500 warheads unless the United States does so as well. Moreover, Russia is unlikely to reduce its deployed forces to below this level if the United States plans to deploy missile defenses Russia believes could be capable of intercepting a significant number of its strategic missiles that might survive a US first strike.

More importantly for US security, Russian operational policy will be heavily influenced by US nuclear doctrine. In particular, whether Russia maintains a launch-on-warning posture will depend on whether the United States maintains the capability to promptly destroy hardened Russian missile silos and deploys missile defenses that are worrisome to Russia.

This linkage between US missile defenses and Russian launch-on-warning policy was clearly acknowledged in US State Department talking points used in the January 2000 US-Russian negotiations over modifying the ABM Treaty to permit deployment of the Clinton administration’s planned national missile defense system. The talking points argued that the US national missile defense system would not threaten Russia’s deterrent as long as Russia continued to deploy 1,000 or more nuclear warheads and maintained the ability to launch its forces promptly on warning of an incoming US attack.4

Threats from China

China currently deploys roughly 20 single-warhead liquid-fueled missiles with a range capable of reaching the United States. Because the warheads and fuel are apparently stored separately from the missiles, the probability of a mistaken, unauthorized, or accidental launch from China is low. Mistaken launch in response to false warning of a US or Russian strategic attack is also unlikely because China does not have a system of early warning sensors to permit it to launch upon detection of an incoming attack.

China could launch a deliberate attack against the United States. However, because China clearly does not have a capability to execute a disarming first strike, the United

States would still be capable of massive retaliation after an attack. This knowledge would certainly deter Chinese leaders from initiating such an attack.

**Future Chinese Threats**

Over the 20 years since China first deployed nuclear-armed missiles with a range that could reach the United States, it has been slowly modernizing its nuclear forces. China is apparently developing two solid-fueled road-mobile missiles: the DF-31, with a range of about 8,000 kilometers, and the DF-41, with a longer range capable of reaching the 48 contiguous United States. The DF-31 was first flight tested in 1999 and could be deployed within a decade. It is likely to be targeted against Russia and Asia, but could reach Alaska. The DF-41 is in early development and could be deployed within two decades.

Because China’s motive for deploying these mobile missiles is apparently to create a more survivable deterrent, these missiles are likely to be deployed with their warheads. This could increase the risk of an accidental or unauthorized attack, as could the more difficult command-and-control problems associated with mobile missiles. The risk of an unauthorized attack could also be increased if serious political turmoil in China were to lead to a loss or weakening of nuclear command and control.

It is not known whether China is also seeking to deploy an early warning system that would give it the capability to launch on warning of an incoming attack. However, China’s incentive to acquire such a capability would be reduced if it deploys survivable mobile forces.

A military conflict over Taiwan is perhaps the most likely scenario in which a nuclear confrontation between the United States and China might occur. In order to prevent the United States from intervening on Taiwan’s behalf, China could—directly or indirectly—threaten to use nuclear weapons. In the words of some American commentators, China might force the United States to risk “trading Los Angeles for Taipei.” But Chinese leaders would expect that a nuclear attack on the United States would produce certain retaliation, which would effectively end the Chinese government’s existence. For the Chinese leaders, the question would be whether they would be willing to trade Beijing for Los Angeles. Such a “trade” would be a significant deterrent to a Chinese nuclear attack. China could also threaten to use nuclear weapons against US military forces in the region, but Chinese leaders would have to assume that such use would prompt the United States to attack all remaining Chinese nuclear weapons, which would again serve as a significant deterrent.

Even in the absence of any direct military conflict, the US-Chinese relationship could become overtly hostile, and China might even form a military alliance with Russia.

---

5 During the 1996 Taiwan crisis, it was widely reported in the US press that a Chinese official had warned that China might threaten Los Angeles with nuclear attack to prevent the United States from intervening in a conflict over Taiwan. In fact, according to the source of these reports, Ambassador Charles W. Freeman, Jr., they are based on a misquote of a Chinese military officer, Lt. General Xiong Guang Kai. In a discussion with Ambassador Freeman, Lt. Gen. Xiong noted that—unlike the 1950s when the United States threatened nuclear strikes on China during the Korean War—China now had the ability to retaliate, so the United States would no longer feel free to threaten to use its nuclear weapons against China in the case of a conflict over Taiwan. “Did China Threaten to Bomb Los Angeles?” Carnegie Endowment for International Peace, Non-Proliferation Project Issue Brief, Vol. IV, No. 4, March 22, 2001, available at www.ceip.org/files/publications/ProliferationBrief404.
Chinese Response to US Policy

For two decades, China has deployed only a small number of long-range missiles. While US nuclear policy is unlikely to affect the nature of China’s modernization program, which is motivated by a desire for a more survivable basing mode, it will likely affect the number of nuclear weapons China decides to deploy. In particular, the US deployment of missile defenses that China believes could intercept a significant portion of its long-range missiles will almost certainly spur China to compensate by building more missiles, both to overwhelm the defense and to make this capability evident to the United States. The August 2000 US National Intelligence Estimate reportedly predicted that China would build up to 200 long-range missiles in response to the deployment of the limited national missile defense that was being developed by the Clinton administration.6 A larger US national missile defense system might generate a larger Chinese offensive buildup.

Threats from Other Countries

No other countries currently pose nuclear threats to the United States. However, a small number of countries that the US government views as hostile may be seeking to acquire nuclear weapons and the means to deliver them to the United States. These emerging missile states—North Korea, Iran, and Iraq—could acquire a small number of such weapons in the next decade.

Whether they do so will be determined by several factors, including their political motivations and their relationship with the United States, as well as their access to the necessary technology. The latter will depend in part on Russian and Chinese cooperation on restricting technology transfers, which in turn will be affected by the US-Russian and US-Chinese relationships.

Even more critical than Russia’s policy regarding approved technology transfers is its ability to prevent the unauthorized transfer of weapons, materials, and expertise to other countries. Russia currently struggles to control up to 20,000 nuclear weapons, either deployed or in storage, as well as vast supplies of nuclear, biological, and chemical weapons materials and thousands of missiles. In addition, tens of thousands of Russian scientists and technicians are underpaid and may be tempted to sell their knowledge, material, or technology to other countries. As the recent bipartisan study cochaired by Howard Baker and Lloyd Cutler warned, “The most urgent unmet national security threat to the United States today is the danger that weapons of mass destruction or weapons-usable material in Russia could be stolen and sold to terrorists or hostile nation states and used against American troops abroad or citizens at home.”7

Future threats will depend on US-funded cooperative programs to help Russia control its weapons, weapon materials, and expertise.

---


Thus, the evolution of potential future threats from other countries will also depend on the effectiveness of US-funded cooperative programs to help Russia better control its weapons, its weapon materials, and its expertise.

In the longer term, the greatest danger to US, and indeed global, security may stem from the failure of the United States and the other nuclear weapon states to fulfill their Non-Proliferation Treaty commitments. Article VI requires these countries to take serious steps toward nuclear disarmament. If those steps are not taken, the nonproliferation regime could ultimately unravel, resulting in the development and deployment of nuclear weapons by states that have the technical capability and financial resources to do so.
Below we describe a US nuclear posture that would address the security problems outlined in the previous chapter. First, we briefly note that the policy we recommend will not diminish the US ability to deter or respond to any future Russian or Chinese nuclear threat. Even if Russian democracy collapses, or Russia and China develop a military alliance, there is no scenario under which the United States will need more than a few hundred nuclear weapons to deter or respond to new threats from those countries. Moreover, the United States would not benefit from having the capability to launch its nuclear weapons promptly. On the contrary, if any of these negative political developments come to pass, US security will benefit from having reduced the level of nuclear confrontation as much as possible in the intervening years.

The nuclear policy we recommend will also not alter US ability to prevent new states from acquiring nuclear weapons, or to deter their use. If such states are not deterred from attacking the United States by the prospect of retaliation by a few hundred US nuclear weapons that could be launched the following day, then they would also not be deterred by thousands that could be launched in a matter of minutes.

**Goals of US Nuclear Posture for the Next 5–10 Years**

In the absence of profound political transformations, the United States will continue over the next five to ten years to maintain the threat of nuclear retaliation to deter nuclear attack by other countries against its territory, its armed forces, or its allies. At the same time, the United States can and should structure its nuclear policy to achieve two main objectives: to decrease the dangers from Russian nuclear weapons and to reduce the incentives for nuclear proliferation.

The United States should structure its nuclear policy to reduce the risk of mistaken, unauthorized, and accidental Russian launch by providing Russia with strong incentives to relax its nuclear posture. By so doing, the United States should exploit its unique position as the strongest power in all dimensions and take unilateral steps to lead the way to a more secure strategic environment. Bilateral US-Russian nuclear arms negotiations are bogged down and continuing only along this path will not produce results at a pace commensurate with the opportunity and need. Unilateral steps to reduce the numbers of nuclear weapons and their alert levels should be accompanied by transparency measures, both to encourage reciprocation on Russia’s part and to lay the groundwork for further measures. These should eventually be followed by negotiated constraints to codify the progress that has been completed and to make it difficult to reverse.
In addition, US nuclear policy should reflect the fact that the security of the United States, along with that of all other countries, depends upon preserving and enhancing the international norms that have developed over the last 50 years against the use and the proliferation of nuclear weapons. US nuclear weapons policy should be designed to sustain the nonproliferation regime and to create pressures and provide incentives for non-nuclear weapon states to remain nonnuclear and for nuclear weapon states to cooperate on nuclear disarmament.

To achieve these two objectives, US nuclear policy should also be designed to facilitate a broader cooperative relationship with both Russia and China. A cooperative US-Russian relationship is needed to permit existing bilateral programs that assist Russia in controlling its nuclear weapons and materials to expand and become more effective. However, cooperative relations with China and Russia are vital to the success of US efforts to encourage these countries to restrict technology transfers to other countries. More generally, the three countries could reduce the risks of missile and nuclear proliferation if they worked together to do so. US nuclear policy should thus serve as an inducement for such cooperation.

Specific Recommendations

The United States can reduce the threats it faces now and in the future by both military and diplomatic means. The nuclear posture we describe below incorporates both

- military policy governing the deployment, targeting, and conditions for use of US nuclear weapons
- diplomatic policy governing existing and future international agreements constraining the testing, deployment, and dismantlement of nuclear weapons and the testing and deployment of missile defenses by the United States and other states.

US security would be substantially improved by adopting a nuclear posture for the next five to ten years that incorporates the nine elements described below.

1. **The United States should declare that the sole purpose of US nuclear weapons is to deter and, if necessary, respond to the use of nuclear weapons by another country.**

   Maintaining and strengthening the firebreak against the use of nuclear weapons by all countries is a paramount concern for US national security.

   Some have advocated other roles for nuclear weapons than deterring nuclear attack, such as
   - deterring or responding to conventional attacks
   - deterring or responding to chemical or biological attacks
   - destroying chemical or biological agents stored in deep underground bunkers
   - deterring or responding to other, often unspecified threats to US vital interests

   But adopting roles beyond deterrence of nuclear attack is both unnecessary and counterproductive. Such roles would add little or nothing to the deterrence of nonnuclear attacks provided by the mere existence of US nuclear weapons or to the US ability to counter or respond to such attacks.
Such additional roles would also undermine the overriding goal of preventing the proliferation and use of nuclear weapons. If US policy treats nuclear weapons as multipurpose weapons, then other states will be more inclined to seek their benefits. If the United States, with unquestioned conventional superiority, chooses to rely on nuclear weapons to protect and defend its vital interests, then weaker states—particularly those not covered by US security guarantees—would apparently have a far greater need for nuclear weapons.

Some believe that the consequences of attack from chemical and especially biological weapons could be so great that it is unwise to forgo the “sharp deterrence” provided by explicit threats to use nuclear weapons in response. Rather than promise never to use nuclear weapons first, they advocate a pledge not to initiate the use of weapons of mass destruction. No one would question the goal of deterring chemical or biological weapon attacks, but explicit US nuclear threats would lack credibility except in the most extreme and dire circumstances—circumstances in which no prior statement or policy could bolster or detract from the deterrent effect that results from the mere possession of nuclear weapons.

It is often claimed US nuclear threats deterred the use of chemical or biological weapons during the Persian Gulf War. But it is worth noting that President George H. Bush’s threat of “the strongest possible response” if Iraq used its chemical or biological weapons applied equally to the destruction of Kuwait’s oilfields, which Iraq did with impunity.8 If US officials threatened privately to escalate the war in ways that did not involve nuclear weapons if Iraq used chemical or biological weapons. Secretary of State James Baker warned the Iraqi foreign minister that use of such weapons would lead the United States to seek to topple the Hussein regime.9 These threats were almost certainly an equally— if not more— potent deterrent than the implicit nuclear threat. There is also evidence that US air attacks impaired Iraq’s ability to deploy and use its chemical and biological weapons. We do not know why Iraq did not use chemical or biological weapons, but the balance of evidence does not support the conclusion that veiled US threats to use nuclear weapons were the determining factor.

Nuclear threats are also unnecessary to deter nonnuclear attacks because of the great conventional military strength of the United States, which far exceeds that of all potential adversaries put together and will do so for the foreseeable future. Any nonnuclear threat to the security of the United States and its allies could be countered effectively by their combined conventional military strength.

8 A letter from President George H. Bush to President Saddam Hussein, delivered by Secretary of State James Baker to Iraqi Foreign Minister Tariq Aziz on the eve of the Persian Gulf War, stated in the final paragraph, “The United States will not tolerate the use of chemical or biological weapons, support of any terrorist actions, or the destruction of Kuwait’s oilfields and installations. The American people would demand the strongest possible response. You and your country will pay a terrible price if you order unconscionable action of this sort.” “Confrontation in the Gulf: Text of Letter from Bush to Hussein,” New York Times, January 13, 1991.

9 US Secretary of State James Baker verbally delivered the following threat to Tariq Aziz on the eve of the Persian Gulf War: “If the conflict starts, God forbid, and chemical or biological weapons are used against our forces, the American people would demand revenge, and we have the means to implement this. This is not a threat, but a pledge that if there is any use of such weapons, our objective would not be only the liberation of Kuwait, but also the toppling of the present regime. Any person who is responsible for the use of these weapons would be held accountable in the future.” Lawrence Freedman and Efraim Karsh, The Gulf Conflict: 1990–1991 (London: Faber and Faber, 1993), p. 257.
Finally, there are practical political reasons for not using nuclear weapons in response to nonnuclear attacks. Although one can imagine cases in which domestic pressure for nuclear revenge might be strong, or where the use of nuclear weapons might reduce US casualties and end a war more quickly, wise leaders would weigh these considerations against the grave damage that nuclear first use would do to US security. In the short term, nuclear attacks could turn world opinion against the United States and render a collective response against the offender difficult or impossible. The long-term effects would be more profound. Nuclear strikes could deal a fatal blow to US leadership and alliances, wreck the nonproliferation regime, and spur other states to acquire nuclear weapons.

Moreover, threatening to use nuclear weapons in response to nonnuclear attacks could increase the pressure for the United States to do so even if it would be counter to US interests. First, if the United States maintains its first-use option, the military will maintain detailed contingency plans and standard operating procedures for such use that could dominate thinking about how to respond in a crisis. Second, once policymakers threaten a nuclear response, they might worry that US credibility and resolve would be called into question if they did not follow through, even if they believed that doing so would be unnecessary or imprudent.

To summarize, the marginal value of explicit threats to use nuclear weapons to respond to nonnuclear attacks is so small, the wisdom of carrying out such threats is so dubious, and the potential long-term security costs of making such threats is so great, that the United States should make clear that the sole purpose of its nuclear weapons is to deter and, if necessary, respond to nuclear attacks.

2. The United States should reject rapid-launch options (launch-on-warning and launch-under-attack), and change its deployment practices to provide for the launch of US nuclear forces in hours or days rather than minutes.

By changing its deployment practices so that large numbers of its nuclear forces could no longer be launched promptly, the United States would reduce Russia's incentive to maintain its launch-on-warning capability, thereby minimizing the risks of a mistaken, unauthorized, or accidental launch of Russian nuclear weapons. A reliable and credible US nuclear deterrent does not require that the United States be able to retaliate within minutes, so long as no attack could totally disable the US command-and-control system and sufficient nuclear weapons are based on submarines, where they would survive any attack.

In the longer term, US security would be further enhanced if the United States worked with Russia to develop and negotiate verifiable measures to ensure that neither country could launch its missiles in a massive surprise attack.

The only rationale for the United States to maintain its launch-on-warning and launch-under-attack options is a belief that doing so provides a more credible deterrent to a Russian deliberate attack and therefore reduces the chance of Russia launching a deliberate first strike against US nuclear forces. Even if this were valid, such a doctrine is not justified in the post-Cold War security environment, where the probability of a mistaken, unauthorized, or accidental launch from Russia is far greater than that of a deliberate attack.

Moreover, there is no reason to believe that a rapid-launch posture is necessary to deter a first strike, should Russia ever contemplate such an action. Because nuclear
There is no reason to believe that a rapid-launch posture is necessary to deter a first strike.

US nuclear command systems may be less resilient and may warrant fortification. However, no attacker could assume that destroying key parts of the US command system would prevent the United States from retaliating with its surviving nuclear weapons.

There are many ways the United States could modify deployment of its nuclear-armed missiles so that they could not be launched rapidly and so that another country could be confident of this. For illustrative purposes, we briefly describe one such option. The United States could cover the silos of US land-based missiles with mounds of dirt deep enough to prevent launch until bulldozers had cleared away the dirt. This process could take several hours for a few missiles and days or weeks for the entire force.

The United States could increase the time required to launch its submarine-based missiles by restricting the submarine patrol areas so that it would take days to sail to within range of the relevant targets in Russia. In some cases, the United States could also add ballast to the missiles to limit their ranges.\footnote{The United States plans to replace all its Trident I submarine-based missiles with Trident II missiles by 2006. The Trident II missile can carry up to eight Mark-4 or eight heavier Mark-5 reentry vehicles, but the United States may choose to reduce the number of warheads each missile carries. The United States could add ballast to its Trident II missiles to keep their payload at the 2,700 kilograms associated with eight Mark-5 reentry vehicles. This would keep the range of the missiles at about 4,100 nautical miles (7,600 km). With this range, any missiles on submarines deployed in the Atlantic Ocean could not reach the missile fields in south-central Russia until the subs crossed a line extending roughly between Newfoundland and Morocco. Any submarine-based missiles deployed in the Pacific Ocean could not reach those same missile fields until the subs crossed a line stretching from Anchorage to the southern Philippines. (See John R. Harvey and Stefan Michalowski, “Nuclear Weapons Safety: The Case of Trident,” Science & Global Security 4 (1994), pp. 261–337, particularly Figure 11 on page 306.) The United States could restrict its submarine patrol areas by committing to keep its ballistic-missile submarines as far away from these lines as they are at the submarines’ home bases. The East Coast base for ballistic-missile submarines is Kings Bay, Georgia, which is about 3,600 km from the line across the North Atlantic. The West Coast submarine base is near Silverdale, Washington, which is about 2,000 km from the line across the Pacific. At high speed (40 km/hr), it would take a submarine two days (Atlantic) to four days (Pacific) to travel these distances, so it would take the United States at least four days to carry out a launch order from both oceans.}

The United States could increase the time required to launch its submarine-based missiles by restricting the submarine patrol areas so that it would take days to sail to within range of the relevant targets in Russia. In some cases, the United States could also add ballast to the missiles to limit their ranges.\footnote{START I, Protocol on Inspections and Continuous Monitoring, Section IX, “Reentry Vehicle Inspections Conducted Pursuant to Paragraph 6 of Article XI of the Treaty,” and Annex 3, “Reentry Vehicle Inspections.”}

There are practical ways by which the United States could allow Russia to verify US adherence to the limited patrol areas without compromising the survivability of the submarines.\footnote{Several of the contributors to this report are writing a paper in which several such possibilities are laid out and examined.}
be taken off alert by measures similar to that described for the US land-based missiles, but different schemes would have to be developed for Russian truck-mobile missiles and for Russian strategic submarines. It is important that the United States and Russia jointly develop verifiable measures that would apply to both countries, but the unilateral steps taken by the United States would facilitate the development of such measures.

3. **The United States should replace its reliance on pre-set targeting plans with the capability to promptly develop a response tailored to the situation if nuclear weapons are used against the United States, its armed forces, or its allies.**

During the Cold War, the United States developed a large array of pre-set targeting plans for large-scale “counterforce” attacks against Soviet nuclear weapons and other targets. These plans could be modified only by months of careful work. Such counterforce options are both unnecessary and dangerous. Moreover, it is now possible for the United States to plan small-scale retaliatory attacks in far less time.

Because a deliberate nuclear attack against the United States is implausible and the circumstances under which the United States might seriously consider the use of nuclear weapons are unforeseeable, preplanned options make little sense. The United States should instead create a process of flexible targeting that would encourage deliberation and facilitate the development of options tailored to unanticipated situations.

**Counterforce Targeting**

Under current US nuclear doctrine, the United States must have the capability to destroy more than 1,000 Russian nuclear counterforce targets with the nominal goal of limiting damage to the United States should deterrence fail or appear about to fail. Targets include hundreds of missiles in silos, launch control centers, and mobile missile garrisons; dozens of strategic bomber and submarine bases; hundreds of air defense, nuclear weapons storage, and command-and-control targets; and hundreds of leadership targets. Under such counterforce targeting, the United States must deploy enough nuclear weapons so it can launch two or more warheads at each target to increase the odds of destroying it. This results in a requirement for a very large number of US warheads. Current US nuclear forces are also highly accurate and carry powerful nuclear warheads to give them the capability needed to destroy missiles in silos and hardened command-and-control centers.

Some US defense officials are reluctant to endorse deep reductions in large part because of their continued attachment to counterforce targeting. However, the harsh reality is that counterforce attacks against Russia could not limit damage to the United States to any meaningful extent. If Russia did launch a limited attack on the United States or its allies, the United States could launch its nuclear weapons at Russia's remaining nuclear forces and its command-and-control centers in an attempt to limit further

---

13 Unlike US strategic submarines, Russian submarines do not sail far from their home ports. In fact, Russian submarine-based missiles have ranges that allow them to reach US targets while close to port. Moreover, Russian submarines based on the Kola peninsula operate in the Arctic Ocean, which is not large. Thus, it would be infeasible to reduce the range of Russian submarine-based missiles (by adding ballast) so that it would take them several days to sail to the point where they could reach key targets in the United States.
The Solution

However, a US counterforce attack would be likely to prompt Russia to launch its remaining forces on warning of attack. Even if it did not do so, Russian nuclear forces sufficient to destroy many US cities would almost certainly survive any US attack, even if Russian forces were much smaller.\(^{14}\)

A preemptive first strike by the United States against Russia would be even more reckless— even if deterrence appeared about to fail. A first strike could not succeed. It would instead prompt Russia to launch all the nuclear weapons it could on warning, thus assuring that at least a few hundred nuclear weapons would survive the attack, which would be enough to destroy the United States.

Moreover, as discussed above, it is dangerous for the United States to maintain a large counterforce capability. Doing so encourages Russia to deploy its vulnerable forces so that they can be launched on warning. This in turn increases the risks of mistaken, unauthorized, or accidental attacks from Russia. Today and for the foreseeable future, the greatest danger to the United States is from just such attacks.

The United States should renounce counterforce targeting. But what should replace it?

Other Targeting Options.

One option is to target cities. Such a “countervalue” doctrine clearly violates established international law, which requires that threats or uses of force not be directed at civilians. However, the claim that counterforce is superior in this regard rings hollow: counterforce attacks, which necessarily would involve a much larger number of nuclear detonations and many attacks against targets in or near cities, would also kill millions to tens of millions of people.

Another option is to target conventional military forces and defense industries critical to supporting a war effort. This so-called “counterpower” strategy might avoid the instabilities associated with counterforce, because neither side would fear for the safety of its nuclear force, while offering retaliatory options other than the destruction of cities. Targets might include major military bases and storage areas and possibly energy infrastructure (refineries or transmission nodes for gas and electricity) located away from major cities. Unlike counterforce, counterpower targeting would require at most 100 warheads, enough to hold at risk the most valuable conventional military and energy targets located outside cities.

However, because people live near where they work, even counterpower attacks using a small number of nuclear weapons would still result in large numbers of

---

\(^{14}\) The two reasons it is not feasible for the United States to use its nuclear weapons to limit damage from Russia— that Russia can launch its forces on warning of an incoming attack and that it has enough nuclear weapons to be sure that a sufficient number would survive a US counterforce attack— do not hold in the case of China or other countries that might acquire a small number of nuclear weapons in the future. If China or another small nuclear power did use nuclear weapons against the United States or its allies, the United States could seek to limit further damage by launching a counterforce second strike. But even this goal is not achievable. For countries without a launch-on-warning capability, such as China, the potential for such a counterforce second strike would almost certainly inspire them to launch all their vulnerable forces in the first attack.
casualties. Another problem with counterpower targeting is that nuclear attacks against conventional military targets could be misinterpreted as an attempt to win a war rather than an effort to retaliate to a nuclear attack in ways that minimize the potential for further escalation and loss of life.

Flexible Targeting

There is no easy or general answer to the question of how best—or even whether—to use nuclear weapons in retaliation should deterrence fail. Rather than simply replace one fixed plan with another, the United States should not rely on fixed nuclear war plans. The title of the existing US nuclear war plan—the Single Integrated Operations Plan (SIOP)—implies a degree of focus and preplanning that is inappropriate. Why should the United States rely on detailed plans, which it updates and exercises regularly, for massive attacks to destroy Russia on a few minutes notice? Furthermore, such preprogrammed war plans are no longer necessary; the technology exists to devise an attack and target missiles in a matter of hours.

Flexible targeting would not mean an end to war planning. Instead, the US Strategic Command should be directed to rethink how nuclear weapons might be used within the confines of the limited role assigned to them and to subject the resulting concepts to periodic review by policymakers. At the operational level, the ability to develop and execute plans in response to hypothetical scenarios could be exercised regularly. As discussed above, several principles should guide such exercises and contingency planning:

- The United States will not use nuclear weapons first.
- The United States will not use nuclear weapons in haste (no option to launch on warning or launch under attack).
- Any response to a nuclear attack will be tailored to the circumstances and will be designed to minimize the risk of additional nuclear attacks, particularly against cities.

4. The United States should unilaterally reduce its nuclear arsenal to a total of 1,000 warheads, including deployed, spare, and reserve warheads. The United States should declare all warheads above this level to be in excess of its military needs, move them into storage, and begin dismantling them in a manner transparent to the international community. To encourage Russia to reciprocate, the United States could make the endpoint of its dismantlement process dependent on Russia’s response. US deployed warheads should consist largely of a survivable force of submarine-based warheads.

No current or conceivable future threat requires the United States to maintain more than a few hundred survivable warheads. The United States should unilaterally reduce its arsenal to a total of 1,000 warheads. This would encourage Russia to similarly reduce its nuclear forces, without waiting for movement in the US-Russian arms control negotiations, which remain bogged down. Further reductions should be made through multilateral negotiations; we recommend that US reductions be unilateral only to 1,000 warheads in order to induce other nuclear weapon states to join in further reductions.
These unilateral reductions should encompass both deployed warheads and those kept in reserve, which currently total more than 10,000. Such reductions would transform the post–Cold War nuclear security environment, provide Russia with a strong incentive to follow suit, and demonstrate US intentions to fulfill its commitments under the Non-Proliferation Treaty.

**Deterrence and Response**

There is no compelling military reason to link the size of US nuclear forces to that of other countries, although there may be reason to link its size to the capabilities of missile defenses deployed by potential adversaries. As long as the United States has enough survivable and deliverable warheads to deter and, if necessary, respond to any plausible nuclear attack, it should not matter how many weapons other countries have. US weapons can be based and operated so that their survivability is insensitive to the size of other arsenals. For example, even a 10,000-warhead force could not nullify a 100-warhead force based on submarines at sea.\(^{15}\) How many of these survivable warheads are also deliverable depends on the capability of any missile defense systems deployed by potential adversaries.

How many nuclear weapons does the United States need to deter or respond to the use of nuclear weapons?

Even if the United States rejects countervalue targeting, the capability to destroy an attacker’s government and society is the core of deterrence. No sane adversary would believe that any political or military advantage would be worth risking the destruction of its own society. The delivery of 100 warheads would be sufficient to destroy the society and economy of any country, and tens of detonations could kill more people than have ever been killed in any country in any previous war. Thus, 100 deliverable warheads should be more than enough to deter any rational leader from ordering a nuclear attack on the cities of the United States or its allies.

It would be suicidal for the United States to retaliate against Russian cities unless US cities had already been destroyed. If the United States suffered less than all-out nuclear attack and a nuclear response was deemed necessary, the president should have options to use nuclear weapons on targets other than an opponent’s cities, in order to minimize the probability of escalation. Again, 100 survivable warheads should be sufficient for such contingencies. Against Russia, for example, 100 nuclear explosions would be enough to destroy all major air and naval bases, staging areas, command centers, and logistics centers that might be used to support a conventional attack.\(^{16}\) Alternatively, 100 explosions could destroy all major energy and industrial targets located outside cities.\(^{17}\) It is, however, difficult to imagine that 100 nuclear weapons could be used against an opponent, even in a manner that avoided cities, without triggering an all-out response; 10 warheads is probably closer to the upper limit of what would be interpreted by an adversary as a limited response.

---

\(^{15}\) Survivable warheads exclude those on silo-based missiles, pier-side submarine-based missiles, and bombers not on alert.


\(^{17}\) See Speed, “Potential CIS/Russian Targets.”
Thus, a few hundred survivable and deliverable warheads should be sufficient for the United States to deter or respond to a nuclear attack while retaining enough nuclear weapons to continue to deter other countries from attacking.

It is beyond the scope of this report to specify in detail possible US force postures. However if, for example, the United States maintained five submarines at sea, each armed with 24 single-warhead missiles, this should be sufficient to ensure survivability. This might require a total of ten submarines, of which half would be in port at any given time. US systems for formulating and communicating attack plans to the submarines must also be survivable if the United States is to tailor any response to the circumstances of the attack. ¹⁸ Although the United States might retain a dozen or so nuclear-capable bombers for special missions (e.g., to maintain presidential control up until the last possible moment, to be sure that a weapon is used over the intended target, or to assess the results of an attack), there is no compelling reason to maintain a full triad of forces. The high degree of redundancy in current forces is unnecessary for deterrence.

We advocate that the United States unilaterally reduce its warheads only to 1,000 at this time, with further reductions to be made through multilateral negotiations. With 1,000 warheads, the United States could deploy far more than the 200 survivable warheads discussed above. If some 15 percent were designated as “spares,” the United States could deploy roughly 800 warheads out of 1,000 total.

Warhead Dismantlement

Nuclear warheads kept in storage constitute a serious proliferation risk, especially under current conditions in Russia. To give Russia an incentive to reciprocate and to lay the groundwork for future reductions, the United States should begin dismantling its excess nuclear warheads in a manner transparent to Russia and the rest of the world. It should commit to storing and disposing of the resulting fissile material under international safeguards to preclude its reuse in nuclear weapons and to make clear that these reductions are irreversible.

The United States currently has about

- 7,200 active strategic warheads (those deployed on delivery systems and their spares)
- 1,600 inactive strategic warheads (those maintained as a “hedge” to permit a rapid increase in deployed weapons and those kept to replace active warheads if any develop reliability problems)
- 1,670 tactical warheads

This totals roughly 10,500 nuclear warheads.¹⁹ In addition, the United States maintains some 12,000 plutonium “pits” from dismantled nuclear weapons at Pantex, of which it

¹⁸ As discussed in Kurt Gottfried and Bruce G. Blair, ed., Crisis Stability and Nuclear War (New York: Oxford University Press, 1988), p. 110, the United States could establish a secure “strategic mail box” that could be accessed by a submarine commander at any time to pick up messages from the national command authority.

The Solution

plans to keep 5,000 as a strategic reserve. Under our proposal for unilateral cuts to a total of 1,000 warheads, the United States would not maintain any additional pits as a reserve. Thus, retaining 1,000 nuclear warheads would require that the United States dismantle some 9,500 nuclear weapons and dispose of the fissile material from some 21,500 nuclear weapon pits. Dismantling the nuclear weapons would take well over a decade and disposing of the fissile material is likely to take several decades. To further encourage Russian reciprocation, the United States could indicate that completion of its dismantlement and disposition process would depend on Russia also placing its excess warheads in storage and beginning to dismantle them in a secure and verifiable manner.

5. The United States should promptly and unilaterally retire all US tactical nuclear weapons, dismantling them in a transparent manner. In addition, it should take steps to induce Russia to do the same.

If the sole purpose of US nuclear weapons is to deter and, if necessary, respond to the use of nuclear weapons by others, the United States has no need for tactical nuclear weapons that could not be fulfilled by strategic weapons. Because tactical nuclear weapons are often stored and deployed under less secure control than strategic weapons, eliminating tactical nuclear weapons would reduce the dangers of unauthorized use and theft, particularly if Russia reciprocates.

US tactical nuclear weapons were developed and deployed primarily to defend Western Europe from a potential Soviet conventional attack at a time when the United States and NATO feared that their conventional forces were much inferior to those of the Soviet Union and Warsaw Pact. The Soviet Union and the Warsaw Pact no longer exist. Russia poses no conventional threat to Europe, and there is no plausible future need for US tactical nuclear forces. In recognition of this fact, in 1991 President George H. Bush unilaterally deactivated and began dismantling almost all US tactical nuclear weapons. Today, the United States maintains some 1,200 tactical nuclear bombs for aircraft delivery at two air force bases in New Mexico and Nevada, about 320 sea-launched cruise missiles at naval bases in Washington and Georgia, and about 150 tactical nuclear bombs in various European NATO countries.

Under the nuclear posture we recommend, the United States would use its nuclear weapons only to deter or respond to nuclear attacks. The United States does not need tactical nuclear weapons to continue to extend its nuclear umbrella over its allies in Europe: US strategic nuclear forces would deter nuclear strikes against US allies and could be used to respond to such attacks if deterrence failed.

President George W. Bush should complete the effort begun by his father by retiring all US tactical nuclear weapons and dismantling them in a manner transparent to Russia and the international community. Although the United States should make every attempt to encourage Russia to reciprocate, it should not make this effort contingent on Russian actions.

---


6. The United States should announce its commitment to further reductions in the number of nuclear weapons, on a negotiated and verified multilateral basis.

Although US security needs could be met with a few hundred survivable nuclear weapons, we recommend that the United States only reduce its nuclear arsenal to 1,000 weapons at this point. The desire for further reductions would be an important inducement for other nuclear weapon states to join in multilateral negotiations to reduce their arsenals as well. Negotiated agreements would make reductions more difficult to reverse and thus provide all nuclear weapon states with the predictability needed to move toward smaller nuclear forces and safer nuclear postures.

If the United States reduces its total nuclear arsenal to 1,000 warheads and Russia responds by taking comparable steps, this should not be the endpoint of reductions. At this level, the other nuclear weapon states, some of which have several hundred warheads, should join in the nuclear reductions process.

Some analysts argue that the United States should not be party to any legal agreements that would limit its future nuclear arsenal. However, the United States relies on diplomatic tools and legal agreements in many areas of international competition to create and strengthen norms of behavior. Verifiable, legally-binding agreements offer an important means for diminishing threats to the United States by constraining the behavior of other countries, as well as that of the United States. Arms control agreements can provide predictability, transparency, agreed-upon rules, and the avoidance of costly and destabilizing arms races.

7. The United States should commit to not resuming nuclear testing and should ratify the Comprehensive Test Ban Treaty.

The United States has a large and varied suite of fully tested nuclear weapons designs that give it the capability to meet all credible future military requirements. It also has sophisticated facilities for maintaining a reliable nuclear stockpile without explosive testing. A US resumption of testing would severely compromise the nonproliferation regime, whereas US ratification of the Comprehensive Test Ban Treaty (CTBT) would strengthen the regime. Since resuming testing would exact an unacceptable political price, the United States has nothing to lose and much to gain by ratifying the CTBT. As noted in the January 2001 report on the treaty by General John Shalikashvili, “an objective and thorough net assessment shows convincingly that US interests, as well as those of friends and allies, will be served by the Treaty’s entry into force.”

Nonproliferation Consequences

In support of US nonproliferation and arms control objectives, the United States has been leading the international community toward a global ban on nuclear tests since 1993, an effort that originated with a bipartisan congressional initiative in 1992. The indefinite extension of the Non-Proliferation Treaty (NPT) in 1995 was predicated on support for the CTBT from the nuclear weapon states as the next major step toward...
fulfilling their commitments under Article VI. At the 2000 review conference of the NPT, the United States joined the other nuclear weapon states in committing itself to secure the entry into force of the CTBT, which can happen only if the United States ratifies the treaty.

If the United States fails to ratify the CTBT and the treaty consequently does not enter into force, the United States would be throwing away much of the moral authority and international goodwill that has allowed it to lead efforts to strengthen the global nonproliferation regime. US failure to ratify the treaty would surely jeopardize the increased cooperation needed from non-nuclear weapon states to accept the more intrusive international safeguards that were developed after Iraq violated the NPT. If it does not ratify the CTBT, the United States would also be unable to pressure other states to sign and ratify the treaty. The CTBT would impose upon threshold nuclear weapon states a significant barrier to the development of many types of nuclear weapons, especially thermonuclear warheads able to meet the volume and weight constraints of missile delivery.

Testing Unnecessary

The United States does not need to conduct any more nuclear explosive tests to maintain a reliable and safe nuclear arsenal. In fact, of the approximately 350 underground tests the United States has conducted since 1972, only eight were "stockpile confidence tests." Almost all US nuclear explosive testing has been devoted to developing new weapons. Nor does it need to conduct explosive tests to develop new warheads. It has a wide range of nuclear warhead designs, which suffice to meet all credible contingencies now and into the indefinite future.

No Additional Constraints

As a practical matter, US ratification of the CTBT will not impose significant additional constraints on US testing beyond those that already exist. CTBT opponents argue that an unanticipated security threat could emerge in the future that necessitates a resumption of US nuclear testing and that this possibility—however small—means the United States should stay out of the treaty. We disagree. If the implausible situation were to develop in which the United States would find it necessary to resume nuclear testing, it would have ample time to invoke the "supreme national interests" clause and withdraw from the treaty.

Because the political price of withdrawal would be high, CTBT opponents question whether the United States would actually withdraw from the treaty, once ratified, under any circumstances. That argument misses the point. The price of resuming testing is already high, and ratification of the CTBT would only marginally increase it. The United States has already signed the CTBT. If it resumed testing, the United States would alienate all other signatory nations, and the treaty would unravel. Russia and China would likely respond in kind, and other nations would not be far behind. The nonproliferation regime and US global efforts to strengthen it would be severely compromised.

8. **In recognition that the universal and verifiable prohibition of nuclear weapons would be in its national security interest,** the United States should reaffirm its commitment to pursue nuclear disarmament and present a specific plan for moving toward this goal.

   Over the long term, US nonproliferation goals can be accomplished only if the United States demonstrates by its own actions and policies that it has reached the firm conclusion that nuclear weapons bring with them greater dangers than security benefits and that it intends to move expeditiously toward a nonnuclear world together with the other nuclear weapon states. Accordingly, the United States should reaffirm its commitment to nuclear disarmament under Article VI of the Non-Proliferation Treaty.

   To facilitate progress toward the prohibition of nuclear weapons, the United States should substantially increase its research efforts on technologies to verify nuclear disarmament, and on the types of regimes needed to verify disarmament and to respond to potential nuclear rearmament. The United States should also increase its efforts to bring about the conditions under which all nations will agree that verifiable and enduring prohibition of nuclear weapons is important to their national security. Finally, the United States should facilitate the beginning of a multilateral discussion of the relevant issues by accepting a negotiating mandate on nuclear disarmament at the Conference on Disarmament and other appropriate forums.

9. **The United States should recognize that deployment of a US missile defense system that Russia or China believes could intercept a significant portion of its survivable long-range missile forces would trigger reactions by these countries that could result in a net decrease in US security.** The United States should therefore commit to not deploy any missile defense system that would decrease its security in this way.

   Many questions remain unanswered about the security benefits the United States could expect to derive from deployment of a national missile defense. The answers will ultimately depend on the specific details of the planned system and its operational effectiveness. However, whether deployment of any specific system would be a net security benefit will also depend on the resultant security costs, which could be significant. A US commitment to deploy a national missile defense could prevent the United States from realizing many of the security benefits that would otherwise result from implementing the other eight measures above.

   As long as the United States and Russia maintain nuclear-armed long-range missiles to deter attacks from each other, deployment of a US missile defense system that Russia believes could intercept a significant portion of its survivable missiles will stand in the way of Russia reducing its arsenals below 1,000 to 1,500 warheads. Deploying such US missile defenses will give Russia an incentive to maintain a launch-on-warning posture for its missiles. Moreover, such deployment will have a chilling effect on the US-Russian cooperative programs that are helping to secure Russian nuclear weapons, materials, and expertise. This would be contrary to the overall security interest of the United States.

---

24 Russia’s belief may be based on worst-case analysis, which is typical in military planning.

25 The deployment of even a limited missile defense system could lead Russia to believe it no longer possessed limited attack options, in which it could attack a selected target with one or a few nuclear warheads, which Russia likely views as an important part of its deterrent. However, in this case Russia
US plans for a national missile defense system could also lead to increased dangers from China. China will seek to maintain a nuclear deterrent vis-à-vis the United States. Because its long-range missile force is small, if China views a planned US missile defense as capable of intercepting its missiles, it is likely to undertake a larger buildup than it otherwise would, with negative regional and international consequences.

Looking Ahead

By taking the nine steps discussed above, the United States will bring its nuclear policy in line with post-Cold War political realities. If Russia responds to these steps by reducing its own alert levels and deployed forces, the United States will have significantly reduced the nuclear dangers it faces. By ratifying the CTBT and making clear its commitment to work toward fulfilling Article VI of the Non-Proliferation Treaty, the United States will also have strengthened the nonproliferation regime. By not deploying a missile defense system that Russia or China strongly opposes, the United States will be able to forge a more cooperative relationship with both countries. This, in turn, will facilitate the United States working with Russia and China to constrain proliferation and to better secure Russian nuclear weapons and materials. And, by increasing its research on the verification of nuclear disarmament and regimes for how to address nuclear rearmament, the United States will help create the conditions for the prohibition of nuclear weapons.

The United States will also have set the stage for taking further steps toward greater security in its next posture review. One such step will be multilateral negotiations on deeper, legally binding, verified nuclear reductions that include the other nuclear weapon states. Such negotiations will need to encompass both controls on the production of fissile material for weapons, and the disposition of existing weapon-usable fissile material. These steps would have profound security benefits. They would also constitute key parts of a framework for nuclear prohibition and help establish the conditions under which prohibition would become politically feasible.
Contributors

Bruce G. Blair is president of the Center for Defense Information. Previously, he spent 13 years at the Brookings Institution, where he was a senior fellow in the Foreign Policy Studies Program. He was a project director at the Congressional Office of Technology Assessment, and from 1970 to 1974 he served in the US Air Force as a Minuteman ICBM launch control officer and support officer for the Strategic Air Command's Airborne Command Post. Blair is an expert on the security policies of the United States and the former Soviet Union, specializing in nuclear forces and command-and-control systems, and the Russian military-industrial economy. He has frequently testified before Congress and has taught security studies as a visiting professor at Yale and Princeton Universities. His books include Strategic Command and Control, Crisis Stability and Nuclear War, The Logic of Accidental Nuclear War, Global Zero Alert for Nuclear Forces, and The Nuclear Turning Point. He was awarded a MacArthur Fellowship in 1999. Blair received an M.S. in management sciences in 1977 and a Ph.D. in operations research in 1984, both from Yale University.

Thomas B. Cochran is director of the Nuclear Program and holds the Wade Greene Chair for Nuclear Policy at the Natural Resources Defense Council (NRDC), where he has worked since 1973. Previously, he was assistant professor of physics at the Naval Postgraduate School, Monterey, California, from 1967 to 1969; Modeling and Simulation Group supervisor of the Litton Mellonics Division, Scientific Support Laboratory, Fort Ord, California, from 1969 to 1971; and senior research associate at Resources for the Future from 1971 to 1973. He initiated NRDC's Nuclear Weapons Databook Project and a series of joint nuclear weapons verification projects with the Soviet Academy of Sciences. He is a member of the Department of Energy's Nuclear Energy Research Advisory Committee. Previously he served as a member of DOE's Environmental Management Advisory Board, Fusion Energy Sciences Advisory Board and Energy Research Advisory Board, the Nuclear Regulatory Commission's Advisory Committee on the Clean Up of Three Mile Island (TMI) and the TMI Public Health Advisory Board. Cochran is the author of The Liquid Metal Fast Breeder Reactor: An Environmental and Economic Critique, and co-editor/author of the Nuclear Weapons Databases: Volume I: U.S. Nuclear Forces and Capabilities, Volume II: U.S. Nuclear Warhead Production, Volume III: U.S. Nuclear Warhead Facility Profiles, Volume IV: Soviet Nuclear Weapons, and Making the Russian Bomb: From Stalin to Yeltsin. He is the recipient of the American Physical Society's Szilard Award and the Federation of American Scientists' Public Service Award, both in 1987. He is a fellow of the American Physical Society and the American Association for the Advancement of Science (AAAS). As a consequence of his work, NRDC received the 1989 AAAS Scientific Freedom and Responsibility Award. Cochran received his Ph.D. in physics from Vanderbilt University in 1967.

Tom Zamora Collina is the director of the Global Security Program at the Union of Concerned Scientists. Previously he was executive director and cofounder of the
Toward True Security: A US Nuclear Posture for the Next Decade

Institute for Science and International Security, and research analyst with the Federation of American Scientists. He has written on nonproliferation, missile defense, and nuclear weapons testing for publications such as the Bulletin of Atomic Scientists, Technology Review, and Arms Control Today.

Jonathan Dean is advisor on global security issues at the Union of Concerned Scientists. Prior to joining UCS in 1984, he served as the US representative and deputy representative to the NATO-Warsaw Pact force reduction negotiations in Vienna between 1973 and 1981. Dean began his Foreign Service work in 1950 in Bonn as liaison officer between the US High Commission and the Federal German government. Later he served as desk officer for East Germany in the Department of State and as first secretary at the American Embassy in Prague. In the early 1960s, he was principal officer in Elisabethville, Katanga, during the Tshombe secession and the subsequent UN peacekeeping intervention, and deputy director of the Office of United Nations Political Affairs, Department of State, where he worked on peacekeeping and economic sanctions. In 1968 he returned to the American embassy in Bonn as deputy US negotiator for the 1971 quadripartite agreement on Berlin. His areas of expertise include US and European security, arms control, and international peacekeeping. He is the author of Watershed in Europe, Meeting Gorbachev's Challenge, and Ending Europe's Wars. Dean is a graduate of the National War College and holds a Ph.D. in political science from George Washington University.

Steve Fetter is a professor in the School of Public Affairs and associate director of the Joint Global Change Research Institute at the University of Maryland, College Park. He is chairman of the Federation of American Scientists Fund. In 1993–94, he was special assistant to the Assistant Secretary of Defense for International Security Policy, for which he received an award for outstanding public service. He has been a Council on Foreign Relations international affairs fellow at the State Department and a visiting fellow at Stanford's Center for International Security and Arms Control, Harvard's Center for Science and International Affairs, MIT's Plasma Fusion Center, and Lawrence Livermore National Laboratory. He is author of Toward a Comprehensive Test Ban, and coauthor of The Future of US Nuclear Weapons Policy and The Nuclear Turning Point. He serves on the National Academy of Sciences' Committee on International Security and Arms Control, the executive committee of the American Physical Society's Forum on Physics and Society, the Department of Energy's Nuclear Energy Research Advisory Committee, the board of directors of the Sustainable Energy Institute, and the board of editors of Science and Global Security. He is a fellow of the American Physical Society and recipient of their Joseph A. Burton Forum Award. Fetter received a Ph.D. in energy and resources from the University of California, Berkeley.

Richard L. Garwin is Philip D. Reed Senior Fellow for Science and Technology at the Council on Foreign Relations and is a member of the board of directors of the Union of Concerned Scientists. For the bulk of his career he was on the scientific staff of IBM, where he is fellow emeritus. He has done research on a wide range of topics in fundamental and applied physics. He was involved with the development of the first thermonuclear weapons and the first photo-intelligence satellites and is an expert on many arms control matters. He has coauthored many books, among them Ballistic Missile Defense and Managing the Plutonium Surplus. He has served on the President's Scientific Advisory Committee, the Defense Science Board, the Rumsfeld Commission to Assess the Ballistic Missile Threat to the United States, and the State Department's...
Arms Control and Nonproliferation Advisory Board. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. In 1996, he received both the R.V. Jones Award for Scientific Intelligence and the Enrico Fermi Award from the president and the Department of Energy for contributions to nuclear weapons. He was also awarded the 1983 Wright Prize for interdisciplinary scientific achievement, the 1988 American Association for the Advancement of Science (AAAS) Scientific Freedom and Responsibility Award, and the 1991 Erice "Science for Peace" Prize. He received a Ph.D. in physics from the University of Chicago.

Kurt Gottfried is an emeritus professor of physics at Cornell University. He was a cofounder and currently chairs the board of directors of the Union of Concerned Scientists. He has been on the scientific staff of CERN in Geneva, served on the High Energy Physics Advisory Panel of the Department of Energy and the National Science Foundation, and served as chair of the Division of Particles and Fields of the American Physical Society (APS). He was a junior fellow and assistant professor at Harvard University, and served as chair of the physics department at Cornell. Gottfried has published widely on issues such as ballistic missile defenses, anti-satellite weapons, strategic command and control, nuclear testing, and European security. He directed a major study involving senior military officers and leading experts on command and control, published by Oxford University Press in 1988 as Crisis Stability and Nuclear War. He received the 1991 Leo Szilard Award of APS. He is a member of the American Academy of Arts and Sciences and the Council on Foreign Relations. Gottfried received his Ph.D. in physics from MIT.

Lisbeth Gronlund is a senior staff scientist at the Union of Concerned Scientists and research fellow in MIT's Security Studies Program. Previously, she was an SSRC-MacArthur Foundation Fellow in International Peace and Security at the Center for International Security Studies at the University of Maryland and a postdoctoral fellow at the MIT Defense and Arms Control Studies Program. She has written widely on technical and policy issues related to ballistic missile defenses and nuclear arms control. She currently serves as a member of the APS Panel on Public Affairs, on the board of directors of the Educational Foundation for Nuclear Science, which publishes the Bulletin of the Atomic Scientists, and as an associate editor of Science and Global Security. She was a recipient of APS's 2001 Joseph A. Burton Forum Award. Gronlund received a Ph.D. in physics from Cornell University in 1989.

Henry Kelly is president of the Federation of American Scientists. Previously, he served as Assistant Director for Technology in the White House Office of Science and Technology from 1993 to 2000, where he played a central role in the development and implementation of science and technology projects throughout the federal government. He also convened the President's Information Technology Advisory Committee. Kelly has held positions as a senior associate and program manager at the Office of Technology Assessment, as a special assistant and senior scientist at the Department of Energy, as assistant director of the Solar Energy Research Institute, and a staff member of the Arms Control and Disarmament Agency. Kelly received his Ph.D. in physics from Harvard University in 1971.

Matthew G. McKinzie is a staff scientist at the Natural Resources Defense Council, where he pursues research in technical aspects of arms control and international security. Before joining NRDC in 1997 he was a postdoctoral fellow in the Peace Studies
Robert S. Norris is senior staff analyst with the Natural Resources Defense Council and director of the Nuclear Weapons Databook Project. He was a senior research analyst for the Center for Defense Information before coming to the Natural Resources Defense Council in September 1984. He has taught at New York University, Miami University in Oxford, Ohio, Miami University's European campus in Luxembourg, and American University. His principal areas of expertise include writing and research in the areas of nuclear weapons research and production, arms control, and nuclear weapons testing. He is co-editor of NRDC's Nuclear Weapons Databook series and is a co-author of US Nuclear Warhead Production, Volume I; US Nuclear Warhead Facility Profiles, Volume III; Soviet Nuclear Weapons, Volume IV; and British, French and Chinese Nuclear Weapons, Volume V. He also co-authored Making the Russian Bomb: From Stalin to Yeltsin and Atomic Audit, and has recently completed a biography of General Leslie R. Groves, which is in press. Norris received his Ph.D. in political science from New York University in 1976.

Adam Segal is a senior analyst in the Global Security Program at the Union of Concerned Scientists. Before joining UCS, he was a visiting scholar at the MIT Center for International Studies. He received his Ph.D. in political science from Cornell University in 2000, specializing in Chinese politics.

Robert Sherman is director of the Nuclear Security Project at the Federation of American Scientists. During the Clinton administration, he served in the Arms Control and Disarmament Agency and the Department of State as executive director of the Arms Control and Nonproliferation Advisory Board. He also negotiated the United States position on landmines. Previously, he served for 25 years on congressional staff as a national security specialist, working with Sen. George McGovern, Rep. Bob Carr, Rep. Tom Downey, and Rep. Les AuCoin. He has published more than 40 articles on nuclear deterrence, missile defense, and related subjects.

Frank N. von Hippel is professor of public and international affairs at Princeton University. He chairs the Federation of American Scientists. From September 1993 through 1994, he was Assistant Director for National Security in the White House Office of Science and Technology Policy and played a major role in developing US-Russian cooperative programs to increase the security of Russian nuclear-weapons materials. He is chairman of the editorial board of Science and Global Security and a member of the editorial board of the Bulletin of the Atomic Scientists. In 1991, the American Institute of Physics published a volume of his selected articles under the title Citizen Scientist in its "Masters of Physics" series. He was awarded a MacArthur Fellowship in 1993 and the American Association for the Advancement of Sciences' Hilliard Roderick Prize for excellence in Science, Arms Control and International Security, in 1994. He received his Ph.D. in physics from Oxford University, where he was a Rhodes Scholar.

David Wright is a senior staff scientist at the Union of Concerned Scientists and research fellow in the Security Studies Program at MIT. Previously he was an SSRC-MacArthur Foundation Fellow in International Peace and Security at Harvard's Center for Science and International Affairs, and a senior arms control analyst at the Federation of American Scientists. He testified before the Rumsfeld Commission on the North Korean missile program, and has testified before the Senate Foreign Relations
Committee on the state of ballistic missile defense technology. He served on the Social
Science Research Council Committee on International Peace and Security and is
currently an associate editor of Science and Global Security. He was a recipient of the
American Physical Society’s 2001 Joseph A. Burton Forum Award. Wright received his
Ph.D. in physics from Cornell University in 1983.

Stephen Young is the Washington representative/senior analyst in the Global
Security Program at the Union of Concerned Scientists. Formerly, he was deputy
director of the Coalition to Reduce Nuclear Dangers. He also served as senior analyst
at the British American Security Information Council, co-legislative and field director
for 20/20 Vision, and senior information specialist at ACCESS: A Security Information
Clearinghouse. He was a fellow in the Bureau of Human Rights at the Department of
State. He is the author of numerous articles and publications on US and NATO nuclear
weapons policy, national missile defense, and arms control. Most recently, he authored
Pushing the Limits: The Decision on National Missile Defense. Young received his M.A.
in international affairs from Columbia University.
Eleven years after the end of the Cold War, the United States and Russia still maintain massive nuclear arsenals ready for nearly instant use. This report proposes a nuclear weapons policy for the United States for the next decade—one that reflects today’s political and strategic realities, addresses the real nuclear dangers to the United States, and helps shape the nuclear future.

Union of Concerned Scientists

The Union of Concerned Scientists is a nonprofit partnership of scientists and citizens combining rigorous scientific analysis, innovative policy development and effective citizen advocacy to achieve practical environmental solutions.

National Headquarters, Two Brattle Square, Cambridge, MA 02238-9105
Global Security Program, 1707 H St., NW, Ste. 600, Washington, DC 20006-3919