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Contents

Introduction by Francis J. Gavin, MIT.....	2
Essay by James M. Acton, Carnegie Endowment for International Peace	8
Essay by Keir A. Lieber, Georgetown University and Daryl G. Press, Dartmouth College ...	11
Essay by Austin Long, Columbia University	15
Essay by Joshua Rovner, SMU	19
Essay by Nina Tannenwald, Brown University	21

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Introduction by Francis J. Gavin, MIT

We Need to Talk – U.S. Nuclear Weapons Policy in 2017 and Beyond

Even if the 2016 Presidential election had not produced such an unexpected outcome, United States nuclear policy would be at historical crossroads. The incoming administration will be presented with at least five tensions that will present difficult choices for the future of American nuclear strategy.

First, we are in the midst of a technological transformation that threatens to undermine both the idea and the reality of strategic stability based on mutual vulnerability between nuclear-armed states. For decades, advocates of what Robert Jervis called the ‘nuclear revolution’ emphasized the inalterable facts of the atomic age: clean first strikes that eliminated an adversary’s ability to unleash a devastating nuclear response were next to impossible to implement, as were perfect defenses against a nuclear attack.¹ Once a state secured its ability to retaliate to a nuclear strike with forces of its own – a not especially difficult goal for a great power to reach – there was little point in building more or better nuclear weapons. Seeking nuclear primacy, in other words, was pointless, since greater numbers of nuclear weapons could not change the fact of mutual assured destruction. Brendan Green and Austin Long, as well as Daryl Press and Keir Lieber, have done path-breaking work to reveal that the United States never fully accepted the premises of mutual vulnerability, and tried very hard over the years (with varying degrees of success) to escape it.² The United States has invested extraordinary sums over decades to produce what Press and Lieber term the “counterforce revolution.” Massive improvements in missile accuracy, stealth, and speed, combined with increased sensor and computing power, make the balance far less stable than once thought. Furthermore, as Long highlights, the United States needed to pursue primacy and damage limitation strategies if its extended deterrent relationships were to remain credible.

Second, the same technological revolution that has vastly increased counterforce capabilities has blurred the once bright lines between nuclear and non-nuclear weapons. The next president may be able to carry out missions with advanced conventional weapons, emerging technologies like hypersonic and directed energy, and cyber assets that in the past could only be accomplished with nuclear weapons. This new situation presents its own set of challenges. As Joshua Rovner points out, the way the United States fights its conventional wars – seeking to blind and cripple its adversary’s command, control, communication, and intelligence capabilities in the opening hours and days of a conflict – may make a nuclear armed target think that the United States is seeking to disarm its nuclear response capacity.³ In such circumstances, that state

¹ Robert Jervis, *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Cornell University Press, 1990).

² In addition to the essays in this roundtable, see Austin Long and Brendan Rittenhouse Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38:1-2 (2015): 38-73; Brendan Rittenhouse Green and Austin Long, “The MAD Who Wasn’t There: Soviet Reactions to the Late Cold War Strategic Balance,” *Security Studies* (forthcoming).

³ Joshua Rovner, “AirSea Battle and Escalation Risks,” *IGCC Policy Brief* 12 (January 2012); <http://escholarship.org/uc/item/08m367zt>. For a thorough analysis of escalatory risks in a U.S.-China conflict, see Caitlin Talmadge, “Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States,” *International Security* (forthcoming).

might feel enormous pressure to escalate the conflict and employ its nuclear weapons. As Long highlights, it is still unclear when and where advanced conventional weapons can substitute for nuclear weapons, especially as adversaries continue to harden, hide, and make mobile their nuclear forces.

Third, there is a deepening tension between the goals of nuclear deterrence and nuclear disarmament. As Nina Tannenwald reminds us, the non-nuclear weapons states of the world are growing increasingly impatient with the failure of the nuclear weapons states to move towards what are seen as their moral and legal obligations to eliminate their nuclear stockpiles. The humanitarian consequences movement, which is barely discussed within the United States but very popular abroad, is one reflection of this frustration with the slow pace of nuclear disarmament.⁴ A similar tension plays out in the United States, as the Obama administration committed to move towards a world without nuclear weapons while also authorizing a multi-decade, trillion-dollar modernization of American strategic nuclear forces.

Fourth, we are witnessing increased geopolitical strains amongst states with nuclear weapons. These tensions fall into two categories. The first danger is regional tensions, such as those in East and South Asia (and potentially the Middle East), which are made worse by erratic regimes (think North Korea) or states pursuing aggressive nuclear policies and postures (think Pakistan). Second, geopolitical tensions have increased amongst the larger nuclear powers. China's rise has increased the possibility of potential clashes over disputed maritime claims and territories like Taiwan, while also unnerving key American allies, Japan and South Korea, who are under the United States nuclear umbrella. Russia's conquest of Crimea, aggressiveness towards the Baltic States in NATO, and loose rhetoric surrounding its own nuclear policy have generated great concern in the United States and Europe. The nuclear shadow hovers menacingly over each of these trouble spots.

Fifth, nuclear policy exposes deep ethical conundrums. On the one hand, a robust nuclear strategy remains a crucial tool of American grand strategy: to deter adversaries, reassure allies, and limit proliferation. On the other hand, short of a highly unlikely "bolt from the blue" nuclear attack upon the United States (and perhaps not even then), it remains hard to imagine under what scenario the United States would ever detonate a nuclear weapon against an adversary. It is rarely discussed openly, but using these weapons would generate such horrific consequences as to make their employment largely unthinkable. As Long drily notes, "While any military operation has an ethical component, the vast power of all but the smallest nuclear weapons is likely to produce significant collateral damage if used against targets in any but the most remote and uninhabited locations." These moral tensions were powerful during the Cold War, when the United States faced an arguably existential threat from a ruthless ideological and geopolitical adversary. Over seventy years since their only wartime use, in a disordered but hardly desperate world, the threat to use unthinkably destructive weapons that lies at the heart of United States nuclear deterrence strategy is both incredible and morally challenging.

The five authors in this roundtable fall along a spectrum of potential response to these challenges. At one end, Nina Tannenwald recommends that the United States work hard to restore the norm of non-use of nuclear weapons. One clear way this could be done is for the United States to embrace no-first use of nuclear

⁴ For an excellent description of the movement, which emerged from the 2010 NPT Review Conference, see "Vienna Conference on the Humanitarian Consequences of Nuclear Weapons," 8-9 December 2014 <https://www.bmeia.gv.at/en/european-foreign-policy/disarmament/weapons-of-mass-destruction/nuclear-weapons-and-nuclear-terrorism/vienna-conference-on-the-humanitarian-impact-of-nuclear-weapons/>

weapons. On the other end, Press and Lieber see no way to escape the dynamic technological changes that make the nuclear balance more volatile. Relatedly, Long advocates a continued push for damage limitation capabilities to generate “optimum instability” to make United States’ extended deterrence postures credible.

Acton and Rovner’s essays fall somewhere in between. Acton argues that the current U.S. nuclear strategy of calculated ambiguity is increasingly not credible, while alliance considerations and conventional force imbalances would make a nuclear no-first use pledge unwise at this time. Rovner suggests that the Obama administration successfully threaded the needle between deterrence and what he calls “devaluation.” While full-scale disarmament is, for Rovner, a chimera, careful policies can accomplish both America’s deterrent and nonproliferation missions.

All five authors present well argued, insightful analyses. Which begs a question: why is there such a wide range of views and recommendations between them, and within the nuclear policy community writ large? Debate and disagreement is not unusual amongst specialists in American foreign policy and international affairs. The nuclear field, however, seems especially divided and stove-piped into various tribes. Nuclear policy is discussed in fundamentally different ways in different settings. In the academic world, an article on nuclear policy published in a leading political science journal using quantitative methods would have almost nothing in common with a paper published by a historian based on new archival materials, even if the set of questions driving the research were similar.⁵ Similar divides and gaps mark the worlds of policy and academics, advocates of deterrence or disarmament, specialists in strategy versus experts in proliferation and non-proliferation, and Americans and everyone else.

Understanding and assessing nuclear policy presents historical and epistemological challenges that are often underappreciated. Analysts make suggestions based on causal claims that are developed by exploring the past. Two problems, however, confront any scholar looking to make arguments based on America’s nuclear history.

The first problem when looking at the nuclear past is getting access to the primary sources, which in many cases remain classified. There is even a greater challenge, however: the existence of at least four distinct, and at times competing, histories of United States nuclear policy since 1945. First, there is the intellectual history of nuclear strategy and strategists, the so-called “wizards of Armageddon” who populated RAND and many university centers in the immediate postwar period. The fascinating story of how these brilliant thinkers developed the language and concepts behind deterrence theory is often mistakenly conflated with actual U.S. policy.⁶ Second is the rhetorical history of nuclear policy – great speeches or documents, such as Secretary of State John Foster Dulles’s ‘massive retaliation’ speech or Robert McNamara’s presentation to NATO in Athens laying out flexible response doctrine. These documents and speeches were often more important as signals to domestic audiences, allies and adversaries than as guides to actual war plans.⁷ In fact, these private

⁵ Francis J. Gavin, “What we Talk about When We Talk About Nuclear Weapons: A Review Essay,” 15 June 2014, H-Diplo/International Security Studies Forum, <https://issforum.org/ISSF/PDF/ISSF-Forum-2.pdf>

⁶ Bruce Kukick, *Blind Oracles: Intellectuals and War from Kennan to Kissinger* (Princeton: Princeton University Press, 2007).

⁷ Francis J. Gavin, “The Myth of Flexible Response: United States Strategy in Europe during the 1960s,” *The International History Review* 23:4 (2001): 847-875.

and public declarations were often at odds with the third strand – the operational history of U.S. nuclear weapons. Perhaps the most deeply classified history, the story of what weapons were developed and acquired, how they were deployed and who controlled them, and what strategies were in place for their use, often bore little resemblance to what either game theorists wrote or cabinet secretaries stated (perhaps most perplexing and distressing to a historian). There was far more continuity in U.S. nuclear war plans across administrations, for example, than public declarations would have indicated. Finally, the most elusive but perhaps most important history is how different United States presidents thought about nuclear weapons as a tool to advance American grand strategy, and what their views were on issues ranging from nonproliferation to nuclear deterrence to coercion to actual use.

Perhaps a greater challenge is epistemological in nature. Analysts developing causal claims about nuclear weapons face a welcome problem, as they are trying to understand an event that never happened: why we have never had a thermonuclear war. Explaining why something has never happened is difficult and at best speculative.⁸ Many understandably believe that the Soviet Union was deterred from invading Western Europe by U.S. nuclear strategies, but we do not really know for sure. It may well be the Russians never had any interest in attacking the West, whether there were nuclear weapons or not. It may also be that nuclear weapons made crises, instability, and war *more* likely; the dangerous (second and third) Berlin and Cuban Missile Crises were crises created by the tensions of a nuclearized world.⁹

Furthermore, many of the claims made about the influence of nuclear weapons and the effectiveness of nuclear deterrence rest upon characteristics that are hard to observe and almost impossible to measure. Deterrence is based upon *perceptions* of qualities like fear, uncertainty, and resolve, traits that do not clearly manifest themselves prior to an event (and when deterrence ‘works,’ no event takes place). In the absence of clear-cut ways to measure and assess these often elusive and manipulable characteristics and their effects, it becomes very hard to test the wide range of claims analysts make about the influence of nuclear weapons on grand strategy and world politics. This is not to say that we should not develop and try to test hypothesis about nuclear weapons; only that we should be careful not to overstate our claims or breezily dismiss contrary claims by thoughtful analysts.

In truth, many contemporary recommendations about U.S. nuclear policy are based on either incomplete histories or fail to appreciate the epistemological and methodological challenges behind nuclear issues. Recent scholarship has revealed that the parsimonious theories and stylized narratives we once relied on to understand U.S. nuclear weapons policy have been found wanting. For example: If nuclear weapons are such effective tools to guarantee a state’s sovereignty and security, why have so few nuclear-capable countries stopped short of deploying their own nuclear weapons? How do we explain nuclear latency or nuclear threshold states, which occupy the important ‘in-between’ space between possessing a nuclear weapon and not? Why did the United States work with its hated adversary, the Soviet Union, to stem nuclear proliferation, even working against the interests of its own allies, such as West Germany, Japan, and South Korea? Why did the United

⁸ Note how hard a time international relations scholars have agreeing on the causal explanations for something that did happen: how the July 1914 crisis exploded into war. Francis J. Gavin, “History, Security Studies, and the July Crisis,” *Journal of Strategic Studies* 37:2 (2014): 319-331.

⁹ Francis J. Gavin, *Nuclear Statecraft: History and Strategy in America’s Atomic Age* (Ithaca and London: Cornell University Press, 2012), 17-18, 57-74.

States invest and develop in massive and arguably destabilizing damage-limitation capabilities – MX, cruise missiles, the Trident D-5, Pershing II, ASW capabilities, missile defense – soon after enshrining strategic stability in the ABM, SALT, and SALT II treaties? What influence did this investment in dramatic improvement in qualitative nuclear capabilities, at a time of quantitative nuclear balance, have on decision-makers in the Kremlin and on the outcome of the Cold War? How, if at all, does the history of the nuclear age interact with other historical strands – the Cold War, globalization, decolonization and regional dynamics?

The list of unanswered questions is long and growing longer, and absent answers (or even agreement on what the right questions are), it will be difficult to achieve consensus on how nuclear weapons should be incorporated into United States grand strategy in 2017 and beyond. The good news is that the pieces in this roundtable offer an excellent start. Nuclear studies is an area where academics can make a real difference in shaping policies of obvious importance and consequence. Bridging the stovepipes between different nuclear communities, recognizing the steep challenges to understanding how nuclear weapons affect grand strategy and international relations, being willing to challenge and test well-worn conventional wisdoms, undertaking the critical historical work, and understanding the deep moral considerations that lie at the heart of these issues will all be crucial. Regardless of who became the American president in 2017, guidance on these all too important questions would be important. Under the current circumstances, it is nothing short of essential.

Participants:

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Essay by James M. Acton, Carnegie Endowment for International Peace

The current debate over American declaratory policy is largely bifurcated between advocates of the status quo—a position often termed “calculated ambiguity”—and proponents of no-first-use (NFU). Under current policy, the United States reserves the right to employ nuclear weapons “to defend the vital interests of the United States or its allies and partners.”¹ Under a policy of no-first-use, the United States would make a blanket commitment not to use nuclear weapons first. Neither of these declaratory policies is appropriate.

Calculated ambiguity is too permissive. The threat to employ nuclear weapons in the defense of “vital interests” is deliberately vague, invoked to try and enhance deterrence by creating significant uncertainty among adversaries about the circumstances in which the United States might employ nuclear weapons (though Washington has pledged explicitly not to use nuclear weapons against non-nuclear-weapon states in compliance with their nonproliferation commitments). The problem is that the United States defines its vital interests very broadly. In the past decade, for example, the President or the Secretary of State has identified as vital interests, “the stability, safety and security of our space systems,” “the peaceful management of maritime disputes,” and “helping the young democracies” of Latin America.² No U.S. president would even consider using nuclear weapons in any of these scenarios—as potential adversaries are no doubt aware. Even an attack against key U.S. military space assets would, by itself, fall far short of the nuclear threshold (not least because there would be no loss of life). At best, making implicit threats that are incredible does not enhance deterrence; at worst, it could damage security by calling the credibility of other, more serious nuclear threats into question.

The expansiveness of current policy has other significant drawbacks. It undermines American efforts to demonstrate a commitment to work in good faith toward a world without nuclear weapons, as legally required by the 1968 Nuclear Nonproliferation Treaty. It also sets an example that other nuclear-armed states might follow in carving out greater—and potentially more dangerous—roles for nuclear weapons. Indeed, some have already done so. For example, when India abandoned its NFU policy in 2003 by permitting a nuclear response to chemical or biological attacks, it was, according to Scott Sagan, “copying the United States.”³ As a result, there would probably be both security and political benefits to narrowing U.S. declaratory policy.

No-first-use is the most commonly touted alternative to calculated ambiguity. While a desirable goal, it suffers from its own problems. The case for NFU rests on the argument that U.S. conventional superiority

¹ United States Department of Defense, *Nuclear Posture Review Report* (April 2010), http://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf

² Lisa Daniel, “Defense, State Agree to Pursue Conduct Code for Outer Space,” *Armed Forces Press Service*, 18 January 2012, <http://archive.defense.gov/news/newsarticle.aspx?id=66833>; Secretary of State John Kerry, “Remarks,” Brunei, 2 July 2013, <http://www.state.gov/secretary/remarks/2013/07/211502.htm>; President George W. Bush, “President’s Radio Address,” 10 March 2007, <https://georgewbush-whitehouse.archives.gov/news/releases/2007/03/text/20070310.html>

³ Scott D. Sagan, “The Case for No First Use,” *Survival* 51:3 (June-July 2009): 163-182, at 176.

precludes any need for the United States to threaten nuclear employment in response to nonnuclear threats.⁴ While it is certainly true that a sufficient degree of conventional superiority could enable a switch to NFU, it is unclear whether the United States enjoys the required margin in all key theaters today and even more unclear whether it will do so in the future.

Conventional deterrence depends on the local—not the global—balance of conventional forces. It can fail when a potential aggressor believes it can wage a quick and relatively painless war to seize territory, say, and thus present its opponent with a *fait accompli* that would require a bloody and prolonged campaign to reverse.⁵

Even today, the United States and its allies lack local conventional superiority in at least one region of potential conflict—the Baltic (even as they are superior in Europe as a whole).⁶ As a result, there is legitimate concern that Russia might try to seize NATO territory in the expectation that the alliance lacks the stomach for a prolonged campaign to restore it. To be sure, NATO’s weakness around the Baltic is a political choice that could be reversed (indeed, the alliance is starting to deploy more conventional forces to the region). Elsewhere, however, conventional imbalances could arise that would be much more difficult to undo. Most significantly, China may achieve conventional superiority in the West Pacific in the not-too-distant future. If it does and if the United States wishes to continue to uphold its commitment to regional allies—Taiwan, in particular—then Washington will have little choice but to rely on threats of nuclear first-use.

A no-first-use policy is, therefore, not a viable option for the United States right now—although Washington can and should take steps to promote it. The United States should, for example, seek to work cooperatively with both Russia and China to achieve a durable balance of conventional forces in key theatres so that both sides feel secure. Of course, making progress on this agenda—let alone achieving it—will be exceptionally challenging. But, such challenges need not prevent other adjustments to declaratory policy in the near future.

Specifically, the United States should pledge not to employ nuclear weapons except to defend itself, its allies or its partners from threats to their very existence. In articulating this policy, the United States should emphasize that, because of the possibility of escalation, it considers that *any* use of nuclear weapons against itself, its allies, or its partners would constitute an existential threat. But, because existential threats are not limited to nuclear use, this declaratory policy would allow the United States to employ nuclear weapons to defend allies from the most extreme nonnuclear threats.

⁴ Michael S. Gerson, “No First Use: The Next Step for U.S. Nuclear Policy,” *International Security* 35:2 (Fall 2010), 7-47.

⁵ Michael S. Gerson, “Conventional Deterrence in the Second Nuclear Age,” *Parameters* (Autumn 2009), 32-48.

⁶ David A. Shlapak and Michael W. Johnson, *Reinforcing Deterrence on NATO’s Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica: RAND Corporation, 2016), https://www.rand.org/content/dam/rand/pubs/research_reports/RR1200/RR1253/RAND_RR1253.pdf

Such a policy would offer two advantages over the status quo. First, it would be more moral and more credible than calculated ambiguity.⁷ Given the long tradition of the non-use of nuclear weapons, the clear U.S. interest in extending this tradition, and the numerous potentially enormous costs and risks associated with nuclear use, it is difficult to imagine the United States employing nuclear weapons in response to anything less than an existential threat. Credibility would, therefore, be best served by recognizing this reality in declaratory policy.

Second, the proposed policy would probably be seen by the international community as more legitimate than calculated ambiguity. For starters, it would represent a real and significant reduction in the role that the United States assigns to nuclear weapons. Russia has already adopted such a policy, which is consistent—or at least not inconsistent—with the one ruling on the legality of nuclear use by an international court.⁸ Specifically, in a 1996 ruling (albeit an advisory and non-binding one), the International Court of Justice concluded that “the threat or use of nuclear weapons would generally be contrary to the rules of international law.” But, the court was unable to “conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defense, in which the very survival of a State would be at stake.”⁹ While this ruling, which both disarmament and deterrence advocates have reasons to ignore, does not exactly bless the proposed policy, it doesn’t undercut it either.

To be sure, a pledge by the United States to limit the role of nuclear weapons to defending against existential threats would probably not attract much praise by non-nuclear-weapon states, many of which would now accept nothing less than immediate negotiations on a treaty to eliminate nuclear weapons as an acceptable marker of progress toward disarmament.¹⁰ But, with a carefully designed and concerted diplomatic effort, the United States may be able to earn credit for this new policy while balancing the potentially competing security objectives of sustaining the nonproliferation regime and defending its allies.

⁷ George Perkovich, *Do Unto Others: Toward a Defensible Nuclear Doctrine* (Washington, D.C.: Carnegie Institute for International Peace, 2013), http://carnegieendowment.org/files/do_onto_others.pdf

⁸ Military Doctrine of the Russian Federation, August 2015, <https://www.offiziere.ch/wp-content/uploads-001/2015/08/Russia-s-2014-Military-Doctrine.pdf>

⁹ International Court of Justice, “Legality of the Threat or Use of Nuclear Weapons,” 8 July 1996, <http://www.un.org/law/icjsum/9623.htm>

¹⁰ Ben Doherty, “UN votes to start negotiating treaty to ban nuclear weapons,” *Guardian* (UK), October 27, 2016, <https://www.theguardian.com/world/2016/oct/28/un-votes-to-start-negotiating-treaty-to-ban-nuclear-weapons>

Essay by Keir A. Lieber, Georgetown University and Daryl G. Press, Dartmouth College

“Nuclear Weapons in the New Era of Counterforce”

The United States faces major decisions about the future of its nuclear arsenal. All three legs of the aging nuclear triad will need to be retired soon, and replacing them will be expensive. Does the United States still need nuclear-armed bombers, submarines, and land-based missiles? More broadly, how are the requirements of nuclear deterrence changing?

Leaders in Washington confront nuclear-force structure decisions at a time of great uncertainty. U.S. relations with Russia and China have deteriorated precipitously over the past decade. Although it is possible that those ties will revert to the more-cooperative relations of the late 1990s, it seems just as likely that the ongoing competition for influence in Eastern Europe and East Asia will intensify. Uncertainty abounds on the Korean Peninsula, as well; no one knows how long the Kim regime will survive, or what dynamics will be triggered by regime collapse. Even the future of Western Europe seems uncertain, where both the security ties underwritten by NATO and the political and economic order founded on the EU have major cracks.

Technology is evolving in ways that magnify these geopolitical uncertainties, while also eroding the foundation of stable nuclear deterrence. Specifically, long-term trends rooted in the computer revolution are making nuclear forces more vulnerable to attack than anytime in the past fifty years.¹ Leaps in accuracy have largely negated the survivability of fixed nuclear forces, such as silo-based missiles. And breakthroughs in remote sensing are eroding the survivability of nuclear forces that rely on concealment, such as submarines and mobile missiles. The emerging technological age – which we dub the “new era of counterforce” – brings both risks and opportunities for the United States. One challenge is to maintain survivable nuclear forces now and in the future. Creating long-term survivability will not be easy given the rapid pace of technological innovation. The flip side is that the arsenals of potential adversaries are also growing vulnerable. In some respects this should be welcomed, given that the United States is uniquely positioned to exploit the promise of new counterforce technologies. In other cases, however, nuclear vulnerability could create new dangers.

Countries have three main strategic options for protecting their nuclear forces from attack: hardening, concealment, and redundancy. Hardening aims to physically shield warheads and delivery systems from attack: for example, by storing warheads in reinforced bunkers, deploying missiles in underground silos, and basing aircraft or mobile missiles inside protective shelters. Concealment is principally a function of mobility, where the goal is to hide in vast deployment areas: for example, by deploying ballistic missile submarines (SSBNs) at sea and mobile missile launchers (TELMs) on land. Redundancy is about numbers and diversity: for example, deploying a triad of nuclear delivery systems aims to ensure the ability to retaliate even if hit first.

Major technological trends are directly undermining both hardening and concealment. Over the past three decades, near-continuous improvements in navigation and guidance have steadily increased weapons accuracy and improved the lethality of nuclear (and non-nuclear) weapons against hard targets. The improvements in remote sensing have been even more dramatic: new platforms are gathering a broader range of data at greater resolution than ever before, and breakthroughs in communication and data processing are permitting ever-

¹ These arguments are developed in greater detail in Keir A. Lieber and Daryl G. Press, “The New Era of Counterforce,” *International Security* 41:4 (Spring 2017), *forthcoming*.

fainter signals to be discerned from background noise. Neither the land nor the seas are completely transparent, but the challenges for those tasked with hiding mobile nuclear forces are steadily growing. The opportunities for those seeking to find and destroy such forces are growing, too.

Deterrence and Counterforce

Robust nuclear deterrence is in large part a function of the survivability of retaliatory forces, meaning the ability of either adversary to withstand a disarming strike and still inflict a devastating response on the attacker. An effective deterrent posture must deter all leaders, including highly aggressive ones, and it must succeed in peacetime, during intense crises, or in the midst of conventional wars. In short, maintaining a survivable nuclear retaliatory force is foundational to deterrence.

The new era of counterforce threatens this foundation. Maintaining a survivable retaliatory force is becoming difficult because of the vulnerability of fixed sites against today's highly accurate delivery systems. Technological advances mean that both nuclear and conventional strike systems pose a plausible disarming threat to even the hardest fixed targets. Concealment is also at risk. Trends in remote sensing – from the growing diversity of sensing platforms to the improvement in sensor resolution, persistence, processing, and transmission – are eroding the security that mobility once provided. Historically, land-based mobile forces wishing to remain concealed merely needed to hide from optical satellites or manned aircraft passing intermittently and quickly overhead. Now, they must worry about a plethora of satellites and other sensors – some of which loiter, gathering streams of data. SSBNs also face new and meaningful advances that threaten their ability to stay concealed at sea. Although none of these technological trends alone are transformative, taken together they are creating a degree of transparency that was unimaginable even two decades ago.

While the survivability of deterrent forces may be on shaky ground, the new era of counterforce means that the U.S. can plausibly disarm adversaries if deterrence fails. The threat of using nuclear weapons against the United States is often seen as merely the strategy of delusional leaders or terrorists, but U.S. adversaries may have good reasons to engage in such escalation. Throughout the nuclear age, countries lacking sufficient conventional forces to repel a major attack have relied on nuclear threats to deter or stalemate conventional war. Specifically, relatively weaker countries have planned to use nuclear weapons in order to halt a conventional conflict before they suffer catastrophic defeat. This was NATO's strategy for much of the Cold War, and it has been adopted by Russia, Pakistan, and North Korea today. Now that the United States possesses the world's most powerful conventional force, it faces significant escalation risks. For example, if war erupts on the Korean Peninsula, or in the Baltics, or possibly even in maritime East Asia, U.S. adversaries will likely need a quick way to stalemate superior U.S. conventional forces. Nuclear escalation offers adversaries one of the only viable options for forcing a stalemate and avoiding catastrophic defeat during a conventional war.²

This is the strategic context in which potent counterforce capabilities may benefit the United States. Such capabilities may not appear attractive to U.S. leaders in peacetime. But in the midst of a conventional conflict

² For a discussion of intra-war escalation dynamics in a contemporary context, see Keir A. Lieber and Daryl G. Press, "Coercive Nuclear Campaigns in the 21st Century: Understanding Adversary Incentives and Options for Nuclear Escalation," March 2013, Report Number 2013-001, Project on Advanced Systems and Concepts for Countering Weapons of Mass Destruction (PASCC).

– especially after an adversary like North Korea has begun to escalate – the ability to conduct a counterforce disarming strike might be enormously valuable. The possession of potent counterforce capabilities might even bolster deterrence – by deterring adversaries from initiating a conventional war in the first place, or by compelling them to accept conventional defeat rather than reaching for nuclear weapons. In addition to those worthy deterrence objectives, the ability to mitigate or eliminate the costs inflicted by an adversary that has begun to escalate is a worthy goal in its own right.

U.S. Force Structure

U.S. leaders should consider the implications of the new era of counterforce for both deterrence and escalation. The growing vulnerability of retaliatory forces might bolster the case for developing a mobile ICBM instead of replacing the silo-based ICBM. All silo-based ICBM options will face the same type of vulnerability problem faced by existing missiles; and the vulnerability of fixed silos will only grow worse over the coming decades. Similarly, U.S. leaders should beware of overreliance on the sea-leg of the triad: SSBNs have never been as invulnerable as analysts typically assume, and the popular notion that the oceans are a sanctuary for retaliatory forces is outdated. Moreover, a strategy relying entirely on the concealment of submarines is a “fail deadly” one – meaning that if an adversary discovers a way to locate one’s forces, one’s arsenal might shift from being almost completely survivable to almost completely vulnerable in a short period of time - and without warning.³

To bolster counterforce capabilities, leaders should focus on several desirable delivery system characteristics: promptness (to hit targets before they are fired or moved), accuracy (to improve the odds of destroying key targets), and low yields (in order to preserve the possibility of disarming the adversary without causing large-scale collateral damage). Air-delivered bombs – like the B-61 bomb currently undergoing a life-extension program – and cruise missiles offer a valuable combination of high accuracy and flexible yield options. The long-range stand-off cruise missile (LRSO), which would replace current nuclear cruise missiles, will also serve an important role as a system that can threaten enemy targets protected by sophisticated air defense systems. Finally, as the United States modernizes its ICBMs and SLBMs – and the warheads they carry – U.S. planners should exploit new technologies that will enhance accuracy further, as well as consider low and flexible yield options for those warheads.

In short, the new era of counterforce poses long-term challenges and opportunities for U.S. nuclear policy, strategy, and force structure. Some readers may worry that U.S. steps to enhance counterforce will be destabilizing. Increasingly insecure adversaries might pursue countermeasures to make their arsenals survivable once again, which could exacerbate tensions, trigger arms races, and create dangerous incentives to preempt in a crisis. These concerns have validity because U.S. adversaries will seek ways to blunt the threat of a U.S. disarming strike. However, such potential problems will be at least partly offset by the benefits of more robust deterrence; specifically, U.S. adversaries are less likely to undertake a coercive nuclear escalation strategy if they recognize the vast threat to their arsenals posed by robust U.S. counterforce capabilities. Perhaps more importantly, the United States cannot roll back the technological advances behind the new era of counterforce. The breakthroughs in accuracy and remote sensing are here to stay – if for no other reason than they are now the foundation of conventional military operations. The best we can do is harness these

³ This concern is not mere speculation. During the Cold War, the Soviet SSBN force passed through phases of higher and lower vulnerability, often without the Soviet leaders detecting the change.

technological changes to bolster deterrence and reduce the likelihood and consequences of escalation. The same technologies that render arsenals vulnerable just might make deterrence stronger.

Essay by Austin Long, Columbia University

U.S. Strategic Nuclear Targeting Policy: Necessity and Damage Limitation

Few defense issues are as technically and ethically complex as strategic nuclear targeting. Technically, strategic nuclear targeting requires orchestrating tens, hundreds, or thousands of nuclear warheads in time and space to achieve military results. Planners must avoid warhead fratricide, adjust trajectories or flight paths, match weapon characteristics and heights of burst to targets, and assess the consequences of execution of any given nuclear option.¹

The last element produces massive ethical complexity, because the vast power of all but the smallest nuclear weapons is likely to produce significant collateral damage if used against targets in any but the most remote and uninhabited locations. This makes attacks against legitimate military targets difficult to distinguish from attacks on civilian populations. The Pentagon may be a legitimate military target, but destroying it with even a small nuclear weapon would kill thousands of civilians in northern Virginia with blast and fire effects and potentially endanger many more with radioactive fallout.

This reality means that wartime ethics do not easily apply to nuclear weapons. In a recent essay, for instance, Scott Sagan and Jeffrey Lewis describe the challenges of ensuring that nuclear targeting complies with the Law of Armed Conflict.² They then propose a restrictive policy: “the United States will not employ nuclear weapons against any target that could be reliably destroyed with conventional weapons.”³ Apart from limiting ethical dilemmas to the extent that is possible, this “would result in a substantial reduction in nuclear weapons, threatening the much smaller set of targets, if any, that remain immune to conventional attack.”⁴

But U.S. weapons requirements are not driven by the ability of the United States to retaliate against civilian or conventional military targets. Instead, the force structure seems designed to give U.S. leaders options for preemptive attacks against adversary nuclear forces. As a RAND Corporation analysis noted in 2003:

The [nuclear] force is larger than it needs to be if deterrence by threat of nuclear retaliation is the sole objective of U.S. nuclear strategy. Even a mildly expanded target base that included selected targets in emerging nuclear powers as well as chemical and biological weapons facilities in a larger set of countries would not necessarily require the sort of force that the United States plans to maintain. What the planned force

¹ See Theodore Postol, “Targeting,” in Ashton Carter, John Steinbruner, and Charles Zraket, *Managing Nuclear Operations* (Washington D.C.: Brookings Institution, 1987), 373-406.

² Jeffrey G. Lewis and Scott D. Sagan, “The Nuclear Necessity Principle: Making U.S. Targeting Policy Conform with Ethics & the Laws of War,” *Daedalus* 145:4 (Fall 2016): 62-74.

³ Lewis and Sagan, 70.

⁴ *Ibid.*, 71.

appears best suited to provide beyond the needs of traditional deterrence is a *preemptive counterforce capability against Russia and China*. Otherwise, the numbers and the operating procedures simply do not add up.⁵

The notion of striking first against adversary nuclear forces may be controversial, but for decades United States has maintained that such attacks are legal. Indeed, prior to the United Nations Charter, the concept of ‘anticipatory self-defense’ had long been an accepted part of customary law. The requirements for such anticipatory self-defense were the common ones of necessity (was an adversary’s attack actually imminent?) and proportionality (was the preemptive attack proportional to the imminent attack?).⁶ Article 51 of the United Nations Charter supports the inherent right of states to self-defense but is ambiguous on whether self-defense includes anticipatory self-defense. Subsequent commentary and state practice appear to support this interpretation.⁷

Suppose, however, that conventional weapons can readily substitute for nuclear weapons against adversary nuclear forces. In some cases, this is almost certainly true. Attacking a single nuclear warhead loaded on a missile propelled by non-storable liquid fuel and kept in a relatively soft shelter (for example, equivalent to the first generation of Soviet intercontinental ballistic missiles) with conventional weapons would be easy in most cases. Doing so would save policymakers from the ethical dilemmas of nuclear use.

Unfortunately, most potential adversaries of the United States have taken steps to make their nuclear forces much more difficult to target. This means that far less destructive conventional weapons would require pinpoint precision (and enemy incompetence) if they hope to succeed. A modestly capable adversary - one with relatively few nuclear weapons, the ability to harden silos, and to jam Global Positioning System (GPS) signals - could render a conventional attack on its nuclear forces ineffective. Adversaries with capable air defenses and mobile launchers are much more difficult to target. But in the best-case scenario, which assumes that U.S forces can strike promptly against fixed targets, the probability of success is modest.⁸

The United States currently lacks any significant conventional prompt deep-strike weapons, so only nuclear forces offer any chance of effective prompt counterforce attacks against many targets. Nuclear targeting of adversary nuclear forces in most cases easily meets the necessity component of the principle of anticipatory self-defense. Targeting the nuclear forces of potential adversaries would require large numbers of nuclear warheads, casting doubt on claims that substituting conventional weapons will enable major nuclear arms reductions. Indeed, effectively targeting the full range of potential adversary nuclear forces might require more

⁵ Glenn Buchan et al., *Future Roles of U.S. Nuclear Forces: Implications for U.S. Strategy* (Santa Monica: RAND Corporation, 2003), 92, emphasis in original.

⁶ Anthony Arend, “International Law and the Preemptive Use of Military Force,” *The Washington Quarterly* 26:2 (Spring 2003): 89-103.

⁷ Arend, 93-96.

⁸ See Austin Long, “Correspondence: Going Nowhere Fast: Assessing Concerns about Long-Range Conventional Ballistic Missiles,” *International Security* 34:4 (Spring 2010): 166-184; (with Dinshaw Mistry and Bruce Sugden) and Austin Long and Brendan Green, “Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy,” *Journal of Strategic Studies* 38:1/2 (February 2015): 38-73.

promptly delivered warheads than the U.S. currently has available under the 2011 New START arms control agreement.

Does counterforce targeting meet the proportionality criteria for anticipatory self-defense? This is the heart of the ethical problem, given nuclear weapons' vast destructive power. But if there were any targets for which nuclear weapons are proportional, they would be other nuclear weapons. Consider the scale of the threat. If each adversary nuclear weapon was aimed at a U.S. city, threatening tens or hundreds of thousands of casualties, then a U.S. attack that 'only' killed thousands would actually be restrained rather than merely proportional.

Of course, preemptive counterforce targeting is anathema to those who believe that stability is the paramount goal of nuclear strategy.⁹ Such targeting, if effective, leads to first-strike incentives, exacerbating crises and increasing the risk of inadvertent war. Yet such targeting is critical in order to extend deterrence to allies. Without it, the United States will be unable to limit damage from nuclear weapons to itself and its allies in a crisis. And without damage limitation the threat of imminent nuclear war could fracture alliances - a fact exploitable by ruthless adversaries.

This trade-off between first-strike stability and damage limitation for extended deterrence was the crux of the most contentious Cold War debates.¹⁰ Those controversies have resurfaced, given nuclear modernization efforts among U.S. adversaries. In an important recent article, Steve Fetter and Charles Glaser take on the question of damage limitation and extended deterrence.¹¹ Much of their analysis hinges on their assessment of the impossibility of meaningful damage limitation capability against China. Yet there is substantial evidence that the United States was far more capable of damage limitation during the late Cold War against the vastly more capable Soviet nuclear arsenal than was appreciated at the time and the Soviets were deeply concerned about this capability.¹² The same is likely true today, given the remarkable advances in U.S. accuracy and sensing technologies.

Counterforce targeting meets the necessity and proportionality criteria for anticipatory self-defense. Damage limitation is necessary for extending deterrence to allies. For these two reasons, the United States should maintain a nuclear targeting policy (and attendant force structure and posture) focused on nuclear counterforce. It should seek "optimum instability:" potential adversaries should doubt their ability to inflict

⁹ For an overview of the evolution of such thinking see Michael Gerson, "The Origins of Strategic Stability: The United States and the Threat of Surprise Attack," in Elbridge A. Colby and Michael S. Gerson, eds., *Strategic Stability: Contending Interpretations* (Carlisle: Strategic Studies Institute, 2013). See also Scott Sagan, *Moving Targets: Nuclear Strategy and National Security* (Princeton: Princeton University Press, 1989) for Sagan's views on counterforce.

¹⁰ Glenn A. Kent and David E. Thaler, *First-Strike Stability: A Methodology for Evaluating Strategic Forces* (Santa Monica: RAND Corporation, 1989) 5.

¹¹ Charles L. Glaser and Steve Fetter, "Should the United States Reject MAD? Damage Limitation and U.S. Nuclear Strategy toward China," *International Security* 41:1 (Summer 2016): 49-98.

¹² See Long and Green, "Stalking the Secure Second Strike," and Brendan Rittenhouse Green and Austin Long, "The MAD Who Wasn't There: Soviet Reactions to the Late Cold War Strategic Balance," *Security Studies* (forthcoming).

unacceptable damage on the United States in order to deter crises and limit their leverage in crises or war.¹³ At the same time, the United States should make clear that such capabilities do not provide absolute invulnerability, and reassure potential adversaries that damage limitation from counterforce targeting is a measure of last resort. Even if optimum instability proves elusive, such a policy is the most ethical targeting policy possible.

¹³ Kent and Thaler, *First-Strike Stability*, 5.

Essay by Joshua Rovner, SMU

Two competing ideas animate U.S. nuclear policy: deterrence and devaluation. Deterrence means stopping adversaries from employing nuclear weapons or using them for leverage. Achieving deterrence allows the United States to control the behavior of its rivals, especially if U.S. nuclear signals are able to dissuade a range of hostile actions in peacetime and war. Devaluation means convincing other states that nuclear weapons are mostly useless. Achieving this goal will slow the pace of proliferation if states calculate that the cost and risk of going nuclear vastly exceed the possible benefits. It also reduces the likelihood that states will opt for nuclear escalation in a crisis.

The problem, of course, is that successful deterrence implies that nuclear weapons are actually quite effective instruments of coercion. It seems illogical and disingenuous for U.S. leaders to belittle the value of nuclear weapons while simultaneously launching a comprehensive modernization effort. Nonetheless, successive U.S. leaders have done just that. Most recently, the Obama administration sought to reduce the size of its stockpile, but it also put in place plans to revitalize all three legs of the nuclear triad. These include life extension programs for the current generation of aerial bombs and warheads, along with longer-term efforts to replace aging cruise missiles, ICBMs, bombers, and submarines. Foreign observers may be forgiven for doubting U.S. rhetoric about a world free of nuclear weapons, given the amount of time and money it is spending to build new ones.

While there is no perfect solution to this problem, the administration has taken a few key steps to protect against charges of hypocrisy. First, it reduced the number of deployed warheads through the New START Treaty with Russia. While the Treaty also lowered the total stockpile, the focus on a smaller deployed force signaled the disutility of nuclear weapons. This was part of a broader rhetorical effort to distinguish nuclear weapons from forward deployed conventional forces. The latter would still be used for a range of purposes; the former would only be used in extremis.

Second, it designed a declaratory policy around the concept of negative security assurances. Rather than adopting a blanket no-first-use (NFU) policy, it promised that the United States “will not use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the Nuclear Non-Proliferation Treaty and in compliance with their nuclear non-proliferation obligations.”¹ This includes most of the states in the international system. The pledge reinforced the notion that nuclear weapons are almost always off the table. It also avoided a potentially damaging domestic battle. Proposing a formal NFU policy would likely have created a litmus test for hawks and reduced the opportunities for policy compromise. The final formulation, by contrast, was not terribly controversial.

In this respect, the Obama administration deserves credit for managing the knotty politics of proliferation, both abroad and at home. A pure effort to bolster deterrence would have undermined nonproliferation goals by making it harder to convince would-be nuclear powers about the futility of their efforts. A pure effort to devalue nuclear weapons, by contrast, would likely have provoked an ugly and counterproductive domestic fight. The next administration should study the Obama approach carefully as it considers its own declaratory

¹ Department of Defense, *Nuclear Posture Review Report* (April 2010), viii.

policy and targeting principles. It too will have to wrestle with the demands of deterrence and nonproliferation, which pull in opposite directions.

The role of nuclear weapons in deterrence depends on what actions the United States is trying to deter.² Consider Russia. Nuclear threats are inherently incredible for deterring covert action or the kind of sub-conventional intervention that characterizes Russia's effort in Ukraine. Nuclear threats are less credible than conventional arms for deterring conventional aggression, which is the main reason why NATO is bolstering its presence in East Europe. A conventional military response to Russian aggression is plausible and even likely; a nuclear response is not. Indeed, perhaps the only credible nuclear threat is in response to a nuclear strike against the United States or its allies. But this is an important goal, both because it reduces the chance of a nuclear exchange in conflict, and because it allows the United States to maximize its comparative advantages in conventional combat. Thus nuclear weapons remain an important tool of deterrence but are only useful in very unusual circumstances.

What kind of nuclear signals are likely to succeed? Counterforce threats make some sense against emerging nuclear powers with small and relatively vulnerable arsenals. In these scenarios the United States can put at risk a state's hard-won arsenal to disabuse it of the notion that it can use nuclear weapons as cover for conventional aggression. Such threats would be less useful against a state with a large and dispersed nuclear capability. Following through against great powers like China and Russia would be much more difficult. Still, leaders in Moscow or Beijing may be convinced that advances in U.S. warheads and sensors make a disarming strike possible, so they may sense a looming 'use it or lose it' dilemma in the early stages of a confrontation. This scenario is especially likely because foreign observers are well aware of the pattern of U.S. conventional operations in its recent wars. U.S. forces deliberately start with blinding strikes that disrupt their enemies' situational awareness, inhibit their communications, and create confusion so as to allow follow-on forces time to mobilize and assemble in theater. As a result, more ambiguous countervalue retaliatory threats make more sense, especially if they are coupled with reassurance signals promising that adversaries will retain their deterrent forces so long as they exercise intra-war restraint.

The goal is to craft targeting principles that reinforce nuclear declaratory policy. Defining a particular response to a narrow set of circumstances will help the United States deter the greatest threat to its own security: intra-war escalation in a great power conflict. It will also reinforce the existing negative security assurances that define the vanishingly rare cases in which Washington would ever consider nuclear use. Because those cases are irrelevant to most states, the United States can continue to pursue its nonproliferation objectives. In this way the next administration can balance competing values, even though there will always be tension between them. A world without nuclear weapons is a pipe dream, but a world in which deterrence and nonproliferation both succeed is not.

² Joshua Rovner, "After Proliferation: Deterrence Theory and Emerging Nuclear Powers," in Toshi Yoshihara and James R. Holmes, *Strategy in the Second Nuclear Age: Power, Ambition, and the Ultimate Weapon* (Washington, D.C.: Georgetown University Press, 2012).

Essay by Nina Tannenwald, Brown University

*“Renewing a Regime of Nuclear Restraint”*¹

The next administration should move toward a multilateral regime of nuclear restraint. It should announce that it is committing itself to such a regime and call on all the other nuclear powers to do the same.

Today a new nuclear era is emerging, one of multiple nuclear powers, intersecting rivalries, increased regional tensions in Europe and Asia, and new technological arms races in both nuclear and non-nuclear systems. Key norms that have underpinned the existing nuclear order—most crucially deterrence, non-use, and nonproliferation—are under stress. The nuclear normative order is unraveling as a result of changing military technology and increasing geopolitical tensions. Deterrence and disarmament are both deeply contested. Deterrence, once the core nuclear security relationship, is being challenged from three directions: first, by *technological developments* that entangle nuclear and conventional deterrence and also erode the boundaries between nuclear and conventional weapons; second, by a *political* critique that new nuclear states are irrational and cannot be deterred; and, third, by an *ethical* critique, exemplified by Pope Francis and the campaign to highlight the humanitarian impact of nuclear weapons, that relying on nuclear deterrence has become morally unacceptable.

Despite these trends, nuclear weapons are being re-legitimized in states’ security policies. Some nuclear-armed states are lowering the threshold for nuclear use. North Korea brandishes its nuclear threats, and Russian leaders have begun to employ frightening new rhetoric about nuclear use. The United States is leading a global expansion of nuclear weapons programs, with plans to spend an unaffordable \$1 trillion on the development of a whole new generation of bombs and delivery systems in the name of safety and reliability. Pretending that this build-up is somehow related to “disarmament,” as the Obama administration did, has increased the cynicism of non-nuclear states, leading them to take matters into their own hands. The real possibility that nuclear weapons will be declared illegal in the next few years will pose a new normative challenge for the nuclear-armed states. They exhibit a striking collective lack of imagination about how to respond to the demands of the humanitarian “ban” campaign, even while themselves implementing nuclear doctrines and new technologies that undermine deterrence, stability and non-use.

The Need for Restraint

Restraint is a condition of keeping a situation ‘under control or within limits.’ It is associated with notions of self-control, self-discipline, moderation and prudence. Without a conscious and collective effort to renew the norms of nuclear restraint, they are likely to unravel further, heightening the risk of nuclear war. A renewed regime of nuclear restraint must be based on the fundamental recognition that security in the nuclear age cannot be achieved unilaterally. Rather, it requires the cooperation of others.

The cornerstone of a renewed regime of nuclear restraint would be strengthening the norm of non-use of nuclear weapons through the adoption of a declared no-first-use (NFU) policy by all the nuclear powers.

¹ This is drawn from a longer paper written for the American Academy of Arts and Sciences project on Understanding the New Nuclear Age.

There have been increasing numbers of proposals for the United States to adopt an NFU policy in recent years, with compelling analyses, and serious recent consideration by the Obama administration. The case deserves further consideration.

An NFU policy means that nuclear powers would rely on nuclear weapons only to deter nuclear attacks. Adoption of NFU would not simply be “mere words,” but rather both doctrinal and operational issues would follow from it.² An operational NFU doctrine would eliminate first strike postures, pre-emptive capabilities, and other types of destabilizing warfighting strategies. It would induce restraint in targeting, launch-on-warning, alert levels of deployed systems, procurement, and modernization plans. In other words, it would help shape the physical qualities of nuclear forces in a way that renders them unsuitable for missions other than deterrence of nuclear attacks.³ An NFU policy would also reduce the risk of accidental, unauthorized, mistaken or pre-emptive use. The removal of threats of a nuclear first strike would strengthen strategic and crisis stability.⁴ It would also make absolute the boundary between nuclear and conventional weapons. Finally, by reducing the overall risk of nuclear dangers, NFU policies would move toward addressing humanitarian concerns and reducing the salience of nuclear weapons.

As others have argued, NFU could be adopted unilaterally or as part of an international agreement. It would move Russia and Pakistan away from their high risk doctrines and reduce a source of Russia-NATO tensions. For Russia to consider NFU, its concerns about U.S. ballistic missile defenses, imbalances in conventional forces, and issues of NATO enlargement would need to be addressed. The United States would need to address the issue of extended deterrence with its allies and move toward conventional extended deterrence.⁵ India and Pakistan would need a modus vivendi on Kashmir.

The United States could unilaterally adopt an NFU policy, asking other nuclear-armed states to do the same. This would constitute formal adoption of what is already essentially de facto U.S. policy.⁶ As even card-carrying realists such as the “four horsemen” - former Secretaries of State Henry Kissinger and George Shultz, former Secretary of Defense William Perry, and former Senator Sam Nunn - recognized, given overwhelming U.S. conventional capabilities on the battlefield, there exists no plausible scenario in which nuclear first use would be in the interest of the United States. A U.S. NFU policy would create political space for Russia to follow suit. A common NFU policy would also help anchor the existing NFU policies of China and India and implicitly acknowledge their leadership in this area, a virtue when middle-power states are feeling disenfranchised from the global nuclear order.

² Scott D. Sagan, “The Case for No First Use,” *Survival* 15:3 (June-July 2009): 163-182.

³ Alberto Perez Vadillo, *Beyond the Ban: The Humanitarian Initiative of Nuclear Disarmament and Advocacy of No First Use Nuclear Doctrines* (British-American Security Information Council, May 2016), 11.

⁴ Bruce Blair, “How Obama Could Revolutionize Nuclear Weapons Strategy Before He Goes,” *Politico Magazine*, 22 June 2016.

⁵ Sagan, “No First Use.”

⁶ Blair, “How Obama Could Revolutionize Nuclear Weapons Strategy.”

What are the prospects for this? Skeptics will object that the geopolitical preconditions are not ripe for an NFU policy at this time. The Obama administration choked at the last minute on declaring an NFU policy largely because of pushback from allies who are under the U.S. nuclear ‘umbrella.’ But if allies are the main obstacle, the case for NFU is even stronger. The threat to defend allies such as South Korea and Japan with nuclear weapons these days is hardly credible. In Europe, Russia is busy cutting military spending as its oil revenues shrink, with plans to cut the defense budget by 30%.⁷ This is not the sign of a country poised to invade the Baltics. President-elect Donald Trump comes to Washington with a claim to up-end the status quo, and he could do it in the arena of nuclear policy as well. He has repeatedly said that he would like to improve relations with Russian President Vladimir Putin. They could begin by talking about nuclear restraint in Europe. Adoption of an NFU policy will require close consultation with allies, but the next administration should begin this task.

As an initial step on the way to NFU and a regime of nuclear restraint, the new administration should consider the recent proposal by Jeffrey Lewis and Scott Sagan that the United States should declare that it will not use nuclear weapons “against any target that could be reliably destroyed by conventional means.”⁸ This policy would not solve the larger problem of the unhappy entanglement of conventional and nuclear deterrence (for example, U.S. hypersonic weapons targeted against China). Nevertheless, it would represent an initial important declaratory statement of nuclear restraint.

Beyond NFU, the nuclear-armed states must pursue several steps to create a renewed regime of nuclear restraint. First, they should publically recommit to deterrence and non-use. Leaders should make speeches that lay out the risks of any use of nuclear weapons and the perils of nuclear brinkmanship and threats. They should reaffirm the importance of the 71-year tradition of non-use and that even use of a small nuclear weapon would open a Pandora’s box of unpredictable and potentially dire consequences.⁹ The historic visits by Secretary of State John Kerry and President Barack Obama to Hiroshima in spring 2016 were important steps in this direction.

Second, they must develop new understandings of strategic stability. Traditional norms and concepts such as deterrence and strategic stability are still valuable, but how they apply is changing. The nuclear states need to reinvigorate discussions about strategic stability and lessons learned from the historical record of nuclear deterrence.

Third, they must de-legitimize nuclear weapons while developing alternative and credible methods for deterring hostile actors. While the humanitarian campaign has sought to undermine support for nuclear weapons, states still see them as effective instruments of deterrence. The nuclear states committed themselves to delegitimizing nuclear weapons in the 2010 Action Plan of the NPT but on balance they have taken few

⁷ Alexei Lossan, “Russia Slashes Military Spending as Revenues Shrink,” *Russia Beyond the Headlines*, 1 November 2016.

⁸ Jeffrey G. Lewis and Scott D. Sagan, “The Common-Sense Fix that American Nuclear Policy Needs,” *Washington Post*, 24 August 2016.

⁹ Steven Pifer, “Time to Push Back on Russia’s Nuclear Threats,” *The National Interest*, 10 May 2016.

steps to implement this in practice.¹⁰ Policy creativity is badly needed here if states are to move beyond nuclear weapons to non-nuclear forms of deterrence. Policy discussions should include states from inside and outside the nuclear club.

Fourth, they must engage in frank conversations about the morality of nuclear deterrence. Deterrence—as a threat to kill millions of innocent people—has always been ethically problematic, what George Quester once called a “necessary moral hypocrisy.”¹¹ Beyond moving toward making nuclear deterrence less necessary, civil society and governments should foster debate about whether there are forms of nuclear deterrence that would be more morally acceptable. This should include consideration of how the laws of war might restrain nuclear strategy today, including how to respond to the development of more ‘ethical’ nuclear weapons that are also more usable.

Finally, the nuclear-armed powers must delink nuclear weapons from nationalism. Disarmament and further devaluing nuclear weapons will require separating nuclear weapons from conceptions of identity, especially beliefs about great power status and notions of nuclear exceptionalism. This will be a long-term process that will require mobilizing public support for nuclear restraint and a non-nuclear identity.¹² The rise of aggressive nationalism in recent years has been troubling. If that rise is tied to nuclear weapons, it may lead to catastrophe.

¹⁰ 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, Final Document, Volume I, Conclusions and recommendations for follow-on actions, NPT/CONF.2010/50 (Vol. I).

¹¹ George H. Quester, “The Necessary Moral Hypocrisy of the Slide Into Mutual Assured Destruction,” in Henry Shue, ed., *Nuclear Deterrence and Moral Restraint* (Cambridge: Cambridge University Press, 1989), 227-269.

¹² Nick Ritchie, “Waiting for Kant: Valuing and Delegitimizing Nuclear Weapons,” *International Affairs*, 90:3 (2014): 601-623; Anne Harrington de Santana, “Nuclear Weapons as the Currency of Power: Deconstructing the Fetishism of Force,” *Nonproliferation Review* 16:3 (November 2009), 327.