Why US Nuclear Force Numbers Matter

The US debate about nuclear forces and policy often descends into arcane details. These details can be important, but it also is important to address a basic question: For effective deterrence, does the United States need greater numbers and different types of nuclear capabilities than the very limited numbers and types of nuclear weapons deemed necessary to threaten an opponent's society? While it appears incongruous, a minimum US nuclear deterrent typically is defined as a second-strike, or retaliatory, capability sufficient to threaten the destruction of an opponent's societal or urban/industrial assets, such as "a nation's modern economy, for example, electrical, oil, and energy nodes, [or] transportation hubs."[1]

That adequacy standard for deterrence—the nuclear capabilities necessary to threaten the destruction of an opponent's societal assets—is "easy" to meet in quantitative and qualitative terms given the high vulnerability of unprotected, fixed societal targets to nuclear strikes.[2] Indeed, the number of US second-strike weapons typically considered adequate to meet a minimalist standard for deterrence ranges from "several" weapons to hundreds of weapons.[3] Such numbers are modest compared to the approximately 2,000 US nuclear weapons reportedly now deployed.[4]

Minimalists typically criticize as unnecessary and destabilizing US nuclear capabilities beyond those necessary for threatening opponents' societies and populations. Indeed, these are the criticisms now leveled against the Obama administration's fledgling US nuclear modernization programs.[5] The connection between the advocacy of minimal US nuclear capabilities and a deterrence policy of targeting opponents' societies has been explicit for decades. For example, in 1961 a prominent academic commentator observed, "Would the Soviets be deterred by the prospect of losing ten cities? Or fifty cities? No one knows, although one might intuitively guess that the threshold is closer to ten than to either two or fifty."[6]

More recently, two prominent commentators recommended a US "responsive force" of 400–500 nuclear warheads because this number of weapons would be adequate to target Russian sites, "affecting industrial recovery—the major nodes in the electric power grid and air, ground,

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and rail transportation systems, as well as major industrial sites."[7] In 2010 a minimum deterrence-oriented assessment by US Air Force personnel concluded that a US nuclear force of "311 weapons" would be more than adequate because, "there is not a state on the planet that could withstand that sort or punishment or a leader who would run that sort of risk."[8]

The critical question here is, how much is enough for effective deterrence? As illustrated above, precise answers derived from the minimum deterrence approach range from several weapons to hundreds. However, every Republican and Democratic administration for five decades has rejected this minimalist standard for and approach to nuclear deterrence.[9] There are six basic reasons for rejecting the minimalist standard of adequacy for US nuclear capabilities that everyone who cares about this subject should understand.

First, as illustrated above, there are many confident claims regarding the number of nuclear weapons adequate for deterrence. The problem with all such claims is that no one knows with precision the minimal US nuclear capability necessary to deter attack—now or in the future. Omniscience would be required to predict how many and what types of weapons will deter across a spectrum of circumstances and opposing leaderships. And, if that number somehow could be known, it would likely change rapidly with shifting circumstances. That is, the US requirement for effective deterrence is not some known, set number of weapons or capability; it will change depending on the opponent, the time, and the context.[10]

Developments in circumstances that can shift deterrence requirements may be technical, political, operational, or even personal to a given leadership. For example, the possibility that a US nuclear system could experience an unexpected reliability problem that would disable or degrade US weapons may best be mitigated by having a level of diversity and overlapping capabilities in the deterrent arsenal. This factor alone could lead US force requirements beyond the typical minimal definitions of adequacy. The goal of preventing nuclear war is so crucial that it is better to hedge with flexible, diverse, and overlapping capabilities rather than risk the failure of deterrence due to unknown or unpredictable developments or otherwise having too few or the wrong types of nuclear forces needed to deter. We should not plan only for a minimal US deterrent because no one knows what that capability is or how deterrence requirements may shift. Correspondingly, every US administration during the

last five decades has concluded that US nuclear deterrence forces should be diverse, flexible, and overlapping to help ensure the US always possesses the capabilities necessary to deter attack across a wide spectrum of threats and shifting circumstances.[11]

Second, to pose a retaliatory deterrent threat, US nuclear forces must be able to withstand an opponent's "first-strike" attack. US forces manifestly vulnerable to a first strike would be useless as a retaliatory deterrent threat. Hence, the US deterrent must be sufficiently large and diverse to survive—under all conditions—a nuclear first strike by a determined foe. This requirement has led to a long-term consensus in favor of ensuring the United States possesses a sufficient number of nuclear weapons to survive an attack and a diverse nuclear triad of platforms for those weapons—nuclear bombers, sea-based ballistic missiles and land-based, intercontinental ballistic missiles. The diversity of this overlapping triad of nuclear systems, with their different operations and locations, helps to ensure that under all conditions an opponent could not reasonably anticipate destroying the US retaliatory nuclear deterrent in a first strike. This is one of the rationales for and great values of the US nuclear triad that again takes US nuclear requirements beyond the numbers typically associated with a minimum deterrent.

Third, as noted above, intentionally planning to destroy societal or urban-industrial centers establishes a minimal, easy-to-meet set of deterrence requirements for US nuclear capabilities. But, it also involves intentional threats to kill innocents and noncombatants on a massive scale. Thus, it is widely considered immoral, a potential violation of international law, and inconsistent with the Just War tradition. Instead, the United States should strive for deterrence capabilities that are not limited to or dependent upon threatening opponents with societal destruction. The US nuclear deterrent should instead have the diverse and flexible nuclear capabilities necessary to pose a threat to a variety of other types of targets and, indeed, to avoid to the extent possible an opponent's societal centers—thereby potentially minimizing the destruction of an opponent's innocent noncombatants. This deterrence standard again imposes US force requirements that are likely more diverse qualitatively and larger quantitatively than typically is deemed adequate to meet the minimal deterrence standard of threatening the destruction of an opponent's population and societal assets.

It should be noted that this particular point stings advocates of minimal US nuclear capabilities. They clearly want to avoid being charged with advocacy of an approach to deterrence that so offends all humanitarian concepts. Consequently, they often claim in response that the types and scale of US nuclear capabilities and the targeting plans underlying US deterrent threats essentially make no real difference in the prospective level of societal destruction in a nuclear war. If so, then a minimal deterrent is no guiltier of violating humanitarian norms than other approaches to nuclear deterrence.[12] There is, however, no doubt whatsoever that the types of nuclear weapons and targeting plans can dramatically affect the levels of destruction and casualties—with the weapons and targeting plans advocated by minimalists unsurprisingly causing the greatest levels of societal destruction. Many careful studies over decades have reached this conclusion.[13] The United States should not help ensure that any use of nuclear weapons leads to unmitigated levels of societal destruction by adopting an approach to deterrence that is *"easy"* simply because societal targets are so vulnerable to nuclear weapons that few are needed to threaten such targets.

Fourth, and related to the above, for US deterrence strategies to function most reliably, the US deterrent must be able to threaten retaliation against those potentially different types of assets that opponents value most highly. In some cases, the minimalist deterrence threat to destroy an opponent's societal infrastructure as the basis of US deterrence strategy will not threaten what an opponent values most. There are many historical examples wherein leaders have willingly and knowingly accepted a high risk of societal destruction in pursuit of a goal judged to be more important than avoiding that risk.[14] In short, threats against an opponent's society embraced by minimalists may deter in some cases; however, in other cases, the opposing leader's goals and values may suggest an alternative approach to deterrence is necessary and require more and different types of US nuclear forces.

During the Cold War, for example, US deterrence policy reportedly was based in part on the expectation that Soviet leaders placed highest value not on urban-industrial centers but on their political and military assets, including the Soviet control structure itself and Soviet military/nuclear capabilities. As the Carter administration's secretary of defense, Harold Brown, said in 1980, the US deterrent should be capable of posing a threat to "what the Soviets consider most important to them,"[15]

which could include Soviet conventional and nuclear military forces, the Soviet political and military control structure, and military industry.[16] Thus, US forces had to be large enough and possess the diverse qualities necessary to threaten, for deterrence purposes, the military and political assets apparently valued most highly by the Soviet leadership—which were numerous and often protected. This was a standard for US deterrent forces well beyond the relatively small number of weapons typically deemed adequate to meet the minimal deterrence standard of threatening society.

In today's international threat context, there is no reason to assume that current and future opponents, potentially including Russia and China, will not similarly place greatest value on numerous assets that are realistically vulnerable only to US nuclear threats and impose higher standards of adequacy on US deterrence capabilities than a minimal deterrent can.[17] Again, because the US goal of deterring war is so critical, the size and diversity of the US nuclear arsenal for effective deterrence must be maintained accordingly.

Fifth, the minimum deterrence approach to sizing US nuclear forces provides little, if any provision for the failure of deterrence. For example, in most plausible contingencies, it would provide a president only the most miserable options possible if the United States or allies were to suffer a nuclear attack. In the event of a nuclear attack, a president certainly would want the scope and size of any US response to help discourage any further nuclear escalation by the opponent. Yet, retaliating against, say, many Russian or Chinese societal targets—per minimum deterrence notions—would be likely to undo whatever targeting restraint Moscow or Beijing might have practiced in the initial attack and would do little or nothing to protect the United States from further attack. In 1962 Secretary of Defense Robert McNamara emphasized precisely this point: "In the event of war, the use of such a force against the cities of a major nuclear power would be tantamount to suicide."[18] Similarly, in 1967, then-Secretary of the Air Force (and later Secretary of Defense), Harold Brown said, "the execution of the option to destroy Soviet population and industry would be our poorest choice."[19] There remains almost no conceivable circumstance in which US retaliation against numerous societal targets in the event of an initial Russian or Chinese attack could help to restore deterrence and limit the carnage. The president, instead, would want flexible and diverse US nuclear retaliatory options to have available

a response best suited to the crisis and to limiting further escalation and levels of destruction.

The hope that escalation can be limited in the event of war may be a faint hope, but the United States should not be limited, by the narrowness of its capabilities and rigidity of its planning, to a response that would likely ensure that nuclear escalation proceeds unabated. Again, the US deterrence goal should be, and has been, to have flexible and diverse response options for the purpose of deterring further escalation and limiting damage,[20] not the very narrow types of responses imposed by a minimum deterrence approach to sizing US forces. This point is not a rejection of deterrence or a call for a US "nuclear war-fighting" policy as some continually and mistakenly charge;[21] it is a call for diverse US capabilities that make available to the president a variety of options best suited for deterrence and reestablishing deterrence and limiting nuclear escalation in the event deterrence fails. Once again, this goal can require a US arsenal well beyond the number and types of weapons deemed adequate for minimum deterrence.

Finally, the United States has formal extended deterrence responsibilities to provide a "nuclear umbrella" for more than 30 allies. Many of these allies (particularly those in close proximity to Russia and China) consider the US nuclear umbrella essential to their security. However, a minimalist US nuclear deterrent capability limited to threatening an opponent's society may be judged incredible—as in, not believed by the opponent—as an extended deterrent, because of the well-recognized US desire to limit civilian destruction in its military operations and, again, because of the likelihood that a US nuclear response against an opponent's society could lead that opponent simply to launch strikes in return against US urban-industrial centers. In this case, a US extended deterrent threat focusing on an opponent's society essentially would be, as Secretary McNamara warned, a US threat to commit national suicide on behalf of an ally. Opponents may understandably doubt that any US president would ever choose to proceed along such a course. Indeed, former Secretary of State Henry Kissinger long ago publicly explained to allies that they should *never* expect the United States to follow such a course.[22] Even if the United States clearly possesses a minimal deterrent capability, an opponent's doubts about its credibility would render a US minimal nuclear deterrent threat of little deterrent value. This potential credibility problem is not a vestige of the Cold War. Given Russia's new

expansionism and numerous, explicit nuclear threats to US allies, it is again a serious contemporary concern.

Consequently, for decades US policy has been to have a diversity of flexible and limited nuclear response options, including dual capable aircraft (DCA) deployed in North Atlantic Treaty Organization countries that are intended to be more credible for extended deterrence purposes than a minimal deterrent. Department of Defense officials in the Obama administration fully recognize the continuing need for diverse nuclear options and the corresponding continuing need for the US triad and DCA. Why? Because "sustaining a diverse set of U.S. nuclear capabilities is essential for the role they play in regional deterrence and assurance."[23]

Conclusion

For all of the reasons noted above, US officials have long recognized a minimalist US nuclear arsenal as inadequate to support US deterrence requirements. Minimal US nuclear force numbers may sound appealing to some, but in general, the smaller and less diverse the US force is, the less survivable it is, the less flexible it is, the more narrow the available US deterrent threat options are, and the less credible it is likely to be in some potentially critical contingencies.

It must be acknowledged that there is considerable speculation regarding "how much is enough?" in both the minimum-deterrence approach to sizing the US nuclear force and the decades-long US approach that instead seeks flexible, diverse, and overlapping capabilities. But, while both approaches involve speculation, the now-traditional US approach to deterrence is by far the more prudent in a subject area that begs for prudence.

Why so? Because deterrence is an art that includes numerous moving parts with some inherent and irreducible uncertainties. How much is enough for effective deterrence is not fully predictable because we have an inherently limited capacity to predict reliably and precisely how foreign leaders will think and act in crises. Given the great variety of international threats and the equally great variation in the perceptions, values, and decision-making modes of foreign leaders, no one knows with any level of confidence that a small, minimum deterrence-oriented US arsenal will deter on any given occasion—much less universally for all plausible occasions now and in the future. As a result, the most imprudent approach

to deterrence is to have an *"easy,"* small, and narrow set of US deterrence threat options based on the presumptions that opponents will be deterred by nuclear threats to their societies and that the United States can make such threats credibly. The effective functioning of deterrence is too important to depend on the assumption that the United States will face only opponents who are susceptible to minimum deterrent threats.

US planning must recognize the possibilities that other approaches to deterrence may be necessary and that deterrence may fail. Yet as noted above, minimum deterrence will lack credibility in plausible cases and makes no useful provision for the failure of deterrence. Indeed, it likely maximizes the prospects for uncontrolled societal destruction if deterrence fails. The functioning of deterrence is not foolproof, and thus, making no provision for its failure is grossly imprudent.

In summary, while all approaches to determining how much is enough for deterrence involve speculation about how opponents will think and act, for the United States, the possession of flexible, diverse, and overlapping capabilities is the most prudent approach. This is particularly so in the contemporary threat environment, which is characterized by an expansionist, revanchist, and hostile Russia that is adding to its nuclear arsenal and making explicit nuclear first-use threats and also by an increasingly aggressive, expansionist China that also is adding to its nuclear capabilities.[24]

Advocates of a minimal US nuclear deterrent continue to call for revising US nuclear deterrence policies and targeting plans per the minimum deterrence adequacy standard to facilitate lower US nuclear force requirements.[25] They actually argue against diverse and flexible US forces, because those attributes suggest the requirement for retaining larger US force numbers than they prefer.[26] But, given the stark reality of increasing nuclear threats to the United States and its allies, US deterrence policies should not be determined by how well they facilitate easy standards and provide a rationale for eliminating US nuclear capabilities; US deterrence policies serve purposes other than rationalizing the elimination of US nuclear forces. The adequacy of US nuclear forces and policies should be determined primarily by the requirements for deterring enemies and assuring US allies in the most effective and prudent manner possible. The US goal must be for deterrence to work in all cases, which again suggests the value of capabilities that are adaptable for deterrence purposes across a wide variety of potential circumstances.

Consequently, the reasons described here for rejecting a minimalist US nuclear deterrent force continue to be sound. SSQ

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Notes

1. See for example, Hans M. Kristensen, Robert S. Norris, Ivan Oelrich, *From Counterforce to Minimal Deterrence*, Occasional Paper no. 7 (Washington, DC: Federation of American Scientists and the Natural Resources Defense Council, April 2009), 31–32, see also 2 and 43–44, http://docs.nrdc.org/nuclear/files/nuc_10042901a.pdf.

2. Robert Jervis, "Why Nuclear Superiority Doesn't Matter," Political Science Quarterly 94, no. 4 (Winter 1979–80), 617–18. See also, Steven Pifer and Michael E. O'Hanlon, *The Opportunity: Next Steps in Reducing Nuclear Arms* (Washington, DC: Brookings Institution Press, 12 October 2012), 20–21.

3. *Several* is the level identified as adequate in James Wood Forsyth Jr., B. Chance Saltzman, and Gary Schaub Jr., "Minimum Deterrence and Its Critics," *Strategic Studies Quarterly* 4, no. 4 (Winter 2010), 7, http://www.au.af.mil/au/ssq/2010/winter/forsythsaltzmanschaub.pdf.

4. Hans M. Kristensen and Robert S. Norris, "Nuclear Notebook: United States Nuclear Forces, 2016," *Bulletin of the Atomic Scientists* 72, no. 2 (2016), 63–64.

5. See for example, Center for Arms Control and Nonproliferation, "Is a New Nuclear Cruise Missile Necessary?," (fact sheet, Center for Arms Control and Nonproliferation, 2 February 2016), http://armscontrolcenter.org/is-a-new-nuclear-cruise-missile-necessary/.

6. Glenn H. Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton, NJ: Princeton University Press, 1961), 57.

7. Sidney Drell and James Goodby, *What are Nuclear Weapons for? Recommendations for Restructuring U.S. Strategic Nuclear Forces* (Washington, DC: Arms Control Association, October 2007), 15.

8. Forsyth, Saltzman, and Schaub, "Minimum Deterrence and Its Critics," 6.

9. The Obama administration too has explicitly rejected minimum deterrence. See, Department of Defense (DOD), *Report on Nuclear Employment of the United States*, *US Code*, vol.10, sec. 491 of (Washington, DC: DOD, 12 June 2013), 4, http://www.globalsecurity.org/wmd/library/policy/dod/us-nuclear-employment-strategy.pdf.

10. See Keith B. Payne, *The Fallacies of Cold War Deterrence and a New Direction* (Lexington: University Press of Kentucky, 2001), chapters 1–4.

11. See for example, National Security Council, National Security Decision Memorandum 242, Policy for Planning the Employment of Nuclear Weapons, 17 January 1974 (declassified 29 June 2007); The White House, Presidential Directive NSC-59, Nuclear Weapons Employment Policy, 25 July 1980 (declassified 24 July 2012); and DOD, *Report on Nuclear Employment of the United States*.

12. See, Bruce G. Blair et al., *Toward True Security: Ten Steps the Next President Should Take to Transform U.S. Nuclear Weapons Policy* (Cambridge, MA: Federation of American Scientists, Natural Resources Defense Council, and Union of Concerned Scientists, February 2008), 17–18, http://www.ucsusa.org/assets/documents/nwgs/toward-true-security.pdf; Daryl Kimball and Matthew McKinzie, "Nuclear Dangers: Myth, Reality, Response," *Defense News*, 23 February 2015, http://www.defensenews.com/story/defense/commentary/2015/02/23/commentary-nuclear-dangers-myth-reality-responses/23885837/; and Walter Pincus, "Nuclear Weapons Modernization: Not Fast Enough for Kyl," *Washington Post*, 27 February 2014, https://www.washingtonpost.com/world/national-security/nuclear-weapons-modernization-not-fast-enough-for-kyl/2012/02/25/gIQANAJoeR_story.html.

13. A study by the Natural Resources Defense Council showed that a small "countervalue" strike with up to 192 weapons would inflict 54–56 million casualties in an exchange with Russia, while a very large "counterforce" strike—employing many times that number of weapons (approximately 1,300)—would inflict 11–17 million casualties. See Matthew McKinzie et al., *The U.S. Nuclear War Plan: A Time for a Change* (New York: National Resources Defense Council, June 2001), x and 125. Other studies find far fewer casualty levels from counterforce targeting scenarios and much higher possible casualty levels from intentional countervalue targeting. The distinction here involves literally scores of millions of potential casualties. See for example, Senate, *Briefing on Counterforce Attacks, Hearing before the Subcommittee on Arms Control, International Law, and Organization of the Committee on Foreign Relations,* 93rd Cong., 2nd sess., 11 September 1974, 12–22*;* Keir A. Lieber and Daryl G. Press, "The Nukes We Need: Preserving the American Deterrent," *Foreign Affairs* 88, no. 6 (November/December 2009): 47; and Office of Technology Assessment, *The Effects of Nuclear War* (Washington, DC: Congress of the United States, May 1979), 10.

14. See Payne, *Fallacies of Cold War Deterrence*; 1–77 and Keith B. Payne, *Deterrence and the Second Nuclear Age* (Lexington, University Press of Kentucky, 1996), especially chapters 2–4.

15. See, the testimony by Secretary of Defense Harold Brown in Senate, Nuclear War Strategy, Hearings before the Committee on Foreign Relations, 96th Cong., 2nd sess. (Top Secret hearing held on 16 September 1980; sanitized and printed on 18 February 1981), (Washington, DC: US Government Printing Office [GPO], 1981), 10. See also, Harold Brown in, *MX Missile Basing System and Related Issues, Hearing before the Committee on Armed Services*, 98th Cong., 1st sess., (Washington, DC: US GPO, 1983), 6–7.

16. See, the testimony by Secretary of Defense Harold Brown and the "Administration's Responses to Questions Submitted Before the Hearing," in ibid., 10, 16, 25, 29–30. See also, Office of Secretary of Defense, "Remarks Prepared for Delivery by the Honorable Harold Brown, Secretary of Defense, at the Convocation Ceremonies for the 97th Naval War College Class, Naval War College, Newport, Rhode Island, 20 August 1980;" and the discussion in Walter Slocombe, "The Countervailing Strategy," *International Security* 5, no. 4 (Spring 1981): 18–27.

17. For reasons explained in Keith B. Payne et al., *Minimum Deterrence: Examining the Evidence* (Fairfax, VA: National Institute Press, July 2013), 22–25, http://www.nipp.org/wp-content/uploads/2014/12/Final-Distro.pdf.

18. Remarks by Secretary McNamara at North Atlantic Treaty Organization (NATO) Ministerial Meeting, 5 May 1962, Restricted Session (Top Secret; declassified in part, 17 August 1979), 11–12, quoted in, Kurt Guthe, *Ten Continuities in U.S. Nuclear Weapons Policy, Strategy, Plans, and Forces* (Fairfax, VA: National Institute for Public Policy, September 2008), 50, http://www.nipp.org/wp-content/uploads/2014/11/N-Continuities-Draft_Rev-2.11.pdf.

19. *Memorandum from the Secretary of the Air Force (Brown) to Secretary of Defense McNamara*, 14 September 1967, in Office of the Historian, US Department of State, *Foreign Relations of the United States 1964–1968*, vol. 10, *National Security Policy*, Document 191, (Washington, DC: Department of State, n.d.) https://history.state.gov/historicaldocuments/frus1964-68v10/d191.

20. See for example, Senate, *The Honorable Harold Brown, before the US Senate Committee on Foreign Relations, The Department of Defense Statement on Strategic Military Balance: Military Assessment*, 96th Cong., 1st sess. (11 July 1979), 3.

21. For example, Hans M. Kristensen, "Questions about the Nuclear Cruise Missile Mission," *FAS Security Blog*, 25 March 2016, http://fas.org/blogs/security/2016/03/lrso-mission-questions/.

22. Henry Kissinger, "The Future of NATO," in, *NATO, The Next Thirty Years*, edited by Kenneth A. Myers (Boulder, CO: Westview Press, 1981), 8.

23. Robert Scher, Statement of Robert Scher, Assistant Secretary of Defense for Strategy, Plans, and Capabilities before the Senate Armed Services Subcommittee on Strategic Forces, 9 February 2016, 4, http://www.armed-services.senate.gov/imo/media/doc/Scher_02-09-16.pdf.

24. See Keith B. Payne et al., *Russian Strategy: Expansion, Crisis and Conflict* (Fairfax, VA: National Institute Press, 2016); and US–China Economic and Security Review Committee, *2015 Report to Congress* (Washington, DC: US GPO, November 2015), http://origin.www.uscc.gov/sites/default/files/annual_reports/2015%20Annual%20Report%20to%20Congress.PDF. See also, Bill Gertz, "China Adds Warheads to Older DF-5s," *Washington Times*, 10 February 2006, http://www.washingtontimes.com/news/2016/feb/10/inside-the-ring-china-adds-warhead-to-older-df-5s/.

25. See for example, Hans M. Kristensen and Robert S. Norris, "Reviewing Nuclear Guidance," *Arms Control Today*, 2 November 2011, http://www.armscontrol.org/act/2011_11/Reviewing_Nuclear_Guidance_Putting_Obama_Words_Into_Action; and Adam Mount, "The Fiscal Threat to Nuclear Strategy," *The Bulletin of the Atomic Scientists*, 15 March 2015, http://thebulletin.org/fiscal-threat-nuclear-strategy8080.

26. Kristensen and Norris, "Reviewing Nuclear Guidance;" and Tom Nichols, "Time to Change America's Atomic Arsenal," *The Diplomat* (Japan), 14 March 2013, http://thediplomat.com/2013/03/time-to-change-americas-atomic-arsenal/.