

# Future of Deterrence: The Art of Defining How Much Is Enough

KEITH B. PAYNE

National Institute for Public Policy

Fairfax, Virginia, USA

*Many commentators who publicly calculate “how much is enough” in terms of the U.S. strategic capabilities necessary to support national goals continue to adhere to the Cold War formula that was known as “assured destruction.” That formula, however, is inadequate at best and likely misleading in the post–Cold War era. It bases such calculations on a simplistic numbers game based on weapons and targets and generally is unrelated to the goals that U.S. strategic forces are expected to support. A goal-driven approach to calculating how much is enough offers the opportunity to have such calculations driven by the needs of strategy as opposed to having strategy driven by numbers.*

Deterrence is the art of persuading others to practice self-control by creating conditions that make their self-control their own preferred option. It usually is much less costly in lives and treasure than attempting physically to control another. This efficiency is why the great Chinese strategists Sun Tzu said that the successful practice of deterrence reflects the highpoint of skill—superior even to winning military victories.

Today I will discuss the art of calculating “how much is enough” in terms of the U.S. strategic capability necessary to support national goals in the twenty-first century. The usual phrase is that we want the lowest level of nuclear capability consistent with our security requirements and those of our allies. That is the proper goal: the question is, how do we measure how much is enough for our security needs? Measuring how much is enough for deterrence is not a science; it is very much an art, but the potential for success can benefit greatly from careful observation and calculation.

A Cold War approach for calculating how much is enough for deterrence still dominates most pertinent journalistic commentary on deterrence requirements, most thinking on Capitol Hill and in academia, and even most of the discussion within the military. This decades-old Cold War approach to measuring how much is enough is a numbers game derived from the Cold War’s balance-of-terror deterrence concept. The standard of adequacy for deterrence in this approach and its variants is the lowest number of weapons necessary for posing an “assured destruction” threat.

Assured destruction can be defined in various ways, but the classic example is Secretary of Defense McNamara’s 1960’s U.S. Assured Destruction metric and associated requirement for a specific number of weapons to threaten specific levels of destruction on the Soviet Union. In 1964, Secretary McNamara said that the assured destruction standard for U.S. deterrence was a retaliatory threat to destroy 20–25 percent of Soviet population and 50 percent of Soviet industrial base: “The requirements for ‘Assured Destruction’ are the ability to destroy 20 to 25 percent of the Soviet population and 50 percent of the Soviet

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industrial base.” McNamara’s pentagon analysts calculated that 400 equivalent megatons (EMT) was an adequate nuclear capability for this purpose, and thus the standard metric for measuring how much is enough.

There was no serious basis for McNamara’s claim that this particular type of threat—as opposed to some other threat—was the right one for the deterrence of the Soviet Union. Instead, this definition of assured destruction came from DOD calculations of the “knee of the curve” for targeting Soviet urban/industrial assets. After inflicting these percentages of destruction, there were expected to be “diminishing marginal returns” in terms of additional destruction for each additional nuclear weapon delivered. Using this knee-of-the-curve-based definition of assured destruction, McNamara calculated that 400 survivable EMT would be adequate for deterring the Soviet Union. In short, in the 1960s, a specific retaliatory capability against Soviet urban/industrial assets was defined as adequate for assured destruction, and thus for deterrence, and 400 EMT met that requirement.

The reason for reviewing this bit of history is that this target-based, assured-destruction formula for measuring how much is enough remains alive and well. Most commentaries on U.S. nuclear policy today still use some variant of this target-based formula for measuring how much is enough for deterrence and for claiming that some specific number of nuclear weapons is adequate for deterrence and in general. On this basis, we often hear in public statements that the adequate number of U.S. nuclear weapons now ranges from a hundred to a thousand.

Using this Cold War formula is very convenient and comforting for those who want to minimize the apparent nuclear requirements for deterrence. Why? Because it can lead to the conclusion that a very low number of nuclear weapons is adequate for deterrence simply by picking a relatively small and easy set of targets to threaten as the basis for deterrence. That is one of the reasons McNamara liked this formula in the 1960s, and why others continue to employ it today. Using this formula, for example, one recent unclassified study concluded that approximately 500 U.S. deployed nuclear weapons “would be more than adequate to serve as a deterrent against anyone . . . ”<sup>1</sup>

Where did the number 500 weapons come from in this particular study? The authors simply assumed that the standard of adequacy for U.S. nuclear capabilities should be the number of U.S. weapons necessary to threaten Russian “infrastructure” targets, “including power plants and oil and metal refineries.” They judged 500 nuclear weapons to be “more than adequate” for this purpose and thus 500 weapons becomes the metric for deterrence and U.S. nuclear forces in general.<sup>2</sup>

Other commentaries get to even lower numbers by focusing on a small number of easy targets to threaten for deterrence. These notions of threat and standards of adequacy may have no actual connection to the deterrence effect sought by the United States or to opponents’ values and fears, but they can provide an apparent deterrence rationale for a low number of U.S. nuclear weapons—which is the point of course.

This example is a classic application of the Cold War assured destruction formula to the contemporary measure of how much is enough. With this formula, it is child’s play to claim that some very small number of U.S. nuclear weapons is adequate for deterrence and that we can prudently lock in such a low level of armaments via arms control. Simply choose as your standard of adequacy a small number of easy targets to threaten for deterrence and voila, you have a rigorous-sounding deterrence rationale for such claims.

There is a new post-Cold War twist to this formula. It is the assertion that U.S. non-nuclear capabilities can meet all or most deterrence requirements because U.S. non-nuclear weapons can threaten the types of targets presumed important for deterrence. There is no empirical basis for the claim that non-nuclear weapons provide comparable deterrent effect,

but it is a fashionable claim and fits conveniently with the vision of a nuclear-free world. As a result, using this target-based formula, it is possible to reach the happy conclusion that very few or even zero U.S. nuclear weapons are adequate for deterrence. That is a very attractive conclusion for many, and the old Cold War assured destruction formula for measuring how much is enough can get to that conclusion in this fashion.

However, before accepting this venerable measure of how much is enough, I should point out that it is inadequate at best, and even misleading in the post-Cold War era. It should not be confused with serious thinking about deterrence requirements or U.S. nuclear requirements in general. Why?

The requirements for deterrence change as opponents and contexts change. The character of the opponent and details of the context can determine the functioning of deterrence and its requirements. Think, for example, of the variety of shifting U.S. deterrence goals and priorities involved in our relations with Russia, China, Iran, North Korea, Syria, and al Qaeda. In many plausible cases, very different U.S. capabilities will likely be necessary for the deterrence of these very different actors. And in some cases, the capabilities necessary for deterrence will *not* be identifiable in advance with any certainty. Remember that deterrence is an *uncertain art, not a science*.

Different opponents, context and stakes will call for different types of U.S. capability to support deterrence—no single type or level of capability can be linked to the range of U.S. deterrence goals in the post-Cold War environment. No one can identify *the* minimum number of nuclear weapons that is adequate to make deterrence “work” reliably as desired because there is *no such magic single number*. The requirements for deterrence vary across time, circumstance, and opponent and there is no methodology for knowing with such precision what, if any, level of capability is sure to provide the desired deterrent effect.

Consequently, identifying some fixed, minimum number of weapons as adequate for deterrence risks fixing on a capability that may seem right at the moment for a particular threat, but won't be right for long, and will likely be off the mark for other threats. The dynamism of the post-Cold War threat environment precludes attributing much value to the old formula for measuring how much is enough and the easy conclusions it offers.

If some minimum number of nuclear weapons is *not* a useful standard of adequacy for deterrence *now*, what is? Rather than picking some magic number for deterrence, the primary post-Cold War deterrence metric now is for U.S. forces and production capabilities to have the resilience and flexibility necessary to respond to the many different challenges and changes in the contemporary threat environment. These metrics—resilience and flexibility—may be in friction with traditional approaches to strategic arms control, such as START, that focus on set ceilings to be locked in. In contrast, resilience and flexibility call for the ability to adapt and change to meet deterrence requirements as they shift within a complex and dynamic threat environment.

In short, the art of calculating how much is enough must account for the spectrum of U.S. capabilities necessary for deterrence in a rapidly shifting threat environment. This set of conditions points to the priority need for resilience and flexibility to support deterrence, not some fixed number of weapons.

However, defining the metrics for how much is enough cannot end with the identification of even this basic requirement for deterrence because U.S. strategic forces must serve multiple deterrence and deterrence-related goals in the post-Cold War era. Measuring U.S. requirements must take into account the basic fact that U.S. strategic forces must serve multiple deterrence and deterrence-related goals, and that these different goals demand different metrics and requirements.

For example, extended deterrence and the assurance of our allies are also national goals supported by U.S. strategic forces. These are different but related goals. Extended deterrence is about exploiting the fears and vulnerabilities of opponents in order to deter them. Assurance is about easing allied fears and vulnerabilities to provide allies with confidence in their security and thus to help cement our alliances. The requirements for extended deterrence and assurance may not overlap with the requirements for the core deterrence mission of preventing attacks on the U.S., and the requirements for extended deterrence and assurance may not overlap entirely with each other. Deterrence and assurance are related but different goals and are likely to have differing requirements.

Why? Decades ago British Prime Minister of Defense Denis Healey explained the difference between extended deterrence and assurance with the observation that, “it takes only five percent credibility of American retaliation to deter the Russians, but ninety-five percent credibility to reassure the Europeans.” By this Minister Healey meant that assuring allies may be more challenging than deterring their foes; there are different measures of adequacy for these two different goals.

For extended deterrence, the need is for a broad spectrum of capabilities to deter a broad spectrum of opponents and threats in a variety of plausible threat contingencies. These capabilities must speak to opponents’ fears. Consider, for example, the variety of threats and related capabilities that might be needed to deter Iran, North Korea, China, or Russia from attacking friends and allies in a crisis. Here again we see the importance of resilience and flexibility for extended deterrence, given the diversity of opponents, contexts, and stakes. In some cases, particular types of nuclear threat may be necessary for extended deterrence; in some cases non-nuclear capabilities may be adequate; in still other cases, a specific combination may be the key or extended deterrence may be impracticable with any level of capability. This spectrum of possible requirements for extended deterrence must be part of any calculation of how much is enough.

For assurance, we want the capabilities and policies that demonstrate to allies U.S. credibility, power and responsibility. We want assurance to sustain our alliances and to reduce allied incentives to “go nuclear” themselves. Note that Secretary of State Clinton recently has spoken publicly not only about the traditional “nuclear umbrella,” but also of extending a “defense umbrella” to friends and allies in the Middle East to assure them of their security vis-à-vis possible Iranian threats. The U.S. strategic capabilities necessary for these purposes must provide allies with confidence in times of peace and crisis.

To fit the vision of a nuclear-free world, some in the United States now assert that extended deterrence and assurance can be provided largely or entirely by U.S. non-nuclear capabilities—they claim that there is no nuclear requirement to support these goals.<sup>3</sup> But much of the rest of the world disagrees and in this matter the views of others are what count, not the views of U.S. commentators who are devoted to the non-nuclear vision.

For many allies, assurance continues to require a U.S. *nuclear* focus: Why? Because they have seen first-hand the frequent failure of non-nuclear deterrence and have experienced the horrific destruction that can go along with those failures. They do not want to return to that world. As British Prime Minister Margaret Thatcher poignantly stated: “There is a memorial to the failure of conventional deterrence in every town and village in Europe.” Russia’s apparent contemporary emphasis on nuclear threats and tactical nuclear employment in regional and even local conflicts understandably makes many allies wary of easy assertions about the adequacy of U.S. nuclear-free extended deterrence and assurance. Russian tactical nuclear weapons appear very strategic to them. Any calculation of how much is enough must take the nuclear requirements stemming from the goal of assurance in this context into account.

A final goal of potential importance as a metric for measuring how much is enough is dissuasion. Dissuasion is a form of deterrence: the prevention of military challenges and arms competition via U.S. actions that inspire opponents' self-control before challenges might otherwise emerge as crises. Dissuasion typically is connected with the responsiveness of U.S. strategic forces and production capabilities. The thought is: if U.S. forces and production capabilities appear agile and robust, opponents may be less inclined to engage in challenges or arms competitions. These requirements too must be added to our calculation of how much is enough.

The priority attached to these four goals—deterrence, extended deterrence, assurance, and dissuasion—will shift depending on time, place, opponent, threat circumstances, and stakes. But, they are all national goals in the post-Cold War era. Answering the question how much is enough now requires that we look at the aggregate of the requirements for each of these national goals.

Identifying a minimum level of adequacy for deterrence à la some variant of the old Cold War assured destruction formula may be helpful to support the rationale for few or zero nuclear weapons. But that formula has little to do with understanding deterrence requirements or calculating how much is enough to serve a variety of national goals. To do so demands that we look across multiple deterrence and deterrence-related goals as the basis for an answer. It is easy to see that some force requirements will overlap across these goals, but some requirements will be unique to each specific goal.

What is the value of using this broad goal-driven approach to answering the question of how much is enough for deterrence? There are three immediate possibilities. First, it helps to explain *why* most of the convenient and comforting assertions about minimalist U.S. nuclear requirements are such nonsense—they typically come from a definition of adequacy that is derived only from the old Cold War formula for measuring deterrence requirements, they are not seriously related to the actual purposes those weapons are supposed to serve. They offer numbers that are separated from strategy. It is easy to come up with some minimalist fixed number when the metric used is decoupled from actual U.S. strategic goals. Doing so is much harder when each of those goals is considered.

Second, this goal-driven measure of how much is enough also is helpful when considering some current nuclear policy initiatives that are touted as steps on the path to nuclear zero. For example, there are proposals that the U.S. adopt a no-first-use declaratory policy regarding nuclear weapons, and to proclaim that the “sole purpose” of U.S. nuclear weapons is to deter a nuclear attack on the U.S. and allies.<sup>4</sup> That is, the role for U.S. nuclear weapons must be limited to deterring nuclear attacks via retaliatory threat.

Yet, such initiatives seem to ignore the fact that fundamental U.S. goals are to deter multiple opponents and assure allies against other potentially severe non-nuclear threats, e.g., chemical and biological attacks. U.S. conventional weapons may not be adequate for deterrence or assurance against these WMD threats; U.S. nuclear weapons may be necessary. If so, we would adopt a no-first-use or “sole purpose” policy at our peril and that of our allies and friends. Actual available evidence certainly suggests that U.S. nuclear weapons continue to be critical for assurance and extended deterrence across a range of possible threats.

Third, employing this broad goal-driven measure of how much is enough offers a tool for assessing contemporary arms control agreements and those that are forthcoming. The measures of merit used to judge these agreements must be more than a simple numbers game based on the old Cold War formula—they must include broad goal-driven requirements. My late senior colleague, Herman Kahn, made a fundamental point in this regard: “The objective of nuclear weapons policy should not be solely to decrease the number of

weapons in the world, but to make the world safer—which is not necessarily the same thing.”

For example, if arms control is to increase security, not just reduce numbers, a contemporary question is, will the New START Treaty contribute to security by supporting our broad security goals? If the New START Treaty verifiably reduces unnecessary forces, and also facilitates the forces and policies needed to support the multiple national goals of deterrence, extended deterrence, assurance, and dissuasion, the Obama administration may be applauded and its New START Treaty may be deemed worthy of support. If not, then not.

In conclusion, the Cold War formula for measuring how much is enough for deterrence may have been useful during the Cold War. But the security environment has changed considerably since then and that simple, narrow formula no longer is useful for identifying or measuring the requirements of contemporary U.S. deterrence goals. It is harmful to serious thinking. The old Cold War formula may facilitate minimalist answers to the question of how much is enough, but those answers are not driven by the goals of U.S. strategy; indeed the old formula essentially ignores most of these goals. This is a problem because anytime we separate the calculation of how much is enough from our goals and strategy, we are bound to get into trouble one way or another. We can do better.

## Notes

1. See Hans Kristensen, Robert Norris, and Ivan Oelrich, Federation of American Scientists and the National Resources Defense Council, *From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons*, Occasional Paper No. 7 (April 2009), p. 2. See also Sidney Drell and James Goodby, *What Are Nuclear Weapons For?* (Washington, DC: Arms Control Association, October 2007), pp. 14–15.

2. *From Counterforce to Minimal Deterrence*, pp. 31, 43–44.

3. See, for example, *Eliminating Nuclear Threats: Report of the International Commission on Nuclear Non-Proliferation and Disarmament* (Canberra: Paragon, 2009), pp. 64 and 66; and George Perkovich, “Abolishing Nuclear Weapons: Why the United States Should Lead,” in *Foreign Policy for the Next President* (Washington, DC: Carnegie Endowment for International Peace, 2009), p. 5.

4. *Eliminating Nuclear Threats*, pp. 172–173.