

Nuclear Right-sizing

By

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At the core of American deterrence is the question of right-sizing the arsenal. Given the growing arsenals of China, North Korea, and Russia, there is ample reason to question whether the United States has the right size and type of nuclear weapons. The issue has many facets and is the subject of active research and debate.

US Strategic Command's commander, General Anthony [Cotton](#), labels this issue [the three body problem](#). As nuclear strategy experts suggest, American [deterrence capabilities](#) and [overall numbers](#) both matter.

Patrick McKenna and Dylan Land's "[Don't Get Lost in the Numbers: An Analytic Framework for Nuclear Force Requirements Debates](#)," details four essential variables for right-sizing the arsenal: risk management, deterrence and assurance goals, force use guidelines, and operational constraints. This article will unpack the matter of risk management.

Risk management issues permeate virtually every decision about nuclear posture and arsenal right-sizing. The perspectives of tolerable nuclear risks held by America, this country's adversaries, and this country's allies all matter to effective global nuclear peacekeeping.

[Deterrence theorists](#) rightly argue that the US should start by understanding [exactly what each adversary values most](#) and their goals. This information is useful in determining what to hold at risk—the high value assets to target. The total number of those targets is an essential input to arsenal right-sizing.

Political and fiscal compromises have a major impact on arsenal size as well. For the United States, the finite capacity of the defense industrial base is a major current constraint. The less money available to sustain America's triad, the greater the risk that the force structure is not adequate to deter adversaries and assure allies. The weaker the political will to resist coercion, and to retaliate in kind to any nuclear attacks, large or small, the less successful is deterrence and assurance.

Similarly, the less the production capacity of the defense industrial base, the less the US is able to implement on a timely basis whatever types and numbers of delivery vehicles and warheads are the chosen arsenal size and force structure.

Since nuclear deterrence has never failed, analysis is necessarily prospective and does not rely on large quantities of data or past experience. Instead, there is a reliance on inferences from military and political history, combined with playing out, on paper, the aftermath of a nuclear war.

The United States is now dealing with the unpleasant reality that [any significant expansion](#) in the nuclear arsenal is accomplished much less rapidly than adversaries can grow and strengthen their own arsenals. [Actuarial science](#) suggests that guarding against catastrophic failures calls for worst-case planning. Given the catastrophic results of nuclear warfare, right-sizing the nuclear triad must deter all adversaries simultaneously. This includes accounting for the instance in which China, North Korea, and Russia collaborate to coerce or attack the United States. Should they ever take the gamble to launch a nuclear attack, American deterrence has utterly failed.

An upper bound on American deployed warheads is the sum of what is needed to deter each adversary in isolation. This is because should US Strategic Command deploy enough nuclear weapons to simultaneously hold Chinese, North Korean, and Russian targets at risk, deterrence is likely to hold. Keep in mind, there is no historical example to suggest that all weapons will strike designated targets.

Thus, the fewer weapons there are to strike targets, the greater the risk of deterrence failure. This leaves the old pejorative, “We will make the rubble bounce,” important when considering that probability of target destruction is certainly much lower than many believe.

As with other inputs to triad right-sizing, wherein less of an important resource increases the risk of deterrence failure, the more the total number of deployed nuclear warheads falls short of the upper bound mentioned above, and the greater the risk becomes that one or another scenario of adversary coercion or attack will occur and possibly succeed.

But assuming the US fields a large enough and modernized arsenal, there is a disincentive for any single attacker to strike the United States and for a second adversary to wait, assess the damage, and perhaps complete what the initial attacker did not. There is also a disincentive for all adversaries to collaborate in a unified attack. Absent a large American arsenal, such considerations become more viable.

Risk is relative. There is seldom one right answer when many limited resources are being competed for, while the nation must also address other priorities besides the all-important national defense. But to go very far below the upper bound of the total number of high-value targets risks deterrence failure. Any resource savings are short-term and illusory. The costs of deterrence failure vastly eclipse any imagined benefits to a too-small arsenal.

Only further research and development, strategic planning, intelligence analysis, and open debate can lead to a sound consensus on exactly how big the nuclear arsenal needs to be during the risk-laden years that lie ahead. There is no time to waste.

Joe Buff is an experienced actuary with four decades of experience. Views expressed in this article are the author's own.