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Bad Idea: Resuming Nuclear Testing

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The United States has upheld a moratorium on nuclear testing since 1992. However, numerous voices have emerged in the recent years urging a resumption of nuclear tests.

[Advocates of nuclear testing](#) argue that the United States must resume explosive, underground nuclear tests to maintain the reliability and knowledge base necessary to sustain the nuclear deterrent. Because the U.S. has not conducted a test in 25 years, supporters contend that the United States is quickly losing the know-how necessary to develop new warheads that may be necessary to maintain the deterrent value of the U.S. arsenal in the future. Additionally, supporters of testing argue that the age of the U.S. arsenal is significantly beyond its intended lifespan, and testing is necessary to ensure the reliability of existing warheads.

These issues may be especially salient with the new presidential administration. As the Trump team is finalizing its Nuclear Posture Review (NPR), critical decisions will be made about the requirements of the nuclear arsenal and what the U.S. deterrent will look like over the coming decades. While a resumption of testing may seem logical at first glance, it would be a devastating move for the United States' nonproliferation goals and is wholly unnecessary to maintain the reliability of the arsenal.

The moratorium on nuclear testing is a critical aspect of U.S. nonproliferation strategy, making its continuation an imperative in minimizing the spread of nuclear weapons. In addition to the Treaty on the Nonproliferation of Nuclear Weapons (NPT), the Comprehensive Nuclear-Test Ban Treaty (CTBT) is another keystone international agreement on nuclear nonproliferation. Since the CTBT was negotiated in 1996, the P5 (United States, United Kingdom, France, China and Russia) have all refrained from testing nuclear weapons, demonstrating their commitment to limit nuclear weapons development and to pursue disarmament over the long-term. While it has not ratified the agreement, the United States provides [nearly a quarter of the budget](#) for the Comprehensive Test Ban Treaty Organization (CTBTO), which is charged with carrying out the

treaty's mandate and monitoring nuclear tests globally. By not testing nuclear weapons and continuing to reduce the size of its own nuclear arsenal, the [United States establishes credibility as a responsible nuclear state](#) that can be leveraged on a variety of issues, such as pressuring North Korea to roll back its nuclear program and maintaining a coalition to enforce the Iran deal.

A resumption of testing would place all of this at risk. First, testing could send a signal that the United States intends to develop new warheads and potentially new weapons systems to deliver these warheads. It could lead other nations to expand their arsenals or develop new weapons in response. It would also undermine U.S. efforts in the context of the newly-created Treaty on the Prohibition of Nuclear Weapons (TPNW), which at the time of writing has 53 signatories looking to stigmatize all states that possess nuclear weapons. Resuming testing would worsen the U.S. record on nonproliferation, thereby strengthening the arguments from TPNW advocates that the NPT and CTBT are insufficient to get the P5 nuclear states to make progress on reducing the size of each's nuclear arsenal. It has the potential to make the gap between nuclear and non-nuclear states wider and [undermine the progress toward limiting the spread of nuclear weapons that the NPT has made](#).

Second, the United States breaking the testing moratorium would likely result in other states resuming testing. This in turn could destabilize the nuclear order and benefit adversarial states who would have much more to learn from resuming nuclear tests. Potential proliferators, like Iran, cannot perfect weapon designs without conducting tests, something that is much more likely to occur once the moratorium has been broken, particularly if it is broken by the United States. Countries working on developing new nuclear capabilities within the NPT system, such as China, would be able to do so at a [much quicker rate with live tests](#). From a national security perspective, this would make the threat from their arsenal significantly more troublesome to manage. Finally, nations outside the CTBT and NPT may feel much less restrained from conducting tests, which could have negative geopolitical effects. North Korea may conduct tests more frequently than it currently does, exacerbating tensions in the region and allowing the authoritarian state to forge ahead in their nuclear program at a faster rate. India and Pakistan, both of which have not tested nuclear weapons since 1998, may also resume tests as a means of demonstrating resolve in a crisis or develop new capabilities, which could elevate tensions to more dangerous levels.

In addition to sending a troublesome signal to the world about the United States' stance on nonproliferation, testing nuclear weapons is wholly unnecessary. Calls for testing generally center on three key arguments: the need to develop "new" nuclear weapons, the age of the U.S. arsenal, and perceived knowledge gaps in the nuclear enterprise.

First, the United States has no need for truly "new" nuclear capabilities. For clarification purposes, "new" nuclear weapons are what the Obama administration referred to in its 2010 NPR as weapons that did not previously exist and warrant a test. The current nuclear modernization plan is necessary to recapitalize every aspect of the nuclear enterprise and ensure that the U.S. deterrent remains strong. However, that modernization plan [comes with a price tag of \\$1.2 trillion](#), which would only grow with the addition of new capabilities in the plan, something that would be [difficult in the current budget environment](#). The existing U.S. arsenal of intercontinental ballistic missiles, sea launched ballistic missiles, and nuclear tipped air-launched cruise missiles and gravity bombs delivered by fighters and bombers provides a robust deterrent. Advocates for "new" nuclear weapons are hard pressed to find an actual necessity for these weapons, [which may in turn kick off an arms race](#). Variants of the B-61 gravity bomb, a staple of the U.S. tactical nuclear arsenal, possess a ["dial-a-yield" feature that allows for yields below 1 kiloton](#), removing the need for additional exploration of "very low yield" nuclear weapons through testing. In addition, warheads currently in the United States arsenal could be repurposed for new roles, such as the return of nuclear-tipped sea launched cruise missile with [warheads that are currently used for its air-launched counterpart](#). Doing this would not require nuclear testing, but scratches the itch of proponents of new capabilities.

Second, the United States is [capable of assuring the reliability of the nuclear stockpile without explosive testing](#). The National Nuclear Security Administration (NNSA) is charged with outlining its efforts to ensure that the arsenal remains effective and safe in its yearly [Stockpile Stewardship and Management Plan \(SSMP\)](#). The NNSA utilizes the national labs and nuclear weapons production facilities to conduct a variety of tests on its nuclear weapons and has undergone life extension programs to ensure that weapons remain reliable outside of their original intended lifespan. Employing technologies such as proton radiography and supercomputing, engineers can model the effects of aging on the nuclear enterprise without the need to conduct underground nuclear tests. The Sigma Complex, Dual-Axis Radiographic Hydrodynamic Test Facility, TA-55, and National Ignition Facility are just a few locations where the NNSA gathers data on nuclear

weapons, produces new components that can be used in the nuclear arsenal, and certifies the reliability of the U.S. nuclear arsenal. In addition, the National Academy of Sciences have bolstered the NNSA's statements by [agreeing that explosive testing is unnecessary](#), making the argument that that U.S. could ratify the CTBT without a negative effect on national security. The use of these facilities also resolves the knowledge gap problem, as the physics required to build a nuclear weapon remain understood and are taught to the next generation of scientists working on the issue.

The resumption of nuclear testing is a bad idea. There is no real need for new capabilities and the technologies developed by the NNSA can ensure the reliability of the current U.S. arsenal without explosive tests. The United States should not risk both forfeiting its nonproliferation credibility and setting off a string of nuclear tests that threatens the nuclear order. The consequences of resuming testing would indeed be *explosive*.

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