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## Feature Report

***“Five Priorities for the Air Force’s Future Combat Air Force”***. By Mark Gunzinger, Carl Rehberg, and Lukas Autenried. Published by Center for Strategic and Budgetary Assessments; Jan. 22, 2020

<https://csbaonline.org/research/publications/five-priorities-for-the-air-forces-future-combat-air-force>

The 2018 National Defense Strategy (NDS) calls for increasing the capacity, lethality, and survivability of the joint force in future contested threat environments. CSBA’s report recommends five priorities for the USAF’s combat air force (CAF) that support these objectives. In addition to growing the size of the CAF to support future combatant commander requirements, the report recommends the Air Force accelerate its acquisition of stealth F-35As, procure a larger overall inventory of next-generation B-21 bombers, and field unmanned aircraft and weapons that would increase the CAF’s survivability and ability to operate over long ranges. The report also recommends the Air Force maintain its ability to generate combat sorties from increasingly resilient basing postures in the Indo-Pacific and Europe. Doing so will require the Air Force to rapidly disperse its forward combat air forces, counter missile attacks on its theater operating locations, and reduce its reliance on vulnerable theater runways and base infrastructure. The report concludes additional resources, including a significant increase in acquisition funding over the next decade, is needed to address the growing gap between the Air Force’s combat capabilities and requirements of the 2018 NDS.

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# NUCLEAR WEAPONS

Military.com (McLean, Va.)

## **The B-52 Will No Longer Carry Nuclear Weapons. Here's Why**

By Oriana Pawlyk

Jan. 18, 2020

The B-52 Stratofortress will no longer carry the B61-7 and B83-1 nuclear gravity bombs as it prepares to carry the new long-range standoff weapon, known as LRSO.

Following reports that the bomb variants had been removed from the Cold War-era aircraft's inventory, officials at Air Force Global Strike Command confirmed the move is in line with the bomber's transition into an era of modern warfare.

"As the nature of modern warfare has changed, so have our tactics and weapons," a command spokesperson said in an email Thursday. "The B-52 remains an instrument of national security and a universally recognized symbol of American airpower, able to deliver the widest variety of stand-off and direct-attack nuclear and conventional weapons for the nation."

"As a multi-role platform, the B-52 offers diverse capabilities including delivery of the most advanced precision-guided weapons. The Air Launched Cruise Missile (ALCM) continues to be our main nuclear deterrent. As such, as a natural progression in the development of the airframe, B-52 crews do not currently train to employ the B83 and B61," the command said.

Hans Kristensen, director of the nuclear information project at the Federation of American Scientists, first pointed out the change, which went into effect in September, according to Air Force Instruction 91-111, "Safety Rules for U.S. Strategic Bomber Aircraft."

"It's official: B-52 bombers are no longer authorized to carry nuclear gravity bombs," Kristensen said in a tweet earlier this week. "New Air Force instruction describes 'removal of B61-7 and B83-1 from B-52H approved weapons configuration.'"

Command officials pointed out that the move actually preceded the AFI.

"The removal of nuclear gravity weapons like the B-61 and B-83 from the B-52 platform has been in effect for several years," said Justin Oakes, public affairs director for the Eighth Air Force and Joint-Global Strike Operations Center.

"The B-52 remains the premier stand-off weapons platform utilizing the air-launched cruise missile as the main nuclear deterrent. While B61s and B83s are no longer equipped on the B-52, the weapons remain in the [B-2 Spirit] inventory," he added.

Eventually, the LRSO -- a nuclear cruise missile that provides an air-launched capability as part of the nuclear triad -- will replace the AGM-86B ALCM, developed in the early 1980s.

The command said the LRSO, expected by the early 2030s, is one of many investments to keep the B-52, known as the Big Ugly Fat Fellow, flying into the foreseeable future.

For example, the Air Force has already said the B-52 will fly well into the 2050s and perhaps beyond, and will receive upgrades to enhance the aircraft as a whole.

In June, the service ran the first test flight for the AGM-183A Air Launched Rapid Response Weapon (known as "Arrow"), a hypersonic weapon Lockheed Martin Corp. says it will continue to ground and flight test over the next three years. The initial tests done on the B-52 at Edwards Air Force

Base, California, were meant to measure performance of the carriage bay on the aircraft, officials said at the time.

Additionally, the Air Force needs brand-new engines for the 75-aircraft fleet, though it's unclear whether all B-52s will receive them.

Each aircraft currently has eight Pratt & Whitney TF33-P-3/103 turbofan engines.

The service estimates it will spend more than \$1.3 billion on that project alone over the next five years, according to the Future Years Defense Program assessment.

While the Air Force wants to get new engines for its heavy bombers as quickly as possible, lawmakers are insisting that service officials nail down contract specifics before they provide funding, according to language in the fiscal 2020 National Defense Authorization Act.

The last B-52 rolled off the production line in 1962.

-- Oriana Pawlyk can be reached at [oriana.pawlyk@military.com](mailto:oriana.pawlyk@military.com). Follow her on Twitter at @Oriana0214.

<https://www.military.com/daily-news/2020/01/18/b-52-will-no-longer-carry-certain-nuclear-weapons-heres-why.html>

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Defense News (Washington, D.C.)

## **In Nuclear Spending Fight, It's Trump Allies Vs. White House Budget Office**

By Aaron Mehta and Joe Gould

Jan. 23, 2020

WASHINGTON — A new fight over America's nuclear budget has erupted from behind the scenes, as key Republicans in Congress are appealing to President Donald Trump for a significant boost to the agency in charge of the nation's nuclear warheads.

Though there are often disagreements as presidents vet their budgets on Capitol Hill before finalizing them, it's rare that those fights become public. This time, some of the president's allies in Congress are battling the White House's Office of Management and Budget on behalf of the National Nuclear Security Administration, a semiautonomous agency inside the Department of Energy.

According to a report from The Dispatch, NNSA sought nearly \$20 billion in the Trump administration's upcoming fiscal 2021 budget request, but OMB cut that figure first to \$18.6 billion, and then later to \$17.5 billion. That lower figure still represents an increase of \$500 million over the agency's budget authorized for FY20.

NNSA Administrator Lisa Gordon-Hagerty reportedly pushed back in a Dec. 16 memo, arguing that losing the requested funding, along with projected funds over the next five years amounts to "unilateral disarmament" and would result in cutting "NNSA's modernization program in half."

The cut reportedly came from OMB director Russ Vought and acting White House chief of staff Mick Mulvaney, who has previously butted heads with pro-defense members. They reportedly argue the lower number is meant to help comply with 2021 budget caps.

Senate Armed Services Committee Chairman Jim Inhofe, R-Okla., has spearheaded a letter to Trump, with a dozen Republican senators, to support the NNSA's request. Inhofe told reporters Wednesday the money was needed now to remedy underinvestment by the Obama administration.



"In order to get on a route to make it sustainable, on a program, it has to be \$20 billion," he said of the NNSA budget. "Right now they're talking about somewhere around \$17 billion."

Another Trump ally, Senate Foreign Relations Committee Chairman Jim Risch, R-Idaho, co-signed the Senate letter.

"I think people are acting in good faith on this, that we don't have unlimited money here, and you have to obviously prioritize," Risch said Wednesday. "But when it comes to nuclear deterrence, it's about as high a priority as it gets. You're talking about existential threats to the country."

Risch said that because the Obama administration in 2010 pledged to robustly fund nuclear weapons programs in a "horse trade" to win Republican votes to ratify the arms reduction treaty New START, the Trump administration should honor that "longstanding commitment by the second branch of government to the first branch of government."

"To be fair, that commitment has been met partially, but we need to do more," Risch said.

According to the Congressional Research Service, the Obama administration projected weapons stockpile and infrastructure costs for FY11-FY20 at roughly \$85 billion, but the funds appropriated for these programs fell below the projected levels early in the decade. Under the Trump administration, the budget requests and projections for subsequent years exceed the amount predicted.

Department of Energy spokeswoman Shaylyn Hynes said DOE and NNSA will not comment on budget requests that "are not yet final." The White House plans to roll out its FY21 budget request on Feb. 10.

"Both Secretary Brouillette and Administrator Gordon-Hagerty are deeply committed to our national security mission, including the modernization of the nuclear weapons program as called for under the Nuclear Posture Review," Hynes said. "As always, DOE will work with OMB to deliver to Congress a budget that keeps America safe and secure."

It's unclear how NNSA would seek to use a boost in funding from FY20, but it could potentially try to plug future costs related to the W87-1 warhead program. In December, a top NNSA official told reporters that the W87-1 program may go through design changes, including dropping planned features to defray costs for the B61-12 and W88 Alteration 370 warheads, which have been forced over budget by problems with commercially built parts.

Adding more money in now could perhaps be used to keep those other projects on track.

Speaking to reporters Wednesday while traveling to Florida, Defense Secretary Mark Esper identified the strategic deterrent as the "No. 1 priority" for him going forward, indicating that some of the \$5 billion in savings found through a Pentagon-wide review could go toward that mission in the FY21 budget.

To raise NNSA's budget, the Department of Defense, which in FY20 received a budget exceeded \$700 billion, could easily absorb a \$2 billion cut, and it should, said Tim Morrison, a former deputy assistant to the president for national security under the Trump administration.

"The president has made clear in various fora his prioritization of nuclear modernization, to do better than his predecessor," said Morrison, now a Hudson Institute senior fellow. "These kinds of disputes happen, and I think the president will have a decision to make: Does he want to close this 10 percent hole in the DOE budget at the expense of 0.5 percent of the DoD budget?"

Reduced nuclear spending would reduce the president's leverage in future treaty negotiations with Russia and China, Morrison argued. A cut for warheads, he said, would induce Capitol Hill defense appropriators to seek cuts to related missile systems in DoD's budget.

“DoD will wind up getting gutted,” he added.

But the Arms Control Association’s director for disarmament and threat reduction policy, Kingston Reif, argued that Gordon-Hagerty’s “bonkers” FY21 budget proposal is further evidence that the Trump administration’s upgrade plans for America’s nuclear arsenal is fiscally unsustainable — “a ticking budget time bomb even at historically high levels of defense spending.”

“Faced with the reality of unsustainable overcommitment, the agency is unfortunately resorting to hyperbolic fear mongering,” Reif said. “But it doesn’t have to be this way. Scaling back the plans for new warheads and infrastructure would make the modernization effort easier to execute and reduce the threat to other defense programs while still leaving a devastating deterrent.”

<https://www.defensenews.com/congress/2020/01/23/in-nuclear-spending-fight-its-trump-allies-vs-white-house-budget-office/>

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Air Force Magazine (Arlington, Va.)

## **NNSA Chief Details Uphill Slog to Nuclear Modernization**

By Tobias Naegele

Jan. 16, 2019

Extending the service life of the Air Force’s B-61-12 nuclear gravity bomb remains on schedule a year after officials acknowledged life-cycle testing of a commercial-grade replacement part would delay the program by 16 to 18 months.

As of now, the first extended-life B-61-12 will be complete in late 2021 or early 2022, rather than this spring as originally planned, said Lisa Gordon-Hagerty, undersecretary of energy for nuclear security at the National Nuclear Security Administration.

“We have challenges with it, unanticipated, but it’s what we’re planning for the future,” Hagerty told Air Force Magazine, following an AFA Mitchell Institute for Aerospace Studies event in Washington, D.C., Jan. 16.

Yet the impact on the schedule is not as great as it looks, affecting the first production unit (FPU), but not the timing for when the program concludes.

“The FPU will change, but the final production unit will not,” Gordon-Hagerty said. “That’s our anticipation right now, and we will not ask for any additional resources [for this program] in 2020.”

With weapons designed and built decades ago, some parts are no longer available, requiring substitutes that must be certified to remain effective over a long lifetime. In this case, the part was a capacitor. Life-cycle testing is now ongoing to ensure the part will remain functional as anticipated.

“The new part works well,” Gordon-Hagerty said. “But we don’t want to have to put our hands on a nuclear weapon [to service it]. We want to minimize that. And in order to do so, we need to make sure that every part that goes into that nuclear explosive package will last 30-plus years.”

More parts issues could still crop up. “I won’t be surprised if we have other issues similar to the capacitor issue,” Gordon-Hagerty said. “We’ve taken a hiatus for the last 20 years” on building nuclear weapons while the nation “invested in stockpile stewardship, rather than stockpile management.”

Building New Nuclear ‘Pits’

Nuclear modernization issues can be found in every part of the nuclear triad, and every step in the process, and every part of the supply chain. So much must be modernized over the coming years that the sheer scale of the challenges could be daunting. Indeed, even as she touts the efforts to do so, Gordon-Hagerty warns that even just enabling modernization remains on the horizon.

Actual weapons modernization? “We’re not ready to do that,” Gordon-Hagerty said.

Over the next 10 years, NNSA must rebuild its nuclear infrastructure before it can revamp its weapons. “We are waking up our system,” she says. For example, the nation’s production capacity for nuclear pits—the core of a nuclear bomb—was just five in 2019, and that was a major accomplishment. The goal is to produce 80 pits in 2030.

To produce 80 pits per year, Gordon-Hagerty said NNSA is overhauling two sites, to minimize the risk that one plant becomes incapacitated for any reason. Production will be split unevenly between the Los Alamos Plutonium Facility-4 and the former Savannah River MOX fuel fabrication site, which she said “will be repurposed” as the Savannah River Plutonium Processing Facility.

“We have a lot of challenges ahead of us, but in 2026, we will, by God, make that 30 pits per year at Los Alamos, and we will hit not less than 50 pits per year in 2030 at the Savannah River site,” Gordon-Hagerty said, her voice rising for emphasis. “That’s our goal, and it’s attainable. ... We know what we’re doing.”

<https://www.airforcemag.com/nnsa-chief-details-uphill-slog-to-nuclear-modernization/>

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## US COUNTER-WMD

Science (Washington, D.C.)

### **Genetic Modification Could Protect Soldiers from Chemical Weapons**

By Jocelyn Kaiser

Jan. 22, 2020

Despite international bans, some countries, such as Syria, use deadly nerve agents against enemy soldiers and civilians. Existing treatments for these chemical weapon attacks must be given quickly and don’t always prevent convulsions or brain damage. Now, U.S. Army researchers have created a gene therapy that allows mice to make their own nerve agent–busting proteins, providing protection against the toxicants for months.

The strategy could theoretically be adopted for human soldiers, but it would have risks. A person could develop a harmful immune response to the introduced protein, for example. “There are a number of pros and cons,” says biochemist Moshe Goldsmith of the Weizmann Institute of Science, who was not involved with the research.

Nerve agents are chemicals known as organophosphates. The most commonly used type includes sarin, soman, cyclosarin, and tabun. All block an enzyme that regulates levels of the neurotransmitter acetylcholine in muscles, causing muscle spasms, difficulty breathing, and sometimes death. Current treatments, such as atropine and diazepam, work by blocking acetylcholine receptors, but they must be administered right away and can’t always prevent permanent neurological damage.



Seeking a better solution, some researchers have injected lab animals with sped-up versions of human enzymes that spur organophosphates to break down before they can cause damage. For example, Goldsmith and collaborators have tweaked an enzyme called paraoxonase 1 (PON1) so that it can help the body defang nerve agents faster. But the Army would need to produce and store large quantities of such “bioscavengers” for injection into soldiers and might need to find a way to shield the proteins from the immune system for them to be effective.

So scientists at the U.S. Army Medical Research Institute of Chemical Defense took a different approach: Turn the liver into a factory for making a bioscavenger enzyme. Led by biochemist Nageswararao Chilukuri, they used a harmless virus called an adeno-associated virus to ferry DNA instructions into the liver cells of mice. The result was the mice’s liver cells cranking out a potent version of PON1.

Mice injected with the DNA-ferrying virus soon had high blood levels of the synthetic PON1 enzyme, which remained stable for the 5-month study. The rodents survived nine normally lethal injections of nerve agents over 6 weeks, the Army team reports today in *Science Translational Medicine*.

“We were surprised by how well this protein is expressed and how long it lasted,” Chilukuri says. The team also showed the PON1 levels were just as high when the treatment was injected into muscles, a more practical delivery method on the battlefield.

The gene therapy seemed to cause no harm to the mice. And although the animals made antibodies against the foreign PON1 protein, indicating an immune response, the antibody levels were too low to mute the protein’s activity against nerve agents. Chilukuri’s team suggests the therapy could protect soldiers, first responder medical staff, and military dogs, and could also protect farm workers at risk of being exposed to organophosphate pesticides. These are less toxic than nerve agents but can cause similar health effects at high doses.

“It’s a very nice paper, a nice advance in the field,” says biochemist Oksana Lockridge of the University of Nebraska, Lincoln. But she and others caution that the revved-up PON1—which contains parts of the rabbit, rodent, and human versions of PON1—is likely to provoke a stronger immune response in people, which could dull its effectiveness or cause severe health effects. People receiving the therapy might even make antibodies against standard human PON1, which the body uses to process harmful cholesterol, and could end up with an elevated risk of heart disease, Goldsmith says.

Chilukuri acknowledges the caveats but notes his team didn’t set out to solve all possible problems with the therapy. “It’s kind of a proof of principle study,” he says. “This is one way to keep the bioscavenger working for weeks and months in an animal.”

\*Correction, 23 January, 10:55 a.m.: An earlier version of this article incorrectly stated that doctors would need to inject large quantities of “bioscavenger” drugs into the bloodstream.

<https://www.sciencemag.org/news/2020/01/genetic-modification-could-protect-soldiers-chemical-weapons>

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VOA (Washington, D.C.)

## **US General '100% Confident' against North Korean Missiles**

By Jeff Seldin

Jan. 17, 2020

The United States has long seen North Korea's pursuit of nuclear weapons as a major national security threat. But the missiles Pyongyang would use to deliver a nuclear bomb appear to be a different matter.

A top U.S. general Friday dismissed concerns North Korea's rapidly developing missile program is capable, for now, of producing anything that could get by U.S. defenses.

"I have 100% confidence," General John Hyten, vice chairman of the Joint Chiefs of Staff, told an audience in Washington. "I don't say 100% confidence often. I have 100% confidence in those capabilities against North Korea."

'Gift' wasn't given

U.S. military and intelligence officials have been keeping an especially close eye on Pyongyang since late last year, when leader Kim Jong Un threatened to give Washington a "Christmas gift" it might not like.

At the time, U.S. officials expected some sort of weapons test or a test of one of the country's new long-range ballistic missiles. Only no such test ever materialized. And with negotiations between Washington and Pyongyang seemingly stalled, there are growing concerns a peaceful, diplomatic solution may be drifting out of reach.

Earlier this week, during a news conference at the Pentagon with Japanese Defense Minister Taro Kono, U.S. Defense Secretary Mark Esper told reporters the next move was "in Kim Jong Un's hands."

"We continue to send the message to North Korea that the best path forward is through a diplomatic solution that results in the denuclearization of North Korea," Esper said.

"We monitor very closely what's happening," Esper added, warning that if necessary, "we remain ready to fight tonight."

Speaking alongside Esper, Kono voiced hope that dialogue could prevail.

"Hopefully, he will make the right decision for his own people," the Japanese minister said of North Korea's Kim.

Nearly 70 tests

Even as Pyongyang engaged in talks with the U.S. last year, it launched 13 missile tests, bring the total of tests under Kim Jong Un to almost 70.

"They've changed the entire structure of the world with the 115th most powerful economy," Hyten said Friday at the Center for Strategic International Studies.

"North Korea has been building new missiles, new capabilities, new weapons as fast as anyone on the planet," he added. "They learned how to go fast."

In contrast to his confidence in defending against North Korean missiles, Hyten warned U.S. systems are not nearly as capable against new and emerging technologies, like hypersonic missiles being developed by Russia and China.

"It doesn't matter what the threat is, if you can't see it, you can't defend against it," the former commander of U.S. Strategic Command warned, calling for space-based sensors while acknowledging their likely hefty price tag.

"I would like to see research and development into low-Earth-orbit as well as medium-Earth-orbit," he said. "That's the only way to get a global [missile defense] capability that is affordable."

<https://www.voanews.com/usa/us-general-100-confident-against-north-korean-missiles>

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## US ARMS CONTROL

Washington Times (Washington, D.C.)

### **'Nuke Sniffer' and Other U.S. Spy Planes Monitoring Heightened North Korea Threat: Report**

By Guy Taylor

Jan. 22, 2020

A flurry of U.S. Air Force spy and special operations aircraft activity has been reported over the Korean peninsula in recent days, coinciding with heightened concern that North Korea may be readying a major ballistic missile test or other provocation, including a possible nuclear detonation test.

The reporting by CivMilAir and others who claim to track military and civilian flights on social media, comes roughly three weeks after North Korean leader Kim Jong-un announced the end of a self-imposed moratorium on nuclear and intercontinental ballistic missile (ICBM) testing — a moratorium Pyongyang had been adhering to for nearly the past two years.

Concerns over Mr. Kim's announcement during a New Year's address were elevated Tuesday, when another key North Korean official reiterated Pyongyang's months-old threats to pursue a "new path" in the stalled diplomacy with South Korea and Washington.

Ju Yong-chol, a North Korean representative to the United Nations, told a disarmament conference in Geneva on Tuesday — a week after the Trump administration announced fresh sanctions on Pyongyang — that the Kim regime "will steadily develop strategic weapons" until "the U.S. abandons its hostile policy," according to Agence France-Presse.

Reuters separately cited Mr. Ju as saying Pyongyang has "no reason to be unilaterally bound any longer by the commitment that the other party fails to honor."

While the Kim regime has carried out waves of short-range missile tests over the past year, it was seen to have embraced a moratorium on more provocative ICBM and nuclear tests as a show of faith in possible nuclear negotiations following the historic 2018 Singapore summit between Mr. Kim and President Trump.

With those negotiations having broken down over the past year, the regime has ramped up its rhetoric, triggering fears that a resumption of long-range tests may be imminent.

The reports of U.S. spy plane activity over the Korean peninsula could not be immediately verified, but may be an indication that American forces at Osan Air Base in South Korea are on elevated alert for possible provocations by the North.

A Twitter account operated by CivMilAir claimed Tuesday that a U.S. Air Force C-146A Wolfhound tactical transport plane had taken off from Osan and headed north toward Mongolia. South Korea's Chosun Ilbo newspaper, which cited the CivMilAir claim, reported that C-146A's are known to be used to transport plainclothes U.S. special forces, but are rarely spotted over the Korean Peninsula.

The aircraft's flight path was not clear, although CivMilAir tweeted there is "no way" it would have entered North Korean airspace.

Chosun Ilbo, meanwhile, cited separate information circulated by flight tracker Aircraft Spots, which claimed to indicate a U.S. Air Force RC-135W Rivet Joint electronic reconnaissance aircraft had flown over South Korea on Tuesday. The newspaper also said a U.S. Navy EP-3E electronic warfare and reconnaissance aircraft had flown over the South a day earlier.

Chosun additionally reported that a U.S. Air Force WC-135W Constant Phoenix special-purpose aircraft — a plane based out of Japan and known in some circles as the "nuke sniffer" — had also recently buzzed skies over waters between Japan and the Korean peninsula.

<https://www.washingtontimes.com/news/2020/jan/22/nuke-sniffer-and-other-us-spy-planes-monitoring-he/>

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## COMMENTARY

Honolulu Civil Beat (Honolulu, Hawaii)

### **Danny de Gracia: Hawaii Should Welcome New Defense Radar**

By Danny de Gracia

Jan. 22, 2020

Nearly two years ago, when locals were sent in error an alert that a ballistic missile was inbound to Hawaii at the height of tensions with North Korea, it was as if the world was ending for some.

Having spent most of my childhood on Strategic Air Command bases which were primary targets for multiple, overlapping warhead strikes, I for one made peace with the concept of being vaporized a long time ago and dismissed the alert.

Besides, as somewhat of a history buff, I felt the alert was idiotic at best, because as Soviet Col. Stanislav Petrov wisely observed, no one starts a nuclear war with just one missile.

But what if a nuclear missile attack really was launched against Hawaii one day? And what if it was possible to intercept and stop the strike before it could hit?

That question is precisely what drives the existence of the U.S. Missile Defense Agency, an organization tasked with preventing a nuclear catastrophe by providing a safety net, in the event deterrence fails, with anti-ballistic missiles – defensive weapons intended to shoot down incoming enemy warheads – before they can hit U.S. cities.

Originally, in the days of the Ford Administration when America first fielded the Safeguard Missile Program, shooting down incoming warheads was nearly impossible due to the overwhelming computing requirements and speed necessary to intercept a warhead. To compensate for this, point-defense anti-ballistic missiles like the Sprint were created, which used small, enhanced-radiation nuclear warheads designed to render useless the circuitry of any missiles that flew through their blast within a wide area of orbital effect.

## How Missile Defense Works

Today, computing technology has greatly advanced since the days of Safeguard, and nuclear weapons are no longer needed to destroy incoming warheads in orbit. Modern defense leverages a concept called “sensor to shooter” which means timely, accurate battlespace information guides our weapons rather than just disproportionate, brute force.

All that is needed now is an early warning system to detect a missile launch and an interceptor linked to a sensor system capable of discerning the difference between a nuclear warhead and other objects like the booster stages of its missile, decoys, or space junk in orbit.

This is why Hawaii has been selected for the MDA’s Homeland Defense Radar, to allow the military to spare Hawaii from an ever-proliferating ballistic missile threat around the world, and to give a president flexible response options rather than locking the White House into having to respond to an attempted nuclear attack against U.S. soil with nuclear weapons in-kind.

The Center for Strategic and International Studies has created an infographic for its educational Missile Defense Project, which shows the current defensive systems deployed in Hawaii and around the world, which can be viewed online here.

## Why We Shouldn’t Oppose the Radar

Hawaii has a unique place in modern defense planning, not merely because of our proximity to Asia, but because historically, the Japanese attacks on Pearl Harbor demonstrated that a bolt-from-the-blue, “splendid first strike” which “decapitates” U.S. forces (or leadership) is entirely possible by an enemy if detection and early warning is not available. That threat still remains.

Hawaii, which is presently in the throes of an economic disparity and land use crisis, has seen the rise of an extremely restless population that is hyperallergic to anything being built or introduced, no matter whether it is a Target in Kailua, an inter-island SuperFerry, Honolulu rail, a telescope on Mauna Kea, a sports complex in Waimanalo, and more recently, a defense radar.

Already, stirrings against the radar seem to be in the air, and many expect that should the radar move forward, protests against it will commence.

While it is understandable that some locals may feel that they are being left behind, even forgotten in Hawaii as large corporations, foreigners and the military pursue various developments, we need to separate angst against population outcomes from technological advancement or economic development.

To begin, missile defense is something that concerns us all. Protesting a defensive radar that prevents missiles from hitting Hawaii or the continental U.S. is counterproductive to our safety.

Iran’s recent bombardment of an American airbase in Iraq with Fateh-110 and Qiam-1 ballistic missiles demonstrates that missile technology, once the domain of superpowers, is a genie out-of-the bottle, and it is only a question of time before Iran, North Korea and other small powers eventually develop the capability to launch long-range missiles that can hit any target in the world.

Second and more importantly, one should not overlook the long-term financial benefits of increasing military and homeland security assets in Hawaii. One of the reasons why Hawaii was so successful, livable and aesthetic when Sen. Daniel Inouye was still alive was because he intentionally steered everything imaginable to the islands, along with the federal dollars that came with it.

There is no reason why building a defense radar in Hawaii should be a fiasco. Even if one believes that it could be an environmental or cultural detriment, that can easily become a positive if our congressional delegation were to use that as leverage to ask for additional federal funding for



environmental and cultural protection. We need to look for wins in this state, not more excuses to drive everything and everyone away.

The question we really need to ask one another is are we really going to protest everything to disrupt everyone – a “Crab Bucket” syndrome – just because we aren’t happy with the way things are in Hawaii? Let’s not shoot ourselves in the foot economically or sabotage public safety and national security. We need the radars, and we need to move forward in Hawaii.

#### About the Author

Danny de Gracia is a resident of Waipahu, a political scientist and an ordained minister. Opinions are the author's own and do not necessarily reflect Civil Beat's views. You can reach him by email at [dgracia@civilbeat.org](mailto:dgracia@civilbeat.org) or follow him on Twitter at @ddg2cb.

<https://www.civilbeat.org/2020/01/danny-de-gracia-hawaii-should-welcome-new-defense-radar/>

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Brookings (Washington, D.C.)

### **Deterrence, Modernization, and Alliance Cohesion: The Case for Extending New START with Russia**

By Frank A. Rose

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Is it wise to extend the New Strategic Arms Reduction Treaty (New START) between the United States and Russia? In recent months, senior Trump administration officials and conservative defense analysts have expressed increasing doubts. Last June, then-U.S. National Security Advisor John Bolton said it was “unlikely” that the Trump administration would seek to extend the treaty; in April, former defense and arms control officials Eric Edelman and Robert Joseph argued in the National Review that New START has failed to address important developments such as Russia’s deployment of long-range underwater drones and hypersonic weapons, its expansion of its non-strategic nuclear capabilities, and the increase of Chinese strategic capabilities.

Many of these concerns are valid, especially concerns about the changed international security environment since the treaty was signed in 2010. However, extending New START by five years would enhance the U.S. ability to address those concerns by ensuring it maintains a modern and effective strategic deterrent, and the cohesion of its alliances.

#### **MAINTAINING A MODERN AND EFFECTIVE U.S. STRATEGIC NUCLEAR DETERRENT**

The strongest argument in favor of New START extension is that it would help the United States maintain a modern and effective strategic nuclear deterrent. This point has been made most cogently by General John Hyten, the current vice chairman of the Joint Chiefs of Staff and former commander of U.S. Strategic Command, who noted in congressional testimony that:

I’m a big supporter [of the treaty] ... When it comes to nuclear weapons and nuclear capabilities, that bilateral, verifiable arms control agreements are essential to our ability to provide an effective deterrent.

Through its notification and inspection regime, New START provides the United States insights into Russian strategic nuclear forces that it wouldn’t necessarily get without the treaty. A recent State Department report noted that “without the data exchanges and access through on-site inspections

to Russian facilities, the overall effect would be a decrease in our knowledge of Russian strategic nuclear forces.” While the United States certainly possesses robust national technical means to monitor Russian strategic forces, it would be difficult — and certainly more expensive — to get that data otherwise. Without the treaty, those national technical means would be stretched even thinner, which could hamper U.S. efforts to monitor other potential adversaries.

The State Department has confirmed Russia’s compliance every year the treaty has been in force. Furthermore, New START means we’re more likely to detect noncompliant activity, which deters possible Russian cheating. And the fact is that the State Department has confirmed Russia’s compliance every year the treaty has been in force.

New START has also played an important role in developing a bipartisan political consensus to modernize the U.S. strategic nuclear deterrent. As I have written elsewhere, New START helped build support among Democrats in Congress for the strategic modernization program. If New START expires without a replacement, it could lead to the continued fraying of the fragile bipartisan consensus in favor of the existing strategic modernization program. In September 2018, Senator Robert Menendez (D-NJ), the ranking member of the Senate Foreign Relations Committee, said that “bipartisan support for nuclear modernization is tied to maintaining an arms control process that controls and seeks to reduce Russian nuclear forces.”

If New START were to expire in 2021, it could provide Russia a near-term military advantage over the United States. This is primarily due to Russia’s ability to upload additional warheads on its large force of land-based intercontinental ballistic missiles (ICBMs), and the responsiveness of its nuclear weapons infrastructure. Frank Klotz, the former commander of the U.S. Air Force Global Strike Command, made a similar point in July 2019, arguing that “at least initially the Russians would have the advantage because of the capabilities of the existing systems that they have ... and the state of their nuclear weapons infrastructure.” Preventing Russia from gaining such a military advantage over the United States should be a priority. New START will help do that.

Finally, modernizing the U.S. strategic deterrent will be expensive. A January 2019 Congressional Budget Office report estimates that the Trump administration’s current plans for U.S. strategic forces would cost \$494 billion between the 2019 and 2028 — \$94 billion more than the CBO’s 2017 estimate for the 2017-26 period, “in part because modernization programs continue to ramp up,” and these costs are certain to grow. The size and scope of the U.S. strategic modernization program is closely linked to New START. If the constraints on Russian strategic forces were to go away, it could require the United States to spend more on strategic modernization to deter a larger Russian nuclear force, further driving up the already high costs of the program.

#### ENSURING ALLIANCE COHESION

Arms control agreements like New START also play an important role in maintaining the cohesion of U.S. alliances, and ensuring allied support for defense and deterrence policy and programs. In many allied nations, nuclear weapons are deeply unpopular with parliaments and publics, and support for arms control and nonproliferation agreements has helped those governments build domestic political support for nuclear deterrence.

For example, in the 1970s and 80s, Washington’s willingness to engage in arms control negotiations with the Soviet Union over intermediate-range ballistic and cruise missiles in Europe provided NATO partners with political cover to allow the U.S. deployment of intermediate-range missiles in Western Europe. With the end of the Intermediate Nuclear Forces (INF) Treaty this year after Russia violated the treaty by deploying a prohibited ground-launched cruise missile, NATO is currently examining how to respond to Russia’s deployment of that missile and other cruise missile capabilities.

That review will likely recommend taking military actions in response to the growing Russian cruise missile threat. If the United States fails to extend New START, it could make it more difficult for NATO to reach consensus on military response options. We are already seeing how the Trump administration's perceived disdain for arms control, in combination with its style of managing allied relationships, is affecting the ability of some NATO nations to take steps to maintain effective deterrent capabilities.

Recent events in Germany highlight this challenge. Last February, the center-left Social Democratic Party — the junior coalition partner in the German government — announced the creation of a commission to re-examine the party's approach to foreign and security policy. As part of that review, the commission will examine Germany's continued participation in NATO nuclear-sharing arrangements, under which German dual-capable aircraft would deliver U.S. non-strategic nuclear weapons in the event of war. Establishing the commission was reportedly a partial response to the U.S. withdrawal from the INF Treaty. If the Social Democrats push the German government to let its dual-capable aircraft age out of use without replacing them, this could make other NATO allies less willing to replace theirs, which would have significant repercussions for overall NATO nuclear policy. A decision not to extend New START would likely embolden voices in Germany and other allied capitals who oppose alliance deterrence policies and believe the Trump administration's stewardship of these policies may increase threats to Europe, not decrease them.

#### ADDRESSING CRITICS' CONCERNS

Critics of New START raise valid concerns about the changing international security environment, Russia's development of new systems, and the need to bring China into a future arms control and strategic stability framework. That said, those concerns can be adequately addressed within the context of a five-year extension of New START.

Take the issue of Russia's development of new strategic systems, which include the Sarmat heavy intercontinental ballistic missile, the Avangard hypersonic glide vehicle, the Poseidon undersea autonomous nuclear delivery vehicle, and the Burevestnik nuclear-powered cruise missile. These systems present a threat to the United States and its allies, and they need to be limited. However, both the Avangard and the Sarmat would almost certainly be captured under New START. Indeed, according to press reports, the Russian government has acknowledged that the two systems would be limited by the treaty. On the other hand, the Poseidon and the Burevestnik are unlikely to become operational until after 2026 at the earliest, after an extended New START would expire. Therefore, these systems can be addressed in the context of a negotiation of a potential successor agreement.

The United States also needs to address Russia's non-strategic nuclear forces in a future agreement, something that the U.S. Senate directed in its resolution of ratification to New START. However, there are several technical and political hurdles, the biggest being Russia's insistence that a future agreement limit U.S. missile defense and conventional strike capabilities. Given longstanding U.S. opposition under both Democratic and Republican administrations to placing any legally-binding limitations of these capabilities — and Russia's longstanding opposition to agreeing to any limitations on its non-strategic nuclear forces — reaching agreement on this point will be extremely difficult. Extending the treaty by five years would provide some space to determine if a compromise could be found.

Bringing China into a future arms control framework is the right long-term objective, as Chinese capabilities are increasingly affecting U.S. stability calculations. For example, even if the United States had persuaded Russia to return to compliance with the INF Treaty, China would have still been free to continue to deploy thousands of medium- and intermediate-range ballistic and cruise missiles. China is also modernizing its strategic nuclear capabilities and developing a host of other asymmetric capabilities like offensive cyber and anti-satellite weapons. Over the long term, it is

neither politically or strategically viable to have China — the United States' major strategic competitor — sitting outside of a future arms control and strategic stability framework. At the same time, we must not allow this longer-term objective to stand in the way of addressing the near-term threat to the United States and its allies from Russia's nuclear forces.

<https://www.brookings.edu/blog/order-from-chaos/2020/01/16/deterrence-modernization-and-alliance-cohesion-the-case-for-extending-new-start-with-russia/>

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## ABOUT THE USAF CSDS

The USAF Counterproliferation Center (CPC) was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University — while extending its reach far beyond — and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff's Director for Nuclear and Counterproliferation (then AF/XON) and Air War College commandant established the initial personnel and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

In 2008, the Secretary of Defense's Task Force on Nuclear Weapons Management recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." This led to the addition of three teaching positions to the CPC in 2011 to enhance nuclear PME efforts. At the same time, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide professional continuing education (PCE) through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the CPC in 2012, broadening its mandate to providing education and research on not just countering WMD but also nuclear operations issues. In April 2016, the nuclear PCE courses were transferred from the Air War College to the U.S. Air Force Institute for Technology.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies (CUWS) to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards. In May 2018, the name changed again to the Center for Strategic Deterrence Studies (CSDS) in recognition of senior Air Force interest in focusing on this vital national security topic.

The Center's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation — counterforce, active defense, passive defense, and consequence management. The Latin inscription "Armis Bella Venenis Geri" stands for "weapons of war involving poisons."

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