



ISSUE BRIEF

Strengthening Deterrence with SLCM-N

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NOVEMBER 2022 JOHN R. HARVEY and ROB SOOFER

The Biden administration could be given high marks for its clear-eyed assessment of the nuclear threat facing the United States and for supporting the modernization and replacement of the United States' aging nuclear forces. While bipartisanship in Congress has been rare these days, nearly full funding for nuclear modernization has been the norm for the last decade—with an important exception this year: Congress is now debating the administration's decision to cancel plans for a modern nuclear-armed sea-launched cruise missile (SLCM-N).¹

Congress is considering the future of SLCM-N in its negotiations over defense funding for fiscal year 2023. At the moment, the House Appropriations Committee supports cancellation of the SLCM-N, while the House and Senate Armed Services Committees provide up to \$25 million for the missile and \$20 million for its warhead in research and development funding for FY 2023.² These nominal funding levels would keep the program alive, but not fully fund it in the five-year Future Years Defense Plan, and therefore indicate that the issue is not settled; final resolution will take a year or two as the matter is considered within the broader context of Russia's and China's expanding nuclear capabilities and the geopolitical challenges facing the United States.

- ¹ The Biden administration has also decided to retire the B83 bomb that the previous administration sought to retain. Some in Congress argue to sustain this nuclear bomb until a better approach is fielded to hold hard and deeply buried installations at risk. As of this writing, FY23 funding for B83 sustainment has not been settled. Bryant Harris, "Republicans Lay Battle Lines Over Biden's Plan to Retire B83 Megaton Bomb," *Defense News*, May 19, 2022, <https://www.defensenews.com/congress/budget/2022/05/19/republicans-lay-battle-lines-over-bidens-plan-to-retire-b83-megaton-bomb/>.
- ² Valerie Insinna, "House Authorizers Approve \$45M to Keep Sea-Launched Nuke on Life Support," *Breaking Defense*, June 22, 2022, <https://breakingdefense.com/2022/06/house-authorizers-approve-45m-to-keep-sea-launched-nuke-on-life-support/>.

SLCM-N was one of the few additions to the current nuclear modernization program (initiated under then-President Barack Obama) that was proposed by the Trump administration. This addition was motivated primarily by Russia's increasingly aggressive behavior in the global security arena subsequent to the 2010 Nuclear Posture Review conducted by President Obama. This behavior includes Russia's 2014 invasion of Ukraine and illegal occupation of Crimea, its expanded and continuing war with Ukraine, the deployment of a land-based cruise missile in violation of the Intermediate-Range Nuclear Forces (INF) Treaty, and the increasing role that nuclear weapons play in Russia's security posture such as President Vladimir Putin's direct nuclear threats to the West and an increased focus in the nation's military operations.³ Finally, a limited first-use doctrine seems to have taken on increased prominence in Russia's nuclear doctrine.⁴

Biden administration defense planners rightly assess that Russia poses a growing challenge to the post-Cold War global security order. Moreover, Russia possesses a tactical nuclear weapon arsenal that exceeds any plausible military need.⁵ According to Sasha Baker, deputy undersecretary of defense for policy, "Russia believes its nonstrategic nuclear weapons offer options to deter adversaries, control escalation, and counter US, allied, and partner forces that would challenge any regional Russian aggression."⁶

The case for SLCM-N, as presented in this paper, has only grown stronger since the 2018 Nuclear Posture Review (NPR) due to Russia's increasing reliance on nuclear weapons (and threats) and China's expanding nuclear capabilities. At issue is not whether the United States should seek

to strengthen deterrence of potential adversary limited nuclear use in a regional conflict—the administration argues it should—but whether SLCM-N is worth the additional cost in light of other defense priorities.⁷ Specifically, senior Biden defense policy officials conclude that current and planned nuclear capabilities, including a new air-launched cruise missile (ALCM) delivered by strategic bombers and modern B61-12 gravity bombs delivered by new, dual-capable F-35 fighter aircraft (DCA), are sufficient to augment deterrence of adversary limited nuclear first use. The chairman and vice chairman of the Joint Chiefs of Staff, however, continue to see value in pursuing the SLCM-N "because of its distinct contribution" for deterring regional nuclear attack.⁸

The nuclear SLCM is strongly supported by the commander of US Strategic Command, Adm. Charles A. Richard, and the former commander of US European Command, Gen. Tod D. Wolters.⁹ The chief of naval operations, Adm. Michael Gilday, is understandably chary of the purportedly increased burden to the submarine force that the SLCM-N would impose, but also argues to proceed with the program with modest funding "while we get a better understanding of the world we live in with two nuclear peer competitors."¹⁰

Congressional opinion is mixed. Republicans and some Democrats support SLCM-N as an important addition to the force to bolster deterrence of Russian and Chinese nuclear threats; many Democrats oppose it. House Armed Services Committee (HASC) Chairman Adam Smith and Seapower and Projection Forces Subcommittee Chairman Joe Courtney argue that installing nuclear warheads on attack submarines would mean less space for conventional

3 When announcing the invasion of Ukraine, Putin conveyed an implied, and ill-considered, nuclear threat to the West: "Whoever tries to impede us, let alone create threats for our country and its people, must know that the Russian response will be immediate and lead to the consequences you have never seen in history." See Joe Dwinell, "Putin's Threats Hinting at Use of Nuclear Weapons Slammed as Unthinkable," *Boston Herald*, February 25, 2022.

4 *Nuclear Posture Review*, Office of the Secretary of Defense, February 2018, <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.

5 Matthew Kroenig, "A Strategy for Deterring Russian De-Escalation Strikes," Atlantic Council, April 24, 2018, <https://www.atlanticcouncil.org/in-depth-research-reports/report/a-strategy-for-deterring-russian-de-escalation-strikes/>.

6 *Hearings on Fiscal Year 2023 Strategic Forces Posture before the House Armed Forces Subcommittee on Strategic Forces*, 117th Cong. (March 1, 2022), (statement of the Hon. Sasha Baker, Deputy Under Secretary of Defense for Policy, Office of the Undersecretary of Defense for Policy, US Department of Defense), <https://armedservices.house.gov/2022/3/subcommittee-on-strategic-forces-hearing-fiscal-year-2023-strategic-forces-posture-hearing>.

7 Assistant Secretary of Defense for Space Policy John Plumb noted in congressional testimony that the "DOD concluded that current capabilities and others that will be fielded in the near- to mid-future provide sufficient means to deter the threat of adversary limited nuclear use in a regional conflict." See *Hearings on Fiscal Year 2023 Budget for Nuclear Forces and Atomic Energy Defense Activities before the House Armed Forces Subcommittee on Strategic Forces*, 117th Cong. (May 17, 2022), (statement of Dr. John Plumb, Assistant Secretary of Defense for Space Policy, Department of Defense), 7, <https://armedservices.house.gov/2022/5/subcommittee-on-strategic-forces-hearing-fiscal-year-2023-budget-for-nuclear-forces-and-atomic-energy-defense-activities7>.

8 Unclassified letter from Gen. Mark A. Milley and Adm. Christopher W. Grady to Senator Jack Reed of Rhode Island, who serves as chairman of the Senate Armed Services Committee, June 9, 2022.

9 Joe Gould, "US Strategic Command Chief: Sea Missile Cancellation Opens 'Deterrence and Assurance Gap,'" *Defense News*, April 5, 2022, <https://www.defensenews.com/pentagon/2022/04/05/us-strategic-command-chief-sea-missile-cancellation-opens-deterrence-and-assurance-gap/>.

10 Richard R. Burgess, "CNO: Keep R&D Alive for Nuclear Sea-Launched Cruise Missile," *Seapower Magazine*, May 11, 2022, <https://seapowermagazine.org/cno-keep-rd-alive-for-nuclear-sea-launched-cruise-missile/>.



Chairman of the Joint Chiefs of Staff General Mark Milley testifies during a Senate Armed Services Committee hearing. Senior US military leaders have been supportive of at least modest funding for SLCM-N. REUTERS/Elizabeth Frantz.

weaponry and would complicate or distract from the submarines' conventional missions.¹¹ Other Democrats, such as Jim Cooper, chairman of the HASC Strategic Forces Subcommittee, are supportive, noting that “no one can tell in an uncertain world what we will need, but it’s important to keep this option available.”¹²

Nuclear SLCM History

The modern SLCM¹³ was first deployed in the mid-1980s as part of the Carter-Reagan strategic modernization program. During this time, three SLCM variants (conventional land-attack, nuclear land-attack, and conventional anti-

11 Bryant Harris, “US Nuclear Commander Backs Sea-Launched Cruise Missile Biden Would Cancel,” *Defense News*, June 7, 2022, <https://www.defensenews.com/2022/06/07/us-nuclear-commander-backs-sea-launched-cruise-missile-biden-would-cancel/>; and Gould, “US Strategic Command Chief: Sea Missile Cancellation.”

12 While supporting additional funding for SLCM-N in the HASC bill, Rep. Cooper is also concerned that “developing a new SLCM warhead would further strain a National Nuclear Security Administration complex that is already facing significant challenges . . . while tasking *Virginia*-class submarines to take on a nuclear mission would be extremely costly and burdensome.” See *Hearings on Fiscal Year 2023 Budget for Nuclear Forces and Atomic Energy Defense Activities before the House Armed Services Subcommittee on Strategic Forces* (statement of Cooper, Subcommittee Chair), <https://armedservices.house.gov/2022/5/subcommittee-on-strategic-forces-hearing-fiscal-year-2023-budget-for-nuclear-forces-and-atomic-energy-defense-activities>.

13 This section draws from and updates text from an earlier speech by one of the authors, which was presented at the Atlantic Council on December 19, 2018, and was reprinted in *Comparative Strategy*. See: John R. Harvey, “Why Nuclear SLCM,” *Comparative Strategy* 38, no. 3 (2019): 248-251.

ship) were deployed on surface ships and submarines. Other nuclear cruise missiles fielded during this same period included the ALCM and the land-attack nuclear ground-launched cruise missile (GLCM), later eliminated under the INF Treaty.

Shortly after the end of the Cold War, as part of an early-1990s unilateral US drawdown, then-President George H. W. Bush eliminated thousands of US land- and sea-based short-range nuclear weapons including many, if not all, land-based weapons deployed in Europe and Asia. He removed all US theater nuclear weapons, including what had then been the recently deployed nuclear SLCM, from surface ships and submarines. The United States, however, continued to maintain the SLCM system and exercise capabilities to return it within thirty days to full operational status should security circumstances warrant.

Even though the nuclear SLCM was reaffirmed in the NPR of then-President Bill Clinton in 1994, elements of the US Navy were not convinced that its military value justified spending even modest funds to maintain the system or exercise capabilities to field it. To address these concerns, senior US Department of Defense (DOD) officials participated in a war game to illuminate relevant issues. As part of “free play” during a plausible regional conflict scenario, the nuclear SLCM played an important role in messaging deterrence commitments and emerged as a potential weapon of choice for specific scenarios under consideration. The deputy secretary at the time, John Hamre, became convinced of its continuing utility. End result: the SLCM-N went off the chopping block.¹⁴

The 2010 NPR of President Obama, in anticipation that the then relatively benign security relationship with Russia might continue or even improve, removed the SLCM from “warm standby” and retired it, arguing, as President Biden’s team has more recently, that existing nuclear capabilities (overseas-based DCA and nuclear ALCMs cited above)

were sufficient to assure robust deterrence.¹⁵ The 2018 NPR reversed that decision in light of Russia’s increasingly aggressive behavior, addressed earlier, since the 2010 review.

Russian and Chinese Nuclear Forces

In addition to maintaining and modernizing robust strategic nuclear forces, Russia’s large and growing advantage in theater nuclear weapons, not limited by treaty, was another factor in the Trump administration’s decision to advance the SLCM-N. While Russia initially joined the United States in drawing down its arsenal of shorter-range nuclear weapons at the end of the Cold War, it never did so as extensively as did the United States and now deploys nuclear-capable cruise and ballistic missiles, torpedoes and depth charges, air-to-ground and air-to-air missiles, and anti-ballistic missiles. In fact, Russia has more tactical nuclear weapons (at least two thousand) than long-range strategic nuclear weapons allowed under the 2010 New START treaty.¹⁶ Russia trains with these weapons and, as seen recently, brandishes them for coercive effect.

China’s growing strategic and regional nuclear capabilities augment the case for SLCM-N, making it even more compelling. According to Adm. Richard, estimates of China’s strategic nuclear forces suggest that it will add “at least 360 solid-fueled ICBM silos,” some possibly equipped with multiple independently targetable reentry vehicles (MIRVs), by 2030, while China’s warhead numbers are expected to reach up to one thousand deliverable warheads by 2030.¹⁷ Less appreciated is China’s growth in regional nuclear capabilities. According to the US Office of the Secretary of Defense, China’s rocket forces include approximately eight hundred launchers and about two-thousand short-, medium-, and intermediate-range ballistic missiles, all capable of nuclear employment in the region. China also deploys the Hong Niao (HN) series of ground-, ship-, submarine-, and air-launched cruise missiles ca-

14 Personal communication from one of the authors (JRH) who participated in the exercise.

15 *Nuclear Posture Review Report*, Office of the Secretary of Defense, April 2010, https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

16 Hans Kristensen and Matt Korda, “How Many Nuclear Weapons Does Russia Have in 2022?,” Nuclear Notebook (column), *Bulletin of the Atomic Scientists*, February 23, 2022, <https://thebulletin.org/premium/2022-02/nuclear-notebook-how-many-nuclear-weapons-does-russia-have-in-2022/>. “New START” is the common name for The Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms.

17 Hearing to Receive Testimony of the Nuclear Weapons Council before the Senate Subcommittee on Strategic Forces (statement of Admiral Charles Richard, Commander, United States Strategic Command), 117th Cong. (May 4, 2022), <https://www.armed-services.senate.gov/hearings/to-receive-testimony-on-the-nuclear-weapons-council>.



Military vehicles carrying hypersonic missiles DF-17 travel past Tiananmen Square during the military parade marking the 70th founding anniversary of People's Republic of China, on its National Day in Beijing, China October 1, 2019. REUTERS/Jason Lee.

pable of carrying nuclear warheads.¹⁸ This growth in regional nuclear capabilities is difficult to explain, given the 1990s-era dramatic drawdown of US nuclear deployments in the region.

The underlying concern is that Russian and Chinese leaders, potentially thinking they enjoy an advantage in regional nuclear capabilities, may feel the freedom to pursue other forms of aggression. Such a perception makes war, both conventional and nuclear, more likely. More specifically, in the general absence of proportional, regional US nuclear capabilities, deterrence could fail because opponents feel at greater freedom to engage in regional, limited nuclear escalation as they question whether the United States would be willing to turn a regional conflict into a suicidal intercontinental nuclear war. This was a Cold War problem that the United States tried to solve largely by the presence of thousands of overseas-deployed theater nuclear weap-

ons and limited strategic options. Those weapons are long gone—but the problem is back.

Why SLCM-N

The fundamental rationale for SLCM-N is the need to address a gap in US nuclear deterrence capabilities created by Russia's and China's continuing efforts to maintain and expand regional nuclear forces—coupled with an increased focus in doctrine on limited nuclear first use in conventional conflict. As Adm. Richard notes:

My ability to maintain strategic deterrence is limited . . . the war in Ukraine and China's nuclear trajectory, their strategic breakout, demonstrates that we have a deterrence and assurance gap against the threat of limited nuclear employment.¹⁹

18 *Military and Security Developments Involving the People's Republic of China*, Office of the Secretary of Defense, 2021, <https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF>.

19 Hearing to Receive Testimony of the Nuclear Weapons Council (statement of Admiral Richard).

The challenge for US nuclear strategy (and therefore nuclear deterrence) is that both Russia and China have many more options at the regional level, while the options available to the United States are not necessarily prompt, may lack survivability, and may be vulnerable to Russian and Chinese defenses. According to Adm. Richard, without SLCM-N, adversaries may perceive an advantage at lower levels of conflict that may encourage limited nuclear use. Responding to this threat by simply modernizing current capabilities is not sufficient. Deployed on attack submarines (SSNs), rather than nuclear ballistic missile submarines (SSBNs), the SLCM-N provides unique attributes and benefits detailed below that complement US and allied nuclear capabilities and will, as a result, both strengthen deterrence of adversary threats and assurance of allies in the following ways.²⁰

US regional nuclear presence with survivability: SLCM-N would provide a highly survivable US regional nuclear presence to deter adversary limited first use, among other things. US SSNs assigned to the Pacific Fleet maintain a stealthy, constant, yet varying presence in the Indo-Pacific region and would be readily available during a crisis. Bombers and fighter aircraft armed with nuclear gravity bombs or ALCMs would have to be generated from the US homeland; they cannot remain in the air for long periods as the crisis unfolds; and if they were forward-based in Asia, as they are in Europe with NATO, they would be vulnerable to enemy preemptive attack.

Promptness: Deterrence is strengthened because an adversary would have to consider that SSNs carrying SLCM-Ns were already in the region, able to provide the president a prompt proportional response option, if necessary, rather than wait many hours, possibly days if bomber generation (i.e., making aircraft flight ready, associated checkouts, weapons upload) is required, to deliver ordnance to a target. Depending on the scenario, the generation of the bomber could be delayed as a result of enemy conventional strikes on air bases.

Assurance: While allies recognize that the United States can deliver nuclear weapons from its homeland, the presence of US attack submarines armed with a nuclear sea-launched cruise missile provides an additional measure of assurance, especially for Indo-Pacific allies that lack the NATO nuclear framework. In fact, Japanese officials expressed serious concern when the United States announced the retirement of the nuclear-armed Tomahawk land-attack missile (TLAM/N) in the 2010 NPR.²¹ An ongoing acquisition program and eventual deployment of a modern SLCM-N signals to Asian allies—Japan, Australia, and the Republic of Korea (ROK)—an increased US focus on extending its regional nuclear capabilities to their defense and, in particular, Washington’s willingness to accept some additional nuclear risk in doing so. Very importantly, operating nuclear SLCMs from SSNs patrolling regional waters avoids the inevitable contentious host-nation political debate associated with overseas deployments of new land-based nuclear systems. Finally, there is concern that the increasing disparity in regional nuclear capabilities could weaken confidence in US security guarantees. If allies perceive that plausible US response options were limited or unavailable, then they might choose to develop and field their own nuclear weapons, which is not a desirable outcome in light of long-standing US nuclear nonproliferation policy.

Hedging and breakout: Nuclear SLCMs provide a partial hedge to technical problems that might befall the Trident II D-5 SLBM, its warheads, or the new *Columbia*-class SSBNs. SLCM-N could offer some additional targeting flexibility if SSBNs, or the D-5 missile or their warheads, went down for a period to undergo repairs. Moreover, additional survivable nuclear forces reduce even further the likelihood of an adversary attempting a disarming first strike against US land-based forces. Hedging will become more critical as the United States reckons with China’s nuclear expansion and the evolving need to deter two nuclear peers at once. On this last point, if it were decided that additional US nuclear forces were needed to address China’s buildup, additional SLCM-Ns may be a less expensive option than

20 “Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N),” *Arms Control and International Security Papers* 1, no. 11, Office of the Under Secretary of State for Arms Control and International Security, July 23, 2020, <https://www.state.gov/wp-content/uploads/2020/07/T-Paper-series-SLCM-N-Final-508.pdf>.

21 According to Gen. Kevin Chilton, a former head of US Strategic Command, “the Japanese objected because they believed the TLAM/N, with its forward presence in the Western Pacific, was the only credible deterrent to the Chinese and the Russians.” See Chilton, “On US Nuclear Deterrence,” *Strategic Studies Quarterly* 11, no. 4 (2017): 9. A similar view was expressed by the Congressional Strategic Posture Commission: “In our work as a Commission it has become clear to us that some U.S. allies in Asia would be very concerned by TLAM/N retirement.” See William Perry and James Schlesinger, *The Final Report of the Congressional Commission on the Strategic Posture of the United States*, May 2009, <https://www.usip.org/strategic-posture-commission/view-the-report>. Separately, one of this brief’s authors, while serving as deputy assistant secretary of defense in the Clinton administration, engaged in Tokyo with officials of Japan’s Self Defense Forces on the then-recent drawdown of US nonstrategic nuclear forces and the role of the nuclear SLCM in this regard. See John R. Harvey, “Why Nuclear SLCM,” *Comparative Strategy* 38, no. 3 (2019): 248-251.



The *Ohio*-class ballistic-missile submarine USS *Wyoming* approaches Naval Submarine Base Kings Bay, Ga. The low-yield W76-2 warhead is borne by existing ballistic-missile submarines. Photo by Lt. Rebecca Rebarich, <https://www.dvidshub.net/image/145233/uss-wyoming-approaches-kings-bay>.

alternatives such as additional ICBMs, SLBMs, or strategic bombers. Very importantly, SLCM-N offers some modest flexibility to address China's buildup without necessarily having to exceed the central limits of the New START treaty with Russia.

Other Considerations for the SLCM-N

Critics opposing SLCM-N cite other arguments including its redundancy with the low-yield Trident warhead, its high cost, and its operational impact on the attack submarine force. We address each in turn.

Relationship to the W76-2 low-yield warhead: The United States has implemented the 2018 NPR recommendation to field a low-yield SLBM warhead, known as the W76-2, to provide an additional option for the president to deter regional conflict. By substituting a single, lower-yield warhead for the much higher-yield multiple warheads now carried by the Trident SLBM, it provides the president with a very limited number of relatively prompt, discrete, deliverable warheads for such contingencies. The Biden administration argues that the W76-2 obviates the need (and cost) to field the SLCM-N, as was recommended in the 2018 NPR. We argue that the SLCM-N complements, not overlaps, the capabilities of the W76-2 by offering a better op-



The USS *Virginia*, pictured here, is the lead boat in the *Virginia* class of US attack submarines, on which the SLCM-N could be placed. US Navy photo by Mass Communication Specialist 2nd Class William Pittman, <https://bit.ly/3gy6iYt>.

tion for a long-term regional presence to bolster extended deterrence without the need to deploy new overseas land-based systems; provides some flexibility to respond to the “two nuclear peer competitor” problem without exceeding current New START limits; and is not that costly. Neither system, nor both together, fully address, nor are they intended to fully address (or match), the panoply of theater nuclear forces available to Russia and China. At the same time, together they convey to Russia and China a powerful message that the United States is prepared to take the steps it itself sees as necessary to assure its and its allies’

security in strengthening deterrence of limited nuclear use in regional conflict.

Cost and priorities: The DOD raises the matter of the cost of the SLCM-N in light of other modernization priorities. For a modern SLCM, the cost to field the weapon would be around \$9 billion by 2028, far from the hundreds of billions of dollars required for other nuclear modernization programs.²² The technology for the SLCM-N is reasonably mature; even today, the US Navy continues to upgrade the venerable conventional SLCM called Tomahawk.

²² *The Potential Costs of Expanding U.S. Strategic Nuclear Forces If the New START Treaty Expires*, Congressional Budget Office, August 2020, <https://www.cbo.gov/publication/56524>.

Along these lines, it could be possible to manage costs by drawing upon the technology and manufacturing base of the new nuclear cruise missile: the long-range standoff weapon (LRSO) that is replacing the ALCM on US heavy bombers. In this case, much of the associated development and production engineering costs would be sunk. A modern nuclear SLCM therefore will not break the bank on modernization. Indeed, as addressed earlier, the SLCM-N may offer a less costly approach to hedge risk in connection with deterring two nuclear peers.

Impact on the submarine force: Some senior DOD officials have called attention to the operational and readiness constraints that the SLCM-N would place on US attack submarines and their crews, while some members of Congress fear that the SLCM-N will detract from current missions assigned to attack submarines at a time when the conventional forces balance against China is growing worse each year. These are serious but manageable concerns. Depending on the concept of operations, the operational impact on the navy can be minimized: not all members of the crew would need nuclear certification, nor must all crews serving on attack submarines bear these restrictions. Moreover, the personal reliability program and added security to operate nuclear weapons on board SSNs can be adapted from procedures already established for US strategic nuclear ballistic missile submarines. Only a percentage of the attack submarine force would need to be certified to carry nuclear weapons, notwithstanding the fact that an adversary would have to assume that all SSNs in its region would be carrying them. Very importantly, bear in mind that throughout the entire Cold War, the US Navy managed the burden of carrying nuclear weapons on surface ships and attack submarines; nuclear operational deployments and tactical load-outs did not then impede or impact the navy's ability to perform its other missions.

The US Navy considered all of these factors when the secretary of the navy and the chief of naval operations, as well as the chairman of the Joint Chiefs of Staff (JCS), provided their endorsement of the nuclear SLCM in the 2018 NPR. Regarding the operational burden of deploying SLCM-N, JCS Chairman Mark A. Milley argued before Congress that “the weapon itself wouldn’t be necessarily on each of those subs... some of those subs, a small percentage, may have a mission change, the others would not.”²³

According to a recent Congressional Research Service report, the US Navy is planning on a force of sixty to seventy attack submarines over the next few decades. The Virginia Payload Module (built into the new *Virginia*-class SSNs) will increase the capacity to carry up to 154 conventional land-attack cruise missiles per boat—more than enough capacity to accommodate a small number of nuclear SLCMs.²⁴ As of this writing, it is not clear how many nuclear SLCMs would be procured, much less how many would be carried per boat, or how many boats would be designated to carry the nuclear munition. At the end of the Cold War, when the nuclear cruise missile was removed from US ships, in the range of one hundred nuclear SLCMs were deployed throughout the fleet.

Conclusion

Multiple factors strongly justify the additional cost of the SLCM-N. The global security environment has been severely degraded this year by Putin’s criminal attack on Ukraine and associated increased nuclear threats to the West. To a somewhat lesser degree, China’s recent actions have contributed to this degradation, as have the growth in Russian and more recently Chinese regional and strategic nuclear capabilities.

With its unique attributes, SLCM-N sends a clear message that there is no scenario in which an aggressor could contemplate achieving any benefit at all from regional limited first nuclear use without an assured proportional US response. This is the essence of credible deterrence. Just as important, it signals that the United States intends to respond in its own way to the growing disparity in the types and numbers of regional nuclear weapons. This is an important signal to adversaries and allies alike. By bolstering allied confidence in US nuclear security commitments, the nuclear SLCM would reduce any tendencies for certain allies to field their own nuclear forces contrary to long-standing US nonproliferation policy. Finally, it is conceivable that fielding SLCM-N could provide some leverage for arms control talks in the future to address this disparity. Otherwise, what incentive is there for Russia to consider reductions or limits to its own regional nuclear forces not covered by the New START treaty? Or for China to limit its ongoing expansion of strategic and theater nuclear forces?

23 *Hearings on Fiscal Year 2023 Defense Budget Request before the Full House Armed Services Comm.*, 117th Cong. (2022) (statement of Gen. Mark A. Milley, Chairman of the Joint Chiefs of Staff).

24 Ronald O’Rourke, *Navy Virginia (SSN-774) Class Attack Submarine Procurement: Background and Issues for Congress*, Congressional Research Service Report, RL32418, July 18, 2022, <https://sgp.fas.org/crs/weapons/RL32418.pdf>.

As the United States enters a global security regime characterized by a potentially increased risk of great-power conflict among three nuclear peers, its principal task must be to ensure the survivability of US nuclear retaliatory forces against any combination of potential adversaries. The SLCM-N enhances the survivability of the nuclear triad, helps to hedge against unanticipated adverse technical problems or geopolitical reversals, and provides the United States with distinct and complementary regional nuclear deterrence options to ensure that any future conventional conflict that may occur with a nuclear peer remains conventional.

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