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The Nuclear Sea-launched Cruise Missile (SLCM-N)

Implications for U.S. nuclear strategy and arms control

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RESEARCH PAPERS

Technology-Capability Analysis

Photo: Tomahawk sea-launched cruise missile fired by the U.S. cruiser USS Cape St. George during Operation Iraqi Freedom (March 23, 2003).
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Abstract

After initial hesitation, the Joseph Biden administration seems to have de-funded one of the tactical nuclear capabilities proposed by Donald Trump's 2018 Nuclear Posture Review (NPR). With the return of nuclear threats to the international landscape, reflections on U.S. nuclear strategy highlight competing visions of deterrence and arms control. The fate of the nuclear sea-launched cruise missile is but a consequence of a deeper theoretical dispute between supporters of nuclear superiority and strategic stability, whose outcome will impact the Biden administration's NPR. What trend will the deliberations support on nuclear strategy and arms control? This research note focuses on the theoretical debate surrounding the nuclear sea-to-surface cruise missile and its implications for the 2022 NPR.

Résumé

Après une hésitation initiale, l'administration Biden semble avoir annulé le financement de l'une des capacités nucléaires tactiques proposées par la *Nuclear Posture Review* (NPR) 2018 publiée par l'administration Trump. Au vu du retour des menaces nucléaires sur le plan international, la réflexion stratégique nucléaire des États-Unis oppose deux visions nettement différentes de la dissuasion et de la maîtrise des armements. Le destin du missile de croisière mer-sol nucléaires n'en est qu'une des conséquences, mais constitue une dispute théorique intéressante entre les partisans de la supériorité nucléaire et ceux de la stabilité stratégique, dont l'issue impactera la NPR de l'administration Biden. Quelle tendance les arbitrages vont-elles favoriser en matière de stratégie nucléaire et maîtrise des armements ? Cette note de recherche a pour objet le débat théorique autour du missile de croisière mer-sol nucléaire et ses conséquences pour la NPR de 2022.

About the author

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The views expressed in this article reflect solely the author's opinion

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Summary

The Nuclear Sea-launched Cruise Missile (SLCM-N): Implications for U.S. Nuclear Strategy and Arms Control

In May 2021, shortly after taking office, the Biden administration confirmed the decision to fund the Sea-Land Nuclear Cruise Missile (SLCM-N), one of the most controversial programs of Donald Trump's term[1]. The decision was greeted with surprise by some analysts: during his campaign, Joseph Biden had indeed argued against this new armament[2]. Ultimately, after significant discussion within the government and the military, the Democratic administration appears to have reversed its decision and cancelled the SLCM-N program, as shown in the Fiscal Year 2023 Defense budget prevision[3].

Despite this cancellation, the missile has generated important discussions for anyone interested in understanding the trajectory of U.S. nuclear doctrine and posture in the coming years. Indeed, criticisms of the SLCM-N are part of broader discussions of nuclear capability reductions between the United States and Russia. In the context of the end of the Cold War and the reinforcement of strategic stability, Washington and Moscow had initiated the Presidential Nuclear Initiatives (PNI) in the early 1990s, in which nuclear sea-launched cruise missiles had been subject to gradual reductions[4]. During the George H. W. Bush and Bill Clinton administrations, nuclear Tomahawk sea-launched cruise missiles were stockpiled ashore, later removed from U.S. surface ships, before finally being eliminated from submarines by the Obama administration's Nuclear Posture Review (NPR) in 2010[5]. At the time, the central argument for their elimination was related to reducing the risks of misperception and therefore of nuclear escalation created by these missiles.

This trend of reducing nuclear arsenals will be interrupted by the Trump administration. The 2018 NPR indeed proposes the development of a new nuclear sea-to-surface cruise missile in response to a "deteriorating" strategic environment. This decision is not insignificant: for the past few years, and even before the war in Ukraine, nuclear issues have been of renewed interest in political, academic, and military circles due to the strategic competition caused by the military rise of Russia and China. As a result of these systemic transformations in the international order, the United States will revive a process of doctrinal and capability adaptation of its nuclear forces.

Two approaches to deterrence can be recognized within the U.S. government[6]. On the one

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[1] SCOTT, Rick. *National Defense Authorization Act for Fiscal Year 2022*. En ligne : https://www.congress.gov/bill/117th-congress/senate-bill/1605/text [consulté le 26 janvier 2022].

[2] REIF, Kingston et Shannon BUGOS. *Biden's Disappointing First Nuclear Weapons Budget*. 2021. En ligne : https://www.armscontrol.org/issue-briefs/2021-07/bidens-disappointing-first-nuclear-weapons-budget [consulté le 30 juillet 2021].

[3] U.S. Department of Defense. *The Department of Defense Releases the President's Fiscal Year 2023 Defense Budget*. 2022. En ligne : https://www.defense.gov/News/Releases/Release/Article/2980014/the-department-of-defense-releases-the-presidents-fiscal-year-2023-defense-budg/ [consulté le 1 avril 2022]. ; INSINNA, Valerie. « Biden administration kills Trump-era nuclear cruise missile program », *Blog Breaking Defense*. 2022. En ligne : https://breakingdefense.sites.breakingmedia.com/2022/03/biden-administration-kills-trump-era-nuclear-cruise-missile-program/ [consulté le 3 avril 2022].

[4] PODVIG, Pavel. « Blurring the line between nuclear and nonnuclear weapons: Increasing the risk of accidental nuclear war? », *Bulletin of the Atomic Scientists*. 3 mai 2016, vol.72 nº 3. p. 2. En ligne : https://www.tandfonline.com/doi/full/10.1080/00963402.2016.1170363 [consulté le 24 novembre 2020].

[5] KRISTENSEN, Hans M. *US Navy Instruction Confirms Retirement of Nuclear Tomahawk Cruise Missile*. 2013. En ligne : https://web.archive.org/web/20140709001733/https://fas.org/blogs/security/2013/03/tomahawk/ [consulté le 18 mai 2021].

[6] JERVIS, Robert. « Why Nuclear Superiority Doesn't Matter », *Political Science Quarterly*. 1979, vol.94 nº 4. p. 617-633. En ligne : https://www.jstor.org/stable/2149629 [consulté le 30 novembre 2020].

hand, the nuclear superiority approach aims at atomic "victory". It is similar to the doctrine of graduated response of the 1960s and advocates a nuclear counterforce strategy to complement conventional means. On the other hand, the strategic stability approach advocates a balance between the opposing nuclear forces, whose mutual vulnerability prevents any exchange at first. This traditional approach to deterrence is similar to the mutual assured destruction (MAD) concept of the 1960s and 1970s, which advocates an anti-city and anti-value nuclear strategy[7]. The SLCM-N decision must be viewed considering this U.S. "doctrinal hesitation".

Some analysts argue for the need to reintroduce nuclear sea-launched cruise missiles into the U.S. arsenal to ensure U.S. deterrence against Russian and Chinese forces[8]. The operational flexibility and stealth of these missiles would broaden the range of nuclear options available to the American president. On the other hand, opponents of the missile question its real utility for American deterrence and "extended deterrence" in Europe and Asia[9]. According to these critics, and as previously mentioned, the "flexibility" and "stealth" of the system would increase the risk of misperception on the part of the adversary, and thus the probability of an unintended nuclear escalation.

Looking forward to the NPR 2022, which is expected to be unveiled very soon, the cancellation of the SLCM-N can be interpreted as an indication of the Biden administration's approach to nuclear strategy. Several central questions remain. What are the implications of this decision for U.S. nuclear strategy? Which U.S. institutions are involved in this strategic debate? Beyond the United States itself, what international trends will these decisions promote in terms of arms control and nuclear risk reduction?

Structured around these questions, this research note is divided into three parts. First, we will identify the origins of U.S. nuclear modernization, of which the SLCM-N is only one of many illustrations. We will then analyze the theoretical debate within the American administration, which opposes the advocates of nuclear superiority to those of strategic stability. Finally, we will attempt to identify the main challenges that the Biden administration will face in the NPR 2022.

The U.S. Nuclear Forces Modernization Program

The Obama administration, between "Global Zero" and American nuclear reaffirmation

To understand the contemporary debate around the SLCM-N, it seems necessary to trace its origins in the modernization of U.S. nuclear forces. Although the 2018 NPR can be seen as a significant turning point in U.S. nuclear strategy, a trend of U.S. nuclear reaffirmation can already be identified in the second term of the Obama administration[10]. It follows two logics: a first idealistic approach that advocates nuclear disarmament and strategic cooperation, and a second realistic approach of

[7] Ibid. ; GRAY, Colin S. « Nuclear Strategy: The Case for a Theory of Victory », *International Security*. 1979, vol.4 nº 1. p. 54-87. En ligne : https://www.jstor.org/stable/2626784 [consulté le 31 mars 2022].

[8] U.S. Office of the Under Secretary of Defense for Policy U.S. Department of Defense. *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N).* Rapport 11. US Office of the Under Secretary for Arms Control and international Security, 2020. En ligne : https://www.state.gov/wp-content/uploads/2020/07/T-Paper-series-SLCM-N-Final-508.pdf [consulté le 3 février 2021].

[9] MONTGOMERY, Monica et Kingston REIF. *Biden Should Sink This Proposed Nuclear Weapon*. 2021. En ligne : https://www.defenseone.com/ideas/2021/04/biden-should-sink-new-nuclear-weapon/173473/ [consulté le 13 juillet 2021].

[10] BRUSTLEIN, Corentin. « La Guerre Nucléaire Limitée : un Renouveau Stratégique Américain », *Focus stratégique*. 2017 nº 77. p. 23-29. En ligne : https://www.ifri.org/sites/default/files/atoms/files/ifri_brustlein_guerre_nucleaire_limitee_2017_final.pdf [consulté le 22 juin 2021].

strategic affirmation of the United States, in a context of intensifying international competition. Despite some of the convictions of the American president, systemic changes in Europe and in the Asia-Pacific during the 2010s have forced Washington to move imperceptibly from the first to the second of these approaches.

The first term of the Obama administration is characterized by a reduction in the role of nuclear capabilities in U.S. defense. Politically, this reduction is accompanied by a rhetoric in support of international nuclear disarmament[11]. The New START treaty, signed in 2011, allows for the reduction of Russian-American nuclear arsenals. As part of this political will to promote disarmament, the Obama administration unilaterally eliminates nuclear SLCM Tomahawks in order to reduce the risks of misperception and nuclear escalation associated with this missile[12]. This decision is part of a process initiated by the administrations of George H. W. Bush and Bill Clinton, who had already removed nuclear Tomahawk missiles from U.S. ships and submarines. Their elimination only confirmed a bipartisan continuity for the reduction of nuclear arsenals. This trend is reinforced by the emphasis on a world without nuclear weapons in presidential speeches – which, far from being a revolution, was merely a reminder of the very basis of the commitments of any nuclear power under the NPT:

> [T]he United States will take concrete steps towards a world without nuclear weapons. To put an end to Cold War thinking, we will reduce the role of nuclear weapons in our national security strategy, and urge others to do the same. Make no mistake: As long as these weapons exist, the United States will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies […] But we will begin the work of reducing our arsenal[13].

Figure 1 – President Obama makes his speech in support of nuclear disarmament in Prague in 2009 (White House, 2009).

The spirit of the 2009 Prague speech in favor of nuclear disarmament is nevertheless overshadowed by the marked return of distrust and competition among the great powers. Russia's annexation of Crimea in 2014 is in this sense a major turning point in international relations in Europe[14]. Although the New START treaty has allowed for the reduction of Russian and American strategic capabilities in a desire to reset the relationship between the two states, the Ukrainian crisis has revived the threat of tactical nuclear use in Europe. At the same time, the strategic prospects of American power in the Asia-Pacific have deteriorated because of Beijing's rise and the modernization of its conventional and nuclear forces[15]. Thanks to its economic dynamism, China

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[11] BRUSTLEIN, Corentin. *Désarmement nucléaire : l'ambition empêchée d'Obama*. IRSEM, 2017.

[12] LEWIS, Jeffrey. *Why The Navy Should Retire TLAM-N*. 2009. En ligne : https://www.armscontrolwonk.com/archive/202560/why-the-navy-should-retire-tlam-n/ [consulté le 14 mai 2021].

[13] OBAMA, Barack. *Remarks By President Barack Obama In Prague As Delivered*. 2009. En ligne : https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered [consulté le 19 novembre 2021].

[14] BRUSTLEIN, Corentin. « La Guerre Nucléaire Limitée : un Renouveau Stratégique Américain ». Op. cit. p. 1-2

[15] ARBATOV, Alexei et Vladimir DVORKIN. *The Great Strategic Triangle*. Carnegie Endowment for International Peace, 2013. p. 31. En ligne : https://www.jstor.org/stable/resrep13037 [consulté le 10 février 2021].

is strengthening its presence by deploying forces that challenge the United States' freedom of action in the region[16].

As a result of strategic changes on the international stage, President Obama's second term witnessed an adaptation of the U.S. nuclear strategy and posture. The Democratic president began a vast program of modernization of nuclear forces with the aim of adapting American deterrence to new strategic conditions[17]. The forces of the American nuclear triad[18] actually date from the 1970s. The modernization foresees their replacement by the following capacities:

1) the *Columbia*-class nuclear-powered ballistic missile submarines (SSBN) will replace the *Ohio*-class SSBN.

2) the fifth generation B-21 strategic bomber will complement and replace the B-1, B-2 and B-52 bombers in deterrence missions.

3) the intercontinental ballistic missile (ICBM) Ground Based Strategic Deterrent will replace the *Minuteman III* ICBM.

4) the *Long Range Stand Off* (LRSO) nuclear air-launched cruise missile (ALCM) will replace the AGM-86 ALCM.

The U.S. interest in these investments is explained by its desire to ensure the country's deterrent capacity in all levels of conflict against adversaries who challenge its freedom of action. These adversaries include – according to the United States – Russia and China, direct strategic competitors, but also North Korea and Iran. On the other hand, the modernization of nuclear forces is intended to reassure European and Asian allies who depend on the extended U.S. deterrent for their security[19].

Nuclear modernization accelerates from Donald Trump's arrival in the White House in 2018. Although the Trump administration had adopted a more aggressive approach to strategic relations, its approach was a continuation of the nuclear modernization effort of Obama's second term. Despite the differing visions of the Democratic and Republican parties, deterrence modernization remains a topic of bipartisan agreement: both parties support a robust deterrent force[20]. The 2018 NPR, however, represents an important turning point for U.S. nuclear strategy insofar as the administration at the time recognized the acceleration of strategic competition among the great powers, the emergence of new areas of conflict, and the need to accelerate the modernization of U.S. nuclear forces.

Among its most important points, the 2018 NPR establishes U.S. deterrence flexibility through "non-strategic" military nuclear capabilities as a primary goal. In the words of President Donald Trump, the goal is to provide the United States with a "*modern, robust, flexible, resilient, ready and appropriately tailored to deter 21st-century threats and reassure our allies*[21]". To achieve this goal, the Department of Defense proposed the design of a new low-yield

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[16] KÜHN, Ulrich. « Between a rock and a hard place: Europe in a post-INF world », *The Nonproliferation Review*. 2 janvier 2019, vol.26 nº 1-2. p. 161. En ligne : https://www.tandfonline.com/doi/full/10.1080/10736700.2019.1593677 [consulté le 24 novembre 2020].

[17] CONGRESSIONAL BUDGET OFFICE. *Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046*. Congressional Budget Office, 2017. En ligne : https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53211-nuclearforces.pdf [consulté le 18 mai 2021].

[18] The nuclear triad includes the land component with intercontinental ballistic missiles (ICBMs), the sea component with ballistic missile submarines (SSBNs), and finally, the air component with nuclear gravity bombs and cruise missiles carried by strategic bombers.

[19] COOPER, David A. « A Nuclear Cruise Missile Could Be Vital For Arms Control And Nonproliferation Efforts », Blog *Breaking Defense*. 2021. En ligne : https://breakingdefense.sites.breakingmedia.com/2021/09/a-nuclear-cruise-missile-could-be-vital-for-arms-control-and-nonproliferation-efforts/ [consulté le 8 février 2022].

[20] HARVEY, John R et Robert SOOFER. *Nuclear Priorities for the Biden Administration*. Atlantic Council, 2021. p. 1-2. En ligne : https://www.atlanticcouncil.org/wp-content/uploads/2021/12/IB_NUCLEAR_PRIORITIES_3.pdf [consulté le 15 janvier 2022].

[21] Office of Secretary of Defense. *Nuclear Posture Review*. Department of Defense of the United States, 2018. p. 1. En ligne : https://media.defense.gov/2018/Feb/02/2001872886/-

nuclear cruise missile[22]. In a crisis, the U.S. president would be able to control the escalation of the conflict using this type of "low-yield" system without being forced to resort to devastating strategic nuclear forces. Such a strategy, which claims to raise the threshold for the use of "strategic" nuclear weapons, nevertheless lowers the threshold for the use of tactical nuclear weapons.

The reintegration of nuclear sea-launched cruise missiles by the Trump administration's 2018 Nuclear Posture Review

Based on the aforementioned, the introduction of the SLCM-N missile into the debate can therefore be considered as the consequence of two important changes in the American position on nuclear strategy and nuclear risk reduction.

The first change is the revaluation of nuclear capabilities in American defense policy, despite the Obama administration's effort to reduce their role by strengthening their complementarity with conventional capabilities[23]. In contrast to the 2010 NPR, which identified nuclear proliferation and terrorism as the primary threats to the United States, the 2018 NPR recognized as noted the return of great power competition and the deterioration of nuclear stability in recent years[24]. Based on this perception, the Trump administration therefore found it necessary to strengthen the U.S. nuclear triad with the development of two additional capabilities: the low-yield W76-2 ballistic nuclear warhead[25], and – in this case – the nuclear sea-launched cruise missile (SLCM-N)[26]. In contrast to Obama's modernization, these new weapons endorsed by Donald Trump were part of a nuclear warfighting rationale, in which low-yield and "non-strategic" atomic weapons seem more suitable for achieving a "nuclear victory".

The second change is a reversal in nuclear disarmament and risk reduction. As we have seen, the end of the Cold War had led US administrations to support nuclear disarmament and the elimination (or at least the "doctrinal marginalization"[27]) elimination of tactical nuclear capabilities, considered destabilizing in deterrence relations[28]. This explains the elimination of this category of missile from American and Russian arsenals as part of the "Presidential Initiatives". The elimination of nuclear Tomahawk missiles was an example of this "anti-tactical" trend. Conversely, the possibility of reinstating nuclear SLCMs would reverse this Russian-American trend of nuclear risk reduction conducted since the end of the Cold War.

From a more general point of view, the debate on nuclear cruise missiles highlights the revaluation

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1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF [consulté le 15 avril 2021].

[22] U.S. Office of the Under Secretary of Defense for Policy U.S. Department of Defense. *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N)*. Op. cit. p. 2-4

[23] The American Prompt Global Strike program had as one of its objectives to reach any region of the planet with long-range conventional cruise missiles, whose high precision and hypervelocity would allow them to achieve strategic results without resorting to nuclear weapons.

[24] Office of Secretary of Defense. *Nuclear Posture Review.* Op. cit. p. 5-7

[25] Entre 5 et 7 kilotonnes

[26] Ibid. p. . 52-55

[27] ZAJEC, Olivier, « Some other kinds of controlled general war. Deux ans après la Nuclear Posture Review américaine de 2018, quel débat sur l'emploi des armes nucléaires tactiques ? », dans Kiara Neri (dir.), *Le droit international et le nucléaire*, Bruxelles, Bruylant, 2021.

[28] This trend of nuclear disarmament and risk reduction can be traced back to the discussions of the Intermediate Nuclear Forces (INF) treaty, signed in 1987 by Ronald Reagan and Mikhail Gorbachev. This treaty was the result of the realization by American and Soviet authorities of the risks of nuclear escalation from non-strategic "Euromissiles" deployed in Europe. On the risks linked to tactical armaments, see: PARTHEMORE, Christine. « The ambiguity challenge: Why the world needs a multilateral nuclear cruise missile agreement », *Bulletin of the Atomic Scientists.* 4 mai 2017, vol.73 nº 3. p. 154-158. En ligne : https://www.tandfonline.com/doi/full/10.1080/00963402.2017.1315919 [consulté le 24 novembre 2020].

of nuclear weapons in the defense policies of the major powers. These great powers, like the United States, have embarked on a process of modernizing their deterrent forces. In Europe, Russia has been modernizing its nuclear forces since the beginning of the 2010s, through the design of new cruise missiles capable of carrying conventional and nuclear warheads[29]. One of the aims of this Russian modernization is to provide the country with operationally flexible deterrent capabilities in the face of the superiority of NATO's conventional and anti-missile forces. In East Asia, China is also modernizing its nuclear forces with the aim of having the most modern capabilities in the world. Although China's nuclear arsenal is still quantitatively and qualitatively inferior to the U.S. and Russian arsenals, the U.S. State Department projects a doubling of China's atomic warheads by 2049[30]. Although the modernization of Beijing's arsenal will take a few years, its quantitative expansion demonstrates a desire to assert Chinese power in the world and in the Asia-Pacific region, at the expense of the United States and the current nuclear balance.

In Russian-American relations, the United States' desire for nuclear modernization can be explained by the growing disparity in non-strategic (also called "tactical" or "pre-strategic") forces between the two countries[31]. Despite the Presidential Initiatives in the 1990s, Russia currently has a larger and more diverse tactical nuclear arsenal than the United States. In addition, Moscow has taken a special interest in recent years in developing new non-strategic or low-yield nuclear capabilities, including dual-capable cruise missiles[32]. For example, according to the Pentagon, Russia has about 2,000 non-strategic nuclear weapons deployed on ships, submarines, aircraft and in batteries attached to land forces, while the United States has about 230 non-strategic weapons, the majority of which are B61 gravity bombs deployed in Europe[33]. Concerning China, although in a different context, it develops short-range and dual-capability systems[34]. These developments have been seen in Washington as actions designed to challenge U.S. deterrence credibility and freedom of action in Europe and East Asia.

Driven by this rearmament context, the 2018 NPR emphasized the need for a reinstatement of nuclear SLCMs to strengthen strategic deterrence forces and specially to adapt them to a limited nuclear attack. American officials fear being in a self-deterrence situation where the president would be reluctant to employ atomic weapons in response to a limited nuclear attack by the adversary[35]. The latter could use low-yield tactical nuclear weapons in a regional war to stop the advance of Western forces. Such a strategy is implied by the latest developments in Russian nuclear doctrine against

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[29] PODVIG, Pavel. « Russia's Current Nuclear Modernization and Arms Control », *Journal for Peace and Nuclear Disarmament*. 3 juillet 2018, vol.1 nº 2. p. 256-267. En ligne : https://www.tandfonline.com/doi/full/10.1080/25751654.2018.1526629 [consulté le 21 décembre 2020].

[30] FORD, Christopher A. *U.S. Priority for « Next-Generation Arms Control ».* Rapport 1. US Office of the Under Secretary for Arms Control and International Security, 2020. p. 2. En ligne : https://www.state.gov/wp-content/uploads/2020/04/T-paper-series-1-Arms-Control-2.pdf [consulté le 3 novembre 2021].

[31] HEINRICHS, Rebeccah L. *Transcript: The Arms Control Landscape ft. DIA Lt. Gen. Robert P. Ashley, Jr.* 2019. En ligne : http://www.hudson.org/research/15063-transcript-the-arms-control-landscape-ft-dia-lt-gen-robert-p-ashley-jr [consulté le 30 novembre 2021].

[32] VEN BRUUSGAARD, Kristin. « Russian Nuclear Strategy and Conventional Inferiority », *Journal of Strategic Studies*. 2 janvier 2021, vol.44 nº 1. p. 20-27. En ligne : https://www.tandfonline.com/doi/full/10.1080/01402390.2020.1818070 [consulté le 2 juin 2021].

[33] KRISTENSEN, Hans M. et Matt KORDA. « Tactical nuclear weapons, 2019 », *Bulletin of the Atomic Scientists*. 3 septembre 2019, vol.75 nº 5. p. 252-261. En ligne : https://www.tandfonline.com/doi/full/10.1080/00963402.2019.1654273 [consulté le 24 novembre 2020].

[34] STOKES, Jacob. *China's Missile Program and U.S. Withdrawal from the Intermediate-Range Nuclear Forces (INF) Treaty*. U.S.-China Economic and Security Review Commission, 2019. p. 2. En ligne : https://www.uscc.gov/sites/default/files/Research/China%20and%20INF_0.pdf [consulté le 3 mai 2021].

[35] BRUSTLEIN, Corentin. « La Guerre Nucléaire Limitée : un Renouveau Stratégique Américain ». Op. cit. p. 19-22

NATO forces in Europe[36]. To avoid such a scenario, the 2018 NPR noted the strategic value of the nuclear SLCM in protecting allies that benefit from American extended deterrence in Europe and Asia.

These arguments, advanced by the Trump administration's 2018 NPR, actually date back to the 1960s and 1970s. The American nuclear posture thus recovers debates dating back to the First Nuclear Age, which opens up perspectives that we will now examine.

The theoretical debate on American nuclear posture in the 21st century: a return to the 1970s?

Nuclear superiority and deterrence flexibility through non-strategic nuclear employment

The debate in the United States concerning nuclear SLCM has revived theoretical discussions whose origins go back to the first thoughts on the military use of atomic weapons. In contrast to the "tradition" (T.V. Paul) or the "taboo" (N. Tannenwald) of the non-use of nuclear weapons (whose function would be solely deterrent), specialists are once again questioning the conditions for *nuclear use*.

First developed in the 1950s, the rationale for nuclear warfighting and the tactical use of nuclear weapons has been put forward by a few intellectuals, including Herman Kahn of the Hudson Institute[37]. Within this group are political and military actors who accept the idea that nuclear escalation can be controlled by the use of conventional forces combined with tactical nuclear forces. Escalation would be controlled in particular by the use of low-yield nuclear weapons against strategic targets such as nuclear second-strike forces, military centers or command and control centers. The complementarity between conventional and tactical nuclear forces would, according to these nuclear "neo-tacticians", make it possible to raise the "employment threshold" of nuclear weapons[38]. This approach to nuclear deterrence thus considers as possible (and conceivable) a "limited" nuclear conflict between military forces without resorting to strategic forces whose power would lead to the mutual destruction of the adversaries.

This type of reasoning was supported by the doctrine of the Flexible Response adopted in 1962 by Robert MacNamara, Secretary of Defense during the administrations of John F. Kennedy and Lyndon B. Johnson administrations. Although this doctrine emphasized the complementarity of conventional and tactical nuclear forces, it also provided for a "high" nuclear threshold at which strategic nuclear weapons would be used to inflict unacceptable damage on the enemy (anti-city strategy). Given the risks of such a strategy, the Schlesinger Doctrine of the 1970s provided for more flexible nuclear use against strategic military and economic targets (anti-value strategy), before the use of strategic weapons was considered. The most important thing was still to ensure strategic stability between American and Soviet forces.

The situation changed in the 1980s, when the Reagan administration reclaimed the strategy of nuclear warfighting and established nuclear superiority as a central objective of American strategy[39]. Rejecting the concept of strategic

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[36] COLBY, Elbridge A. « Russia's Evolving Nuclear Doctrine and its Implications », *Notes de la FRS*. 12 janvier 2016 nº 1. p. 1-12. En ligne : https://www.frstrategie.org/sites/default/files/documents/publications/notes/2016/201601.pdf [consulté le 4 juin 2021]. ; FINK, Anya Loukianova et Olga OLIKER. « Russia's Nuclear Weapons in a Multipolar World: Guarantors of Sovereignty, Great Power Status & More », *Daedalus*. 2020, vol.149 nº 2. p. 37-55. En ligne : https://www.jstor.org/stable/48591311 [consulté le 4 février 2021].

[37] KAHN, Herman. *On Thermonuclear War*. 1re éd. New York : Princeton University Press, 1960.

[38] U.S. Office of the Under Secretary of Defense for Policy U.S. Department of Defense. *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N). Op. cit. p. 2*

[39] BRUSTLEIN, Corentin. « La Guerre Nucléaire Limitée : un Renouveau Stratégique Américain ». Op. cit. p. 11-13

stability, the Reagan administration adopted an anti-forces nuclear strategy that emphasized tactical nuclear weapons as a complement to robust anti-missile defense. This strategic reversal was prompted by the renewed bipolar competition, the expansion of the Soviet arsenal (greatly magnified in Western assessments at the time) and the failure of arms control negotiations. Nowadays, echoes of this vision can be identified in the 2018 NPR and its goal of American nuclear superiority over competitors that challenge American global dominance. This superiority depends on the modernization and diversification of U.S. strategic and non-strategic nuclear forces.

In the 2018 NPR, the new nuclear SLCM thus implied, in doctrinal terms, the political and military recognition of a possible "battle" between nuclear forces. In the relationship between offensive and defensive capabilities, nuclear cruise missiles indeed possess operational characteristics that make them more suitable for tactical employment, including trajectory flexibility and stealth. These characteristics make them a nuclear first-strike capability whose function would be to disarm the adversary and break its will by attacking its deterrent forces. From Washington's point of view, the integration of these missiles would increase the range of response to local aggression by Russia and China.

Beyond these theoretical capability considerations, the nuclear superiority argument finds political and intellectual support among certain actors in the American government and civil society. This group is composed of members of the Republican Party, the Department of Defense, the Department of Energy, as well as some defense industrialists. The Department of Defense is currently the U.S. government actor most convinced of the nuclear superiority strategy, which is combined with a criticism of arms control[40]. In 2021, Commander Charles Richard of United States Strategic Command (US STRATCOM) testifies before the Senate Armed Services Committee. There he defended the design of the new nuclear sea-launched cruise missile due to regional constrains from Russia and China. His speech summarizes the Department of Defense's vision on the subject:

> Limited and graduated U.S. response options, such as SLCM-N and low-yield SLBM, provide a more credible deterrent to limited attack against the United States and our allies and partners than relying primarily on the threat of large-scale nuclear responses. Without this capability adversaries may perceive an advantage at lower levels of conflict that may encourage limited nuclear use[41].

Members of the Republican Party are pushing to advance nuclear modernization and the continuation of the SLCM-N program by the Biden administration. In June 2021, during discussions of the nuclear forces budget in the U.S. Senate Strategic Forces Subcommittee, Republican Senator Mike Turner disapproves of a possible programmatic cancellation of the cruise missile, describing it as a "one-sided concession" to Vladimir Putin and Russia, which has several such missiles in its arsenal[42]. The best-known example is the SLCM Kalibr, carried by Russian vessels and submarines, and used on several occasions in Syria and more recently in Ukraine.

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[40] MOUNT, Adam. *The Biden Nuclear Posture Review: Obstacles to Reducing Reliance on Nuclear Weapons.* 2022. En ligne : https://www.armscontrol.org/act/2022-01/features/biden-nuclear-posture-review-obstacles-reducing-reliance-nuclear-weapons [consulté le 9 février 2022].

[41] RICHARD, Charles A. *Statement of Charles A. Richard, Commander of United States Strategic Command before the Senate Committee on Armed Services*. Washington, D.C. : [s.n.], 2021. p. 17-18. En ligne : https://www.armed-services.senate.gov/imo/media/doc/Richard04.20.2021.pdf [consulté le 15 janvier 2022].

[42] TURNER, *Mike. Turnet Opening Statement at Hearing on FY22 Budget Request for Nuclear Forces and Atomic Energy Defense Activities.* 2021. En ligne : https://republicans-armedservices.house.gov/news/press-releases/turner-opening-statement-hearing-fy22-budget-request-nuclear-forces-and-atomic [consulté le 9 février 2022].

For this political group, the United States would therefore not have capabilities suitable for a non-strategic nuclear conflict. In contrast, Russia and China would now have a large and diverse arsenal of tactical and intermediate-range nuclear weapons[43]. The Department of Defense thus presents the nuclear SLCM as an essential military capability to address a perceived gap in U.S. deterrence[44]. This position was expressed by General Tod D. Wolters, who heads the U.S. European Command (US-EUCOM), before the U.S. Senate in February 2020:

> USEUCOM fully supports recommendations in the 2018 Nuclear Posture Review to deploy the W76-2 Low Yield Ballistic Missile and to pursue development of a modern, sea-launched nuclear cruise missile. These actions would address a perceived deterrence gap, raise the Russian threshold for nuclear use, and disabuse the Russian Federation of the misconception there is any path to victory through nuclear escalation[45].

Nuclear superiority supporters also argue that the design of the nuclear SLCM could (counter-intuitively) have a positive effect on contemporary arms control architecture. Some experts and members of the U.S. government point out that the design of this new cruise missile could serve as a bargaining chip in arms control negotiations with Moscow[46]. Given the imbalance between Russian and American tactical nuclear arsenals, the new cruise missile could force the Russians to begin discussions for limiting or even reducing this category of nuclear weaponry. This argument, which had already been expressed by the Trump administration's Secretary of Defense, James Mattis, in 2018:

> So the idea is, once again, to keep our negotiators negotiating from a position of strength. I don't believe you can go into a negotiation and try to get something or nothing. I don't think the Russians would be willing to give up something to gain nothing from us in terms of reductions[47].

Indeed, as we have already noted, the imbalance of tactical nuclear forces is a source of concern in the United States, all the more so because of the absence of a framework under the New START treaty[48].

However, the Americans and Russians are no longer in a situation of shared bipolar dominance. While the new missile could create new opportunities for framing non-strategic capabilities with Russia, such a negotiation seems difficult with

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[43] ROCHA, Douglas de Quadros. *L'affrontement des missiles : considérations balistiques de la guerre en Ukraine. Institut d'études de stratégie et de défense*, 2022. En ligne : https://iesd.univ-lyon3.fr/wp-content/uploads/2022/03/Note-dActualite%CC%81-de-lIESD-Douglas-Rocha-Conside%CC%81rations-balistiques-de-la-guerre-en-Ukraine-1.pdf [consulté le 1 avril 2022].

[44] U.S. Office of the Under Secretary of Defense for Policy U.S. Department of Defense. *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N)*. *Op. cit.* p. 4

[45] WOLTERS, *Tod D. Statement of General Tod D. Wolters, United States Air Force Commander United States European Command*. Washington, D.C. : [s.n.], 2021. p. 14. En ligne : https://www.eucom.mil/document/40291/general-wolters-fy2021-testimony-to-the-senat [consulté le 18 janvier 2022].

[46] COOPER, David A. « A Nuclear Cruise Missile Could Be Vital For Arms Control And Nonproliferation Efforts ». Op. cit.

[47] MEHTA, Aaron. *Will the US trade its new sub-launched cruise missile for Russian arms treaty compliance?* 2018. En ligne : https://www.defensenews.com/space/2018/02/06/will-the-us-trade-its-new-sub-launched-cruise-missile-for-russian-arms-treaty-compliance/ [consulté le 4 avril 2022].

[48] WOOLF, Amy F. *The New START Treaty: Central Limits and Key Provisions*. Rapport R41219. Congressional Research Service, 2021. p. 45-46. En ligne : https://fas.org/sgp/crs/nuke/R41219.pdf [consulté le 23 juillet 2021].

China[49]. The emerging nuclear multipolarity in the international system means that Washington must consider the expansion of China's nuclear arsenal and the emergence of not one, but two peer competitors. A cartoon published by The Economist in 2021, which we reproduce below, expresses this view of nuclear superiority advocates, who are more resistant to future nuclear arsenal reductions in the face of China's growing power. As such, the nuclear SLCM would be an important military capability to ensure a U.S. nuclear presence in East Asia and the Pacific, to counter China's growing non-strategic capabilities[50].

Although the development of nuclear SLCM is often seen from the point of view of the balance of power between the United States and its adversaries, this decision also has an impact on relations with its allies. During the Cold War, the United States developed a network of security relationships with certain states in Europe and Asia as a means of extended deterrence and as a strategic and political protectorate. This network includes NATO members in Europe and Japan, South Korea, the Philippines, Australia, and New Zealand in Asia. In the case of Japan, the old nuclear Tomahawk was considered an important military capability for extended deterrence in the region[51]. The stealth of the new nuclear SLCMs (carried on submarines) would imply significant survivability in the event of a limited nuclear strike. According to the U.S. Department of Defense, this feature would enhance the credibility of the U.S. extended deterrent vis-à-vis allies and adversaries[52].

Among the positive externalities of this rearmament, some actors point to the fact that these sea-launched missiles would not involve deployment on the territory of allies. It turns out that the deployment of foreign nuclear forces is a sensitive issue among certain allies where there is

Figure 2 - U.S.-Russian nuclear negotiations, despite China's expanding nuclear arsenal (The Economist, 2021)

[49] BAKLITSKIY, Andrey. *The Prospects for U.S.-Russian Arms Control*. Center for Strategic and International Studies (CSIS), 2020. p. 8. En ligne : https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/Baklitskiy_FullReport_v2.pdf [consulté le 20 juin 2021].

[50] KROENIG, Matthew. *Deterring Chinese Strategic Attack: Grappling with the Implications of China's Strategic Forces Buildup*. Washington, D.C. : Atlantic Council, 2021. p. 17-20. En ligne : https://www.atlanticcouncil.org/wp-content/uploads/2021/11/Deterring_Chinese_Strategic_Attack_Rpt_10312190.pdf [consulté le 10 février 2022].

[51] KRISTENSEN, Hans M. « US Navy Instruction Confirms Retirement of Nuclear Tomahawk Cruise Missile ». Op. cit.

[52] GELLER, Patty-Jane. *Dangerous Nuclear Policy Idea No. 4: Defunding the Nuclear Sea-Launched Cruise Missile.* 2021. En ligne : https://www.heritage.org/defense/report/dangerous-nuclear-policy-idea-no-4-defunding-the-nuclear-sea-launched-cruise-missile [consulté le 10 février 2022].

strong anti-nuclear or anti-military pressure[53]. This comes alongside mounting anti-nuclear pressure around the world, for example in Germany, where the debate over the deployment of U.S. tactical nuclear bombs on German territory is dividing opinion within the new coalition in the Bundestag[54]. The cruise missiles carried by the submarines would thus avoid internal political tensions with certain American allies.

Despite anti-nuclear reluctance, the supporters of nuclear superiority argue that the deterioration of the strategic environment in Europe and East Asia necessarily requires a more substantial commitment by the United States. Faced with the threat of a limited nuclear attack (notably in Eastern Europe, with the objective of preventing the action of NATO forces, as is the case today in Ukraine), the American Department of Defense thus emphasizes the need to have low-yield nuclear missiles.

In order to respond to the critics denouncing a return to the nuclear "battle"[55], the US Department of Defense's Office of Arms Control and International Security has produced a report in which the authors seek to reassure the Democratic administration elected in 2020, as well as European and Asian allies, that nuclear SLCMs are entirely "deterrent" in nature:

> Despite arguments that are commonly heard, the goal is not to mimic Russia's strategy or match its much more expansive nonstrategic arsenal. The NPR supplemental capabilities fall well short of doing so. Nor do they signal a shift toward a strategy emphasizing nuclear warfighting or a lower threshold for nuclear employment. To the contrary, they are intended to ensure that nuclear war is less rather than more likely by demonstrating to adversaries that the United States is fully prepared to deter nuclear threats at every stage of an escalating crisis or conflict[56].

Deterrence balance, nuclear risk reduction and strategic stability

On the other side of this intellectual arena, a group of actors defends the relevance of the balance of deterrence forces between nuclear powers. Following the theoretical reflections related to the Mutual Assured Destruction in the 1960s, the proponents of this approach argue that the balance between nuclear second-strike forces is the necessary condition for preserving the strategic stability of relations between major powers. If ICBMs and SSBNs remain invulnerable thanks to technological developments (silo protection, carrier mobility, stealthy delivery systems), a preemptive and disarming nuclear attack of first-strike forces no longer makes sense. Consequently, investment in the design of first-strike nuclear capabilities is illogical because they will not prevent a nuclear response from the adversary. Once the possibility of a disarming nuclear attack has been eliminated, American nuclear strategy must follow an "anti-value" logic: threatening the adversary's population and economic centers would be sufficient to deter the use of nuclear weapons.

In historical terms, this vision of deterrence was formulated in the 1960s during reflections on the

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[53] MERCADO, Vic. *A Nuclear Sea-launched Cruise Missile Will Help Deter Nuclear Aggression*. 2020. En ligne : https://www.defensenews.com/opinion/commentary/2020/08/05/a-nuclear-sea-launched-cruise-missile-will-help-deter-nuclear-aggression/ [consulté le 10 février 2022].

[54] MEIER, Oliver. *German Politicians Renew Nuclear Basing Debate.* 2020. En ligne : https://www.armscontrol.org/act/2020-06/news/german-politicians-renew-nuclear-basing-debate [consulté le 10 février 2022].

[55] KIMBALL, Daryl G. et Kingston REIF. « The New U.S. Nuclear Strategy is Flawed and Dangerous. Here's Why. », *Arms Control Today*. 2018, vol.10 nº 3. 2018 . En ligne : https://www.armscontrol.org/issue-briefs/2018-02/new-us-nuclear-strategy-flawed-dangerous-heres-why [consulté le 10 février 2022].

[56] U.S. Office of the Under Secretary of Defense for Policy U.S. Department of Defense. *Strengthening Deterrence and Reducing Nuclear Risks, Part II: The Sea-Launched Cruise Missile-Nuclear (SLCM-N)*. Op. cit. p. 2

consequences of the introduction of intercontinental ballistic missiles (ICBMs) in the power relations between the United States and the Soviet Union. Gradually, this theory of strategic stability became established, thanks in particular to the context of détente between Washington and Moscow. Among the most important contributions to this vision are the publications of Thomas Schelling and Morton Halperin, Albert Wohlstetter, Robert Jervis, and Charles Glaser[57].

In the current debate over the SLCM-N program, this group believes that U.S. deterrent forces should be structured around their second-strike capabilities, rather than considering a nuclear warfighting strategy based on tactical or "non-strategic" capabilities[58]. The strategic forces currently available to the United States would be sufficient to deter its adversaries[59]. Non-strategic nuclear capabilities could ultimately be used to send a signal that the nuclear threshold has been crossed and that strategic nuclear weapons could be employed[60]. One finds here the balance of the French doctrine on the subject, as expressed recently by Emmanuel Macron in February 2020.

Within the U.S. government, these rationales are shared by much of the Democratic Party, the State Department, and arms control advocates from the political and academic communities. The Democratic Party, including President Biden, has been at the forefront of the sharpest criticism of the Trump administration's SLCM-N program. Indeed, during his 2019 presidential campaign, Joe Biden criticized Donald Trump's stance on low-yield nuclear capabilities, arguing that the U.S. nuclear arsenal was "*sufficient to meet our deterrence and alliance requirements*[61]".

These arguments are echoed in the U.S. Congress, where some Democratic officials have proposed a bill to end funding for the SLCM-N program. They also point to the redundancy and uselessness of the missile in a nuclear arsenal that already seems sufficient for U.S. deterrence missions, including on a regional scale:

> The United States possesses an array of nuclear weapons systems, including both air- and sea-based capabilities, that provide an effective regional deterrent presence, making the nuclear-armed sea-launched cruise missile a redundant, unnecessary capability[62].

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[57] SCHELLING, Thomas C. *The Strategy of Conflict.* Cambridge, Massachusetts : Harvard University Press, 1980. 309 p. ; SCHELLING, Thomas C. et Morton H. HALPERIN. *Strategy and Arms Control.* Mansfield Centre : Martino Fine Books, 2014. ; WOHLSTETTER, Albert. « The Delicate Balance of Terror », *Foreign Affairs*. 1959, vol.37 nº 2. p. 211-234. En ligne : https://www.jstor.org/stable/20029345 [consulté le 18 décembre 2020]. ; JERVIS, Robert. « Cooperation Under the Security Dilemma », *World Politics*. 1978, vol.30 nº 2. p. 167-214. En ligne : https://www.jstor.org/stable/2009958 [consulté le 30 novembre 2020]. ; GLASER, Charles L. « Political Consequences of Military Strategy: Expanding and Refining the Spiral and Deterrence Models », *World Politics*. 1992, vol.44 nº 4. p. 497-538. En ligne : https://www.jstor.org/stable/2010486 [consulté le 16 mars 2021].

[58] Non-strategic nuclear capabilities include the B61 gravity bombs, the AGM-86 and future Long Range Stand Off Weapon (LRSO) air-launched cruise missiles, and the W76-2 low-yield nuclear warhead carried by SLBMs.

[59] MONTGOMERY, Monica et Kingston REIF. « Biden Should Sink This Proposed Nuclear Weapon ». Op. cit. ; PERKOVICH, George et Pranay VADDI. *Proportionate Deterrence: A Model Nuclear Posture Review*. Carnegie Endowment for International Peace, 2021. p. 63-64. En ligne : https://carnegieendowment.org/files/Perkovich_Vaddi_NPR_full1.pdf [consulté le 17 juillet 2021].

[60] This is the case of the French nuclear doctrine which provides for the use of ASPM-A nuclear cruise missiles only to signal the crossing of the threshold.

[61] COUNCIL FOR A LIVABLE WORLD et Joseph R. BIDEN JR. Joe *Biden on Nuclear Weapons Issues*. 2020. En ligne : https://livableworld.org/meet-the-candidates/joe-biden-a-lifelong-champion-of-nuclear-arms-control/joe-biden-on-nuclear-weapons-issues/ [consulté le 11 février 2022].

[62] COURTNEY, Joe. *Text - H.R.1554 - 117th Congress (2021-2022): Nuclear SLCM Ban Act of 2021*. 2021. En

As a result of this internal dispute, the U.S. Senate commissioned a study of alternatives to the SLCM-N program, while Congress analyzed the future of missile funding for the next several years[63].

Opposition to nuclear SLCM thus arises from fundamentally different visions of deterrence within each of these groups. While proponents of nuclear superiority see nuclear relations as competitive, proponents of strategic stability believe that the very principle of deterrence makes them cooperative *as well*. Thus, according to this second group, the United States must consider a nuclear strategy that meets both deterrence needs and a broader international arms control imperative. From the perspective of opponents of the nuclear SLCM, the new missile would undermine strategic stability because it would reinforce an anti-forces approach to nuclear relations, which could accelerate an arms race among the major powers. They also believe that U.S. tactical nuclear capabilities are currently sufficient to deter aggression in Europe or Asia[64]. The United States deploys B61 gravity bombs in Germany, Italy, the Netherlands, Belgium, and Turkey under the NATO framework. In addition, Washington currently operates a nuclear triad whose capabilities, as mentioned, are undergoing a major modernization program. New military capabilities such as the LRSO and the submarine-launched intercontinental ballistic missile (SLBM) can also carry low-yield nuclear warheads (W80-1 and W76-2 respectively), making them suitable for limited warfare. Thus, the United States would not need a new nuclear SLCM to ensure its deterrent credibility, especially since the combined costs of the missile and warhead (W80-4) design would exceed 15 billion dollars[65].

This criticism is not limited to political authorities and certain centers of expertise. It is also expressed by the US Navy. In a context of budgetary limitations, a June 2021 document suggested that the U.S. Navy should prioritize investments in modernizing its naval forces, such as the new *Columbia*-class SSBNs, while reducing investments in the SLCM-N program[66]. From an operational point of view, it should be noted that since the elimination of the nuclear Tomahawk in 2013, U.S. surface ships no longer have any nuclear missions. A reintegration of nuclear SLCMs would therefore require a readjustment of the ships and a reduction in the number of conventional Tomahawk missiles, the use of which would be prioritized in the current conditions, especially in the Asia-Pacific. In addition, these steps would require significant costs and a readjustment of military personnel doctrine[67].

The United States' arms control image is also a central issue in this doctrinal and capability controversy. The SLCM-N would represent a step backward in the process of nuclear risk reduction maintained by the United States and Russia since the end of the Cold War. The Presidential initiatives and the elimination of nuclear Tomahawks in 2013 were intended to reduce the risk of an all-out nuclear war triggered by a miscalculation or misperception following the use of tactical nuclear capabilities. As a result, arms control advocates have consistently emphasized the destabilizing effects of such a capability on strategic relations with Washington's adversaries and allies.

The troubled issue is the arms control negotiations between Washington and Moscow. Following the extension of the New START treaty

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ligne : https://www.congress.gov/bill/117th-congress/house-bill/1554/text [consulté le 26 janvier 2022].

[63] SCOTT, Rick. « National Defense Authorization Act for Fiscal Year 2022 ». Op. cit.

[64] ACTON, James M. *Future Defense Spending: Nuclear Modernization.* Washington, D.C. : [s.n.], 2021. En ligne : https://docs.house.gov/meetings/AP/AP02/20210323/111389/HHRG-117-AP02-Wstate-ActonJ-20210323.pdf [consulté le 2 février 2022].

[65] SCOTT, Rick. « National Defense Authorization Act for Fiscal Year 2022 ». Op. cit.

[66] SHELBOURNE, Mallory et Sam LAGRONE. « SECNAV Memo: New Destroyer, Fighter or Sub: You Can Only Pick One », *Blog USNI News*. 2021. En ligne : https://news.usni.org/2021/06/08/secnav-memo-new-destroyer-fighter-or-sub-you-can-only-pick-one-cut-nuclear-cruise-missile [consulté le 20 juin 2021].

[67] MONTGOMERY, Monica et Kingston REIF. « Biden Should Sink This Proposed Nuclear Weapon ». Op. cit.

until 2026, the Biden administration has proposed a new framework for Russian-American discussions to negotiate a future arms control treaty. In September 2021, in Geneva, U.S. and Russian officials established the "Working Group on Principles and Objectives for Future Arms Control" and the "Working Group on Capabilities and Actions With Strategic Effects" for this purpose[68]. Among the topics discussed, the control of tactical nuclear weapons is one of the most sensitive.

In September 2021, Bonnie Jenkins, Under Secretary of State for Arms Control and International Security Affairs of the Biden Administration, stated in the Strategic Stability Dialogue with Moscow the U.S. intention to "*to address all nuclear warheads, including those which have not been limited previously, like so-called non-strategic nuclear weapons*[69]". The nuclear SLCM would make it more difficult to achieve this goal.

The Russian military invasion of Ukraine has provoked a halt in the bilateral dialogue between Russians and Americans. On February 25, the day after the Russian invasion of Ukraine, the Biden administration decided to interrupt the dialogue that was taking place in Geneva. In the current impasse, some analysts wonder about the future and the form that arms control will take in the coming years (treaties and strategic risk reduction measures)[70]. The cancellation of the SLCM-N program thus demonstrates a willingness on the part of the Biden administration, and despite the difficulty of the post-Ukraine "moment," to reduce the risks of nuclear escalation and to preserve as much as possible strategic stability and dialogue with Russia.

Figure 3 – « *Strategic Stability Dialogue* » between the United States and Russia in Geneva in July 2021 (U.S. Mission Geneva, 2022)

With respect to allies, proponents of strategic stability argue that U.S. deterrent credibility remains assured by its strategic second strike. This reasoning is based on the premise that nuclear war cannot be "limited[71]". The security of allied countries in Europe and Asia can also be provided by the current U.S. nuclear triad. The nuclear SLCM would be a redundant capability, given that the United States already has non-strategic forces of varying power such as the AGM-86 ALCM, the B61 gravity bombs, or the new low-power W76-2 ballistic nuclear warheads.

Some experts, such as Christine Parthemore, insist that cruise missiles increase the risk of nuclear conflict due to misperception of the missile's payload and trajectory[72]. The operational

[68] BUGOS, Shannon. *U.S., Russia Establish Strategic Stability Groups.* 2021. En ligne : https://www.armscontrol.org/act/2021-11/news/us-russia-establish-strategic-stability-groups [consulté le 27 janvier 2022].

[69] U.S. DEPARTMENT OF STATE et Bonnie JENKINS. « Under Secretary Bonnie Jenkins' Remarks: Nuclear Arms Control: A New Era? », Blog United States Department of State. 2021. En ligne : https://www.state.gov/under-secretary-bonnie-jenkins-remarks-nuclear-arms-control-a-new-era/ [consulté le 11 février 2022].

[70] WILLIAMS, Heather. « How to Avoid the Dark Ages of Arms Control », Blog *Foreign Policy*. 2022. En ligne : https://foreignpolicy.com/2022/04/01/russia-war-ukraine-nuclear-arms-control-dark-ages-renaissance/ [consulté le 4 avril 2022].

[71] NARANG, Vipin. *The Discrimination Problem: Why Putting Low-Yield Nuclear Weapons on Submarines Is So Dangerous*. 2018. En ligne : https://warontherocks.com/2018/02/discrimination-problem-putting-low-yield-nuclear-weapons-submarines-dangerous/ [consulté le 4 avril 2022].

[72] PARTHEMORE, Christine. *The Unique Risks of Nuclear-Armed Cruise Missiles*. United Nations Institute for Disarmament Research, 2017. ; WEBER, Honorable Andy et Christine PARTHEMORE. « Cruise Control: The Logical Next Step in Nuclear Arms Control? », *Journal for Peace and Nuclear Disarmament*. 3 juillet 2019, vol.2 nº 2. p. 453-467. En ligne :

characteristics of cruise missiles make them a source of uncertainty for the adversary, who does not know the payload carried by the missile until its explosion. Moreover, the existence of this type of missile in its conventional and nuclear versions adds a dose of uncertainty that could incite a disproportionate preemptive nuclear attack.

Unlike ballistic missiles whose ecliptic trajectory[73] can be predicted, cruise missiles have flexible and very low trajectories, which makes them undetectable to radar and adversary defenses. In theoretical terms, this would negatively impact crisis stability, defined as the balance of incentives for one adversary to conduct a nuclear first strike in a crisis situation where psychological conditions decisively influence perceptions[74].

The nuclear SLCM would also stimulate the deployment of tactical nuclear capabilities by the powers, which would strengthen the international arms race[75]. In a context of strategic competition, such a program would affect the balance between offensive and defensive capabilities in order to acquire superiority in the nuclear domain[76]. Some nations have developed cruise missiles: Russia developed the *Kalibr* SLCM, Pakistan the *Babur* ALCM and China the *CJ-10* ALCM. The American SLCM-N program would thus reinforce an arms race with high budgetary costs and negative consequences for arms race stability. Finally, this issue is particularly important for the European continent, where this type of missile is no longer restricted since the end of the Intermediate Nuclear Forces (INF) treaty in 2019.

Opponents of the SLCM-N program finally point to its excessive cost[77]. These budgetary resources would, in their opinion, be more wisely allocated to the modernization of the strategic nuclear forces.

The Biden administration's challenges for the 2022 Nuclear Posture Review

Ensuring the credibility of deterrence in an uncertain nuclear environment

The Biden administration arrived at the White House in a context marked by renewed competition among the great powers and growing distrust in international relations, particularly in arms control negotiated with Russia. Among the dimensions of this competition, the current administration is obliged to respond to several challenges in terms of nuclear strategy within the framework of the Nuclear Posture Review of 2022.

First, U.S. officials must consider the most effective way to ensure the credibility of their nuclear deterrent and the shape of their nuclear posture in the coming years. The new 2022 NPR will have to decide between a nuclear force posture based on strategic second-strike nuclear weapons, or on flexible and variable yield capabilities. This debate appears decisive in defining the U.S. nuclear posture for the next few decades. Although this decision has a theoretical, even ethical aspect, it is above all decisive because of its long-term capability and budgetary consequences. Moreover, the pace of military developments in recent years

https://www.tandfonline.com/doi/full/10.1080/25751654.2019.1681886 [consulté le 24 novembre 2020].

[73] That is, tracing a circle around the Earth.

[74] SCHELLING, Thomas C. et Morton H. HALPERIN. *Strategy and Arms Control*. Op. cit. p. 50

[75] ZALA, Benjamin. « How the next nuclear arms race will be different from the last one », *Bulletin of the Atomic Scientists*. 2 janvier 2019, vol.75 nº 1. p. 36-43. En ligne : https://www.tandfonline.com/doi/full/10.1080/00963402.2019.1555999 [consulté le 13 décembre 2020].

[76] MCMAHON, K. S. et Dennis M. GORMLEY. *Controlling The Spread of Land-Attack Cruise Missiles*. Defense Technical Information Center, 1995. p. 17. En ligne : http://www.dtic.mil/docs/citations/ADA338749 [consulté le 24 novembre 2020].

[77] VAN HOLLEN, Chris et Joe COURTNEY. *Van Hollen, Courtney Introduce Bicameral Bill to Halt Costly and Redundant Trump-Era Nuclear Program*. 2021. En ligne : https://www.vanhollen.senate.gov/news/press-releases/van-hollen-courtney-introduce-bicameral-bill-to-halt-costly-and-redundant-trump-era-nuclear-program [consulté le 10 février 2022].

suggests a strategic environment that could revive the debate on the desirability of a quantitative increase in the United States' arsenal.

In terms of extended deterrence, this debate is also central. The European and Asian allies, motivated by the fear of a Russian, Chinese, or even North Korean attack, are putting increasing pressure on the American government to obtain more military involvement in their respective regions. This is why the Baltic States or Poland, Japan and South Korea are rather supportive of a U.S. military presence on their national territory, as well as the development of new nuclear capabilities more adapted to the non-strategic level[78]. The current war in Ukraine only reinforces these demands.

The credibility of the U.S. extended deterrent is an important safeguard against allies acquiring nuclear weapons. On the other hand, some experts point to the risks of a new wave of proliferation motivated by the fears of some allies regarding the rise of Russia and China[79]. In a deteriorating strategic environment, nuclear weapons could be seen as the only way to ensure the national security of states such as Japan, South Korea, and Taiwan, all three of which possess nuclear energy and the technologies necessary to develop a nuclear program. As an illustration, recent polls in South Korea showed for the first time a clear majority of opinion in favor of acquiring nuclear weapons[80].

Third and finally, the 2022 NPR will set the future foundation for U.S. nuclear strategy as well as force posture and ultimately decide the nuclear SLCM debate. Based on the latest defense budget request for FY 2023, it appears that the Biden administration has finally abandoned the SLCM-N program despite its initial funding in 2022. By 2021, heated discussions about alternatives to the missile had already indicated some decisional hesitancy by the administration[81].

Combining nuclear deterrence with other forms of arms control

The SLCM-N debate highlights the relationship between nuclear deterrence and arms control instruments. The two decades following the end of the Cold War had reinforced a trend towards nuclear disarmament. However, relations among the major nuclear powers now show a return to strategic competition, the intensity of which requires a new understanding of the concepts of deterrence and arms control. The Biden Administration must redefine these concepts and find arms control measures that can strengthen U.S. deterrence as well as the transparency and predictability of relations with its senior partners, both allies and adversaries. This is a difficult issue to address, however, and will require experts and members of the U.S. government to take an approach that is more tailored to new actors and new technologies.

The case of the nuclear SLCM indeed exposes the paradoxes of the new nuclear age. During the Cold War, the United States and the Soviet Union focused their efforts on limiting and reducing strategic nuclear arsenals, especially intercontinental ballistic missiles, due to the influence of the concept of strategic stability and Mutually Assured Destruction (MAD). Today, the emergence of other states that do not share the

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[78] CENTER FOR STRATEGIC AND SECURITY STUDIES. *Assessing the 2018 Nuclear Posture Review: Regional Threats Panel*. 2018. En ligne : https://www.csis.org/analysis/assessing-2018-nuclear-posture-review-regional-threats-panel [consulté le 14 février 2022].

[79] COOPER, David A. « A Nuclear Cruise Missile Could Be Vital For Arms Control And Nonproliferation Efforts ». Op. cit.

[80] DALTON, Toby et Ain HAN. *Elections, Nukes, and the Future of the South Korea–U.S. Alliance. 2020*. En ligne : https://carnegieendowment.org/2020/10/26/elections-nukes-and-future-of-south-korea-u.s.-alliance-pub-83044 [consulté le 14 février 2022].

[81] BURGESS, Richard R. « Wolfe: Navy Plans to Start Development of Nuclear Sea-Launched Cruise Missile in 2022 », *Blog Seapower*. 2021. En ligne : https://seapowermagazine.org/wolfe-navy-plans-to-start-development-of-nuclear-sea-launched-cruise-missile-in-2022/ [consulté le 14 février 2022].

vision of deterrence that emerged from this bipolar era highlights even more the inadequacies of arms control treaties that also date from this first period[82].

Therefore, in academic and political circles, most experts question the format that arms control should take to remain consistent with the current conditions of deterrence. The contemporary strategic environment does not seem to encourage the limitation or reduction of nuclear arsenals, which makes this issue more difficult. On the other hand, certain more flexible ways of cooperation can be envisaged to strengthen communication between adversaries at the very least. Among them, confidence-building and transparency measures (CBTM) and nuclear risk reduction measures seem promising, as shown by the Stockholm Initiative and the ongoing reflections of UNIDIR[83]. Such initiatives aim, among other things, to reduce the risks of nuclear escalation and conflict. Another good example of this trend is the "P5 Process" which seeks to promote dialogue among the five nuclear powers on the UN Security Council on their nuclear doctrines, force postures and crisis prevention mechanisms[84]. The less constraining nature of this form of cooperation seems compatible with the current strategic environment.

As a report by the American think tank Center for Strategic and Security Studies (CSIS) points out, the concept of deterrence has changed profoundly in recent years, in particular under the effect of the concept of "integrated deterrence", which requires arms control to evolve as well in order to adapt to new strategic conditions[85]. In the recent National Security Strategy of 2022, integrated deterrence recognizes the integration of different domains (conventional, nuclear, cyber, space and informational), theaters of operation and forms of conflict (from high-intensity warfare to combat in "grey areas") in the coming years[86]. The challenge of the Biden administration's NPR 2022 is therefore to find a new complementarity between these various forms of conflict (underpinned by the use of tactical nuclear weapons, strategic conventional weapons, missile defenses, cyber, hypersonic weapons, artificial intelligence), on the one hand, and renewed arms control (arsenal reduction treaties, confidence-building and transparency measures and nuclear risk reduction), on the other.

This type of debate can also be a driving force for the legal regulation of non-strategic capabilities or for reciprocal transparency measures. As the Russian attacks in Ukraine demonstrate, cruise missiles will be increasingly present in the conventional and nuclear forces of the great powers. For this reason, a more robust regulatory

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[82] FETTWEIS, Christopher J. « Pessimism and Nostalgia in the Second Nuclear Age », *Strategic Studies Quarterly.* 2019, vol.13 nº 1. p. 15. En ligne : https://www.jstor.org/stable/26585373 [consulté le 8 avril 2021].

[83] PERMANENT MISSION OF SWEDEN TO THE UNITED NATIONS. *Stockholm Initiative for Nuclear Disarmament*. 2020. En ligne : https://www.swedenabroad.se/en/embassies/un-geneva/current/news/stockholm-initiative-for-nuclear-disarmament/ [consulté le 14 février 2022]. ; WAN, Wilfred, John BORRIE, Hassan ELBAHTIMY, et al. *Nuclear Risk Reduction: Closing Pathways to Use*. United Nations Institute for Disarmament Research, 2020. En ligne : https://unidir.org/sites/default/files/2020-07/Nuclear%20Risk%20Reduction%20-%20Closing%20Pathways%20to%20Use%20FINAL.pdf [consulté le 10 novembre 2021]. ; MESSMER, Marion. *Strategic Risk Reduction in the European Context*. BASIC, 2020. En ligne : https://basicint.org/wp-content/uploads/2020/06/Strategic-Risk-Reduction-in-the-European-Context-WEB-1.pdf [consulté le 18 janvier 2022].

[84] SHETTY, Shatabihisha et Heather WILLIAMS. *The P5 Process : Opportunities for Success in the NPT Review Conference*. King's College London, 2020. En ligne : https://www.europeanleadershipnetwork.org/wp-content/uploads/2020/06/P5-Process-Report_Final.pdf [consulté le 14 février 2022].

[85] HERSMAN, Rebecca K C, Heather WILLIAMS, et Suzanne CLAEYS. *Integrated Arms Control in an Era of Strategic Competition.* Op. cit.

[86] GARAMONE, Jim. *Concept of Integrated Deterrence Will Be Key to National Defense Strategy, DOD Official Sa*. 2021. En ligne : https://www.defense.gov/News/News-Stories/Article/Article/2866963/concept-of-integrated-deterrence-will-be-key-to-national-defense-strategy-dod-o/ [consulté le 3 avril 2022].

framework seems necessary to prevent any risk of escalation to extremes in future crises in Europe, and perhaps even more so in East Asia.

Conclusion

The Nuclear Posture Review will be released in the coming weeks of this spring 2022. In the discussions preparing the publication of this document, the Biden administration's decision to fund the development of the SLCM-N program and then to cancel it has truly polarized the divergences regarding U.S. nuclear strategy and its consequences in the coming decades. In the context of increasing strategic competition, the Biden administration has attempted to distinguish its nuclear strategy from that of its predecessor by emphasizing the importance of arms control and risk reduction talks. But while the United States tried to restore strategic dialogue with Russia, the Prague agenda advocated by President Barack Obama in 2009 seems increasingly unlikely in the post-Ukraine context[87].

The strategic debate underway in Washington is only the consequence of a deeper process of evolution of nuclear deterrence which is progressively integrating other military domains. The other side of the coin, the arms control, must also be adapted to the new strategic conditions in order to remain a useful instrument in diplomatic relations. In a context of future nuclear competition among three peer-competitors, the United States must be innovative in reinventing the instruments of strategic dialogue with Moscow and Beijing.

The main challenge of the NPR 2022 is therefore to modernize their nuclear forces, while promoting political initiatives to reduce strategic risks among the great powers. The issue of nuclear SLCM, which opens the door to a possible increase in the risks of a limited nuclear attack and escalation to extremes, ultimately appears to mirror the new European and Asian strategic imperatives. The divergent positions within the American government, where the supporters of nuclear superiority and those of nuclear disarmament oppose each other, require an unstable balance in terms of nuclear strategy.

While waiting for the NPR 2022, the Biden administration seems to be aiming for an eclectic nuclear strategy, which would correspond to a synthesis of those of the Obama and Trump administrations. On the one hand, it will maintain the flexibility of American nuclear forces by modernizing and integrating low-yield capabilities (the W76-2 nuclear warhead, with a power of 5 to 7 kilotons); on the other hand, it will try to maintain a minimal dialogue with Russia on arms control and nuclear risk reduction. In the context of the war in Ukraine, these discussions are important in order to regulate the escalation of global strategic competition, but also to contain the increase in an already large American defense budget.

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