

Redeploying American Tactical Nuclear Weapons to Counter North Korea's Nuclear Monopoly

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A Nuclear Policy Debacle by the ROK-U.S. Alliance

North Korea is on the verge of having a nuclear monopoly on the Korean peninsula. The various policies adopted by six South Korean and four American administrations over the last 26 years have ended in a strategic failure. President George H.W. Bush's Presidential Nuclear Initiatives (PNIs) in September 1991 to remove tactical nuclear weapons around the world resulted in a unilateral and complete elimination of a forward deployed asset that buttressed U.S. extended deterrence in Korea and reined in North Korea's nuclear ambitions. With the sudden withdrawal of the U.S. tactical nuclear weapons, which had been a substantial force underpinning U.S. nuclear retaliation pledges under North Korea's very nose, the Korean peninsula was left in a nuclear vacuum. That was a new situation for both North and South Koreans, who had been accustomed to the American nuclear presence since the late 1950s. And the new security landscape tempted North Korea to fill the nuclear vacuum by developing its own nuclear capabilities with few worries of the U.S. nuclear threat from outside of the Korean peninsula. In consequence, the situation has been fully exploited by North Korea.

Once American tactical nuclear weapons were withdrawn, North Korea accelerated its nuclear development program and created an imbalance of terror *vis-à-vis* South Korea. The farther the geographical distance became, the less reliable U.S. extended nuclear deterrence appeared to be, at least to North Korean eyes. To the North Korean regime, the U.S. threat from strategic nuclear weapons based abroad may not have as strong of a deterrent effect as that of tactical nuclear weapons based in South Korea. It is a historical irony that, what I call "the tyranny of distance" was repeated again. North Korea accelerated its nuclear development program once the U.S. nuclear weapons were withdrawn in 1991, and similarly, it launched the Korean War not long after U.S. troops had left South Korea back in 1948. In short, North Korea came to view President George H.W. Bush's decision to withdraw all tactical nuclear weapons from South Korea as a diminishing reliability of the U.S. nuclear umbrella and this, in turn, gave North Korea confidence that it could have the nuclear upper hand on the Korean peninsula.

In November 1991, South Korean President Roh Tae Woo unilaterally relinquished the nuclear option by declaring that South Korea had no intention to develop nuclear weapons. It was a top-down decision without broad consultations with experts and surprised a number of people, including the scientific community in South Korea. President Roh also con-firmed the non-existence of any nuclear weapons on South Korean soil in December of that year. With these moves, South Korea left the door wide open for North Korea to go nuclear without hesitation. The Joint Denuclearization Declaration

signed by the two Koreas in December 1991 was based on President Roh's declaration and was a nonstarter from the beginning. North Korea had already operated a reprocessing facility at Yongbyon that was prohibited in the Declaration. Since then, successive South Korean governments have been stuck in the document, totally deceived by North Korea, and unable to acknowledge the fact that the document was nullified by the North.

On the other hand, North Korea openly withdrew from the NPT under the pretext of protecting its vital national interests and pushed for its nuclear weapons program. The violation of the Declaration was the harbinger of things to come. None of the bilateral or multilateral nuclear-related agreements – the Geneva Agreed Framework of 1994, the September 19th Joint Statement of 2005, the February 13th Agreement of 2007, the Leap Day Deal of 2012 – was immune from North Korea's noncompliance. The history of nuclear negotiations with North Korea manifests deception and the persistence of Pyongyang to let their adversary remain unguarded while taking advantage of every opportunity to achieve its objectives. The inter-Korean dialogues are no different in this regard. It is typical North Korean behavior either to nullify an agreement citing preposterous excuses, or to reinterpret an agreement to suit its tastes. This dark history of dialogues with North Korea provides ample reasons why South Korea should be vigilant against the upbeat moods fostered by North Korea's peace offensive during the 2018 Winter Olympics.

When North Korea started nuclear weapons development, its most serious concern would have been how South Korea would respond. Taking advantage of its advanced economy, Seoul could have easily offset and eventually prevailed over Pyongyang in nuclear competition. In this regard, the potency and possibility of South Korea's own nuclear development would have been the best blockade, as well as the last resort to thwart North Korea's nuclear ambitions. The deployment of American tactical nuclear weapons would not have been as effective as South Korea's acquiring its own nuclear capability.

In consequence, the nuclear vacuum was created in Korea by the consecutive decisions of Washington and Seoul in the fall of 1991, which unintentionally opened the door for North Korea to go nuclear without any hindrance. Indeed, the policies of Washington and Seoul to resolve North Korea's nuclear problem started off on the wrong foot, and North Korea's nuclear monopoly on the peninsula is the end result of the accumulated policy failures since 1991. The first step leading to this catastrophic result was in no doubt the U.S. unilateral withdrawal of tactical nuclear weapons from South Korea. Having deployed nuclear assets in Western Europe and South Korea during the Cold War, the United States still maintains nuclear gravity bombs in five West European countries. This continued deployment could be interpreted as a sign of U.S. preference for Western Europe over East Asia. When nuclear threats from the Soviet Union disappeared in Europe, and North Korea has emerged as a growing nuclear threat, the complete withdrawal of nuclear weapons from South Korea was undoubtedly a questionable and unwise decision.

Presumably, the Bush administration made a decision to completely withdraw tactical nuclear weapons and incited Seoul to give up its own nuclear option in a calculated move to stop North Korea's nascent nuclear program. It was in March 1991 when North Korea's nuclear development was made public by an article in *Arms Control Today*.¹ At that time, the United States might have

reckoned that its withdrawal of tactical nuclear weapons and South Korea's forgoing nuclear option – what I call “denuclearization in South Korea” – would forfeit North Korea's justification to keep its nuclear program and induce denuclearization. This could be America's “*two-bird-one-stone policy*” to catch North Korea and South Korea with a nonproliferation stone. In hindsight, the U.S. diplomatic initiative to use denuclearization in South Korea as a model for North Korea turned out to be a fiasco. The U.S. policy tied up South Korea's hands but not North Korea's, and in consequence, the Korean peninsula faces an extremely grave security condition – nuclear monopoly by North Korea. Despite growing domestic objections to the tactical nuclear weapons in the five European countries, the United States has shown no sign of changing the status quo. Some European scholars indicated the U.S. experience in Korea as a reason to stick to the current deployment policy in Europe. As the withdrawal of tactical nuclear weapons in South Korea led to the unintended outcome of North Korea's nuclear development, Europeans believe that the United States is worried about Iran's uninterrupted pursuit of nuclear weapons once its tactical nuclear weapons are withdrawn from Western Europe.

The redeployment of American tactical nuclear weapons has been promoted by the author since 2004 as the most practical and effective way to counter the emerging North Korean nuclear threat and guarantee South Korea's security under the international nonproliferation norms.² Today, South Korea faces a more dire security situation than ever before. As North Korea's nuclear and missile programs have grown into existential threats for Seoul, the chances diminish to negotiate them away. Recently, in his 2018 New Year's address, Kim Jong Un claimed to have accomplished the historic cause of perfecting the national nuclear forces and is ready to launch the mass production of nuclear weapons and missiles. The goal of complete, verifiable, and irreversible disarmament (CVID) is not a realistic goal for the foreseeable future, especially with the Kim family regime in power. Thus, South Korea needs a long-term grand strategy to manage a nuclear-armed North Korea.³ A major component of this grand strategy is to deter North Korean nuclear threats by South Korea exercising its nuclear options – either redeploying an appropriate number of tactical nuclear weapons or launching its own indigenous nuclear program. This paper explains why redeploying tactical nuclear weapons is a desirable and feasible option in line with U.S. nuclear strategy. Currently, the United States maintains nuclear capabilities and strategy for forward deployment whenever necessary as a means to extend security assurance to its allies. In practice, America deploys about 150 nuclear gravity bombs in five West European countries and operates a close nuclear sharing mechanism.

Current Nuclear Forces in the World

At present, there are nine nuclear weapon states in the world. The P5 had developed nuclear weapons before the Nonproliferation Treaty was signed in 1968, and thus, admitted as nuclear weapon states by the treaty. Israel, India, and Pakistan did not sign the NPT and launched their own indigenous programs. In contrast, North Korea joined the NPT in 1985 while maintaining a secret weapons program and later withdrew from the treaty, citing Article X.⁴ It accused South Korea and the United States of threaten-ing its vital national interests. Since then, North Korea has turned a covert nuclear program into an overt one, adding enrichment capacities besides producing plutonium. North Korea first revealed its possession of nuclear weapons in April 2003 when the North Korean diplomat Lee Gun met James Kelly at the three-party talks in Beijing. On February 10, 2005, the DPRK Foreign

Ministry announced publicly that North Korea had manufactured nuclear weapons. The North validated these revelations with a series of nuclear tests from October 2006 to September 2017. North Korea is the first country that betrayed the NPT and developed nuclear weapons.

Nuclear warheads are categorized as “strategic” or “tactical” depending on the range of the delivery means. The former is loaded on long-range delivery systems, such as ICBMs, SLMBs, or heavy bombers, while the latter is carried by short- and medium-range missiles or aircraft. Strategic nuclear warheads are typically used on long distance targets and have larger yields, ranging from several hundred kilotons to megatons. Tactical nuclear warheads, also called non-strategic nuclear warheads, are mainly for theater warfare and delivered by shorter-range delivery vehicles or fighter aircraft with their yields not exceeding a few dozen kilotons. It is very difficult to draw a complete picture of the status of all nuclear weapons around the world since they are kept under tight national control. However, based on open sources, it is still possible to grasp the big picture. From the recent report published by the Federation of American Scientists and the author’s supplements, Table 1 shows the status of world nuclear forces as of July 2017.

Table 1: Status of World Nuclear Warheads (July 2017)⁵

Country	Deployed Strategic Warheads	Deployed Tactical Warheads	Reserve/ Nondeployed	Military Stockpile	Total Inventory
US	1,650	150	2,200 (150)	4,000	6,800
Russia	1,950	0	2,350 (1,850)	4,300	7,000
France	280	n.a.	10	300	300
China	0	0 ⁶	270	270	270
UK	120	n.a.	95	215	215
Israel	0	n.a.	80	80	80
Pakistan	0	n.a.	120-130	120-130	120-130
India	0	n.a.	110-120	110-120	110-120
North Korea	0	10-20	10-20	10-20	10-20
Total	~4,150	~150	~5,300	~9,400	~14,930

Note: The FAS report estimates that North Korea possesses enough fissile materials to produce 10-20 nuclear warheads but says that there is no public evidence of North Korea having operationalized nuclear warheads for delivery on ballistic missiles. This paper believes that this estimate is very conservative. It is generally thought that North Korea has capability to load its nuclear warheads on shorter-range Scud or Nodong missiles, and it can use traditional land, sea, or air platforms to deliver nuclear warheads to South Korea. Therefore, it is assumed that Pyongyang possesses deliverable nuclear warheads toward Seoul.

The United States has deployed 1,650 strategic nuclear warheads on ICBMs, SLBMs, and heavy bombers and 150 tactical nuclear warheads in five West European countries that can be delivered by dual capable aircraft (DCA). It also possesses 2,200 reserve/nondeployed warheads (2,050 strategic and 150 tactical). As of July 2017, America has, in total, 6,800 nuclear warheads, of which 2,800 retired warheads are awaiting dismantlement.

Russia has deployed 1,950 strategic nuclear warheads, none of which are tactical nuclear warheads, at least according to publicly available information. It has extensive infrastructure to facilitate tactical nuclear operations in the Far East and the area west of the Urals. Considering that the Putin government upholds a security policy that increasingly relies on nuclear weapons and the threat of nuclear escalation, Russia is thought to be fully ready to or have already deployed tactical nuclear weapons.⁷ It also possesses 2,350 reserve/nondeployed warheads (500 strategic and 1,850 tactical). As of July 2017, Russia has a total of 7,000 nuclear warheads including 2,700 retired ones waiting to be dismantled.

At present, all tactical nuclear warheads deployed by the United States are gravity bombs loaded on air platforms, such as fighter aircraft or bombers. According to the Presidential Nuclear Initiatives (PNIs) on September 27, 1991, the Bush administration decided to:⁸

- eliminate all ground-launched short-range, theater nuclear weapons
- bring home and destroy all nuclear artillery shells and short-range ballistic missile warheads
- withdraw all tactical nuclear warheads from surface ships and attack submarines
- withdraw all nuclear warheads from land-based naval aircraft
- stop carrying tactical nuclear warheads on ships under normal circumstances

A total of 260 Tomahawk Land Attack Missiles (TLAM/N) carrying tactical nuclear warheads were also retired, according to the policy stipulated in the 2010 Nuclear Posture Review Report (NPR).⁹ Believing that the TLAM/N is of value to deter North Korea, Japan asked the United States to keep the TLAM/N by offering financial assistance to maintain the system. But it was refused by the Obama administration, which was trying to reduce its reliance on nuclear weapons. The U.S. Air Force has nuclear cruise missiles (AGM-86 ALCM) mounted with W80 thermonuclear warheads.

It is meaningful to check the status of tactical nuclear weapons and related facilities of the United States and Russia. Although the two countries have not revealed detailed information, a fair amount of data has been made public by open sources and independent studies.¹⁰ U.S. tactical nuclear weapons are deployed mainly in Western Europe, with related facilities for production, storage, and dismantlement in the U.S. mainland. Russia also deploys tactical nuclear weapons, and there are related facilities throughout the entire country. It has a relatively dense deployment around Europe, but a sizable portion of tactical nuclear assets is notably positioned in the Far East, just north of the Korean peninsula.

The U.S. Policy on Tactical Nuclear Weapons

As the major nuclear adversary disappeared with the end of the Cold War, President George H.W. Bush declared the PNIs and moved swiftly to withdraw and eliminate tactical nuclear weapons. The withdrawal was completed in 1993, and the number of air-delivered gravity nuclear bombs was reduced from 2,500 to 480 between 1991 and 1994.¹¹ It is estimated that more than 3,000 non-strategic nuclear weapons were removed by 2007.¹² Despite such a drastic reduction, subsequent U.S. administrations continue to recognize the political and military value of tactical nuclear weapons for providing extended deterrence to its allies. The United States have made its intention clear about the use of nuclear weapons to protect its allies and maintained their modernization program. Concerns for

Russia's excessive tactical nuclear assets prompted the U.S. Congress to urge nuclear disarmament with Russia.

American positions on tactical nuclear weapons are stipulated in the Obama administration's NPR, published in April 2010, under the section "Non-Strategic Nuclear Weapons." It says:¹³

- The United States keeps only a limited number of forward deployed nuclear weapons in Europe, plus a small number of nuclear weapons stored in the United States, available for global deployment in support of extended deterrence to allies and partners.
- Russia maintains a much larger force of non-strategic nuclear weapons, a significant number of which are deployed near the territories of several North Atlantic Treaty Organization (NATO) countries and are therefore a concern to NATO. Non-strategic nuclear weapons, together with the non-deployed nuclear weapons of both sides, should be included in any future reduction arrangements between the United States and Russia.
- The Air Force will retain a dual-capable fighter (the capability to deliver both conventional and nuclear weapons) as it replaces F-16s with the F-35 Joint Strike Fighter. The United States will also conduct a full scope B-61 (nuclear bomb) Life Extension Program to ensure its functionality with the F-35 and to include making surety – safety, security, and use control – enhancements to maintain confidence in the B-61. These decisions ensure that the United States will retain the capability to forward-deploy non-strategic nuclear weapons in support of its Alliance commitments.

The 2010 NPR reconfirms U.S. extended deterrence commitments to its allies in the separate section "Strengthening Regional Deterrence and Reassuring U.S. Allies and Partners" as follows:¹⁴

- Security architectures in key regions will retain a nuclear dimension as long as nuclear threats to U.S. allies and partners remain. U.S. nuclear weapons have played an essential role in extending deterrence to U.S. allies and partners against nuclear attacks or nuclear-backed coercion by states in their region that possess or are seeking nuclear weapons.
- A credible U.S. "nuclear umbrella" has been provided by a combination of means – the strategic forces of the U.S. Triad, non-strategic nuclear weapons deployed forward in key regions, and U.S.-based nuclear weapons that could be deployed forward quickly to meet regional contingencies.

It should be noted that the United States applies different types of extended deterrence in Europe and Asia. The 2010 NPR articulates the differences as follows:¹⁵

- In Europe, forward-deployed U.S. nuclear weapons have been reduced dramatically since the end of the Cold War, but a small number of U.S. nuclear weapons remain. Although the risk of nuclear attack against North Atlantic Treaty Organization (NATO) members is at an historic low, the presence of U.S. nuclear weapons – combined with NATO's unique nuclear sharing arrangements under which non-nuclear members participate in nuclear planning and possess specially configured aircraft capable of delivering nuclear weapons – contribute to Alliance cohesion and provide reassurance to allies and partners who feel exposed to regional threats.
- When the Cold War ended, the United States withdrew its forward-deployed nuclear weapons from the Pacific region, including removing nuclear weapons from naval surface vessels and general purpose submarines. Since then, it has relied on its central strategic forces and the capacity to redeploy non-strategic nuclear systems in East Asia, if needed, in times of crisis.

The Trump administration's new Nuclear Posture Review (NPR) was re-leased in February 2018.¹⁶ Reflecting on the nuclear and non-nuclear threats from '4+1' adversaries (Russia, China, North Korea, Iran, and terrorist organizations), the new NPR requires the United States to possess diverse, flexible, resilient and tailored deterrence forces. It reflects concerns that Russia and North Korea might misunderstand that based on their dominant tactical nuclear forces in Europe and Korea, they could win a war by initiating a conventional provocation and preventing U.S. intervention by first use of tactical nuclear weapons – the doctrine of escalation to de-escalation. In order to prepare for such eventualities, the United States will reinforce its tactical nuclear capabilities by diversifying nuclear options and improving flexibility. In particular, the new NPR states that the United States will maintain and reinforce tactical nuclear forces in Europe and keep capabilities of forward-deploying dual-capable aircrafts and tactical nuclear warheads in Northeast Asia if necessary. In other words, the new NPR places added importance on the role of tactical nuclear weapons in the face of current and future nuclear and non-nuclear threats from potential adversaries. It also underscores the Trump administration's realistic assessment that if an adversary follows the doctrine of escalation to de-escalation in a regional war, the United States cannot respond properly if it relies only on high-yield strategic nuclear weapons. It is the author's judgment that the new NPR gives the green light for South Korea to demand the United States to bring back tactical nuclear weapons to Korea.

The U.S. Congress also proposed to reduce U.S. tactical nuclear weapons in conjunction with the removal of Russia's excessive tactical nuclear weapons. For example, the U.S. Senate, in its resolution to ratify the New START, demanded the U.S. administration launch negotiations with Russia on an agreement to address the disparity between the number of tactical nuclear weapons in Russia and the United States. In addition, in the FY2013 Defense Authorization Act (H.R. 4310, Section 1037), Congress indicated that the United States should pursue negotiations with Russia to reduce Russian non-strategic nuclear forces.¹⁷ Responding to the Putin administration's hostile foreign policies, some in Congress would like the United States to take aggressive nuclear policy measures – e.g., deploying dual capable aircraft and nuclear bombs in eastern NATO countries in response to Russian aggression towards Ukraine or deploying new nuclear capable missiles in Europe to counter Russia's violation of the 1987 INF Treaty.¹⁸

The U.S. Tactical Nuclear Weapons in Europe

The United States began deploying tactical nuclear weapons in Western Europe from the middle of the 1950s in order to counter a massive conventional invasion by Warsaw Treaty Organization (WTO) forces. It intended to use them to interdict a conventional invasion in the corridors and block an intrusion deep into West European countries. As the Cold War ended and the major nuclear adversary disappeared, NATO has continued to reduce the military mission and role of nuclear weapons. According to one study,¹⁹ American nuclear warheads deployed in Europe were significantly reduced from 6,954 in 1975 to 3,734 in 1991. Nuclear delivery systems of the United States, the United Kingdom, and five other West European countries hosting American nuclear weapons decreased from 2,809 in 1975 to 2,446 in 1991. The 1999 NATO Strategic Concept declared that "NATO's nuclear forces no longer target any country. Nonetheless, NATO will maintain, at the minimum level consistent with the prevailing security environment, adequate sub-strategic forces based in Europe which will provide an essential link with strategic nuclear forces, reinforcing the transatlantic link."²⁰

A 2004 NATO report also stated that “NATO’s nuclear forces continue to play an essential role in war prevention, but their role is now more fundamentally political, and they are no longer directed towards a specific threat.”²¹ The readiness posture of dual-capable aircraft was greatly reduced as well. The nuclear readiness was measured in “weeks” in 1995 from “minutes” earlier, and readjusted to “months” in 2002.²²

NATO conducted an overall defense posture review mandated at the Lisbon Summit and produced the Deterrence and Defense Posture Review in May 2012. It articulated the importance of extended nuclear deterrence in “The Contribution of Nuclear Forces” section of the report, the main findings of which are as follows:²³

- Nuclear weapons are a core component of NATO’s overall capabilities for deterrence and defense alongside conventional and missile defense forces... The Alliance’s nuclear force posture currently meets the criteria for an effective deterrence and defense posture.
- The circumstances in which any use of nuclear weapons might have to be contemplated are extremely remote. As long as nuclear weapons exist, NATO will remain a nuclear alliance. The supreme guarantee of the security of the Allies is provided by the strategic nuclear forces of the Alliance, particularly those of the United States.
- While seeking to create the conditions and considering options for further reductions of non-strategic nuclear weapons assigned to NATO, Allies concerned will ensure that all components of NATO’s nuclear deterrent remain safe, secure, and effective for as long as NATO remains a nuclear alliance.
- Consistent with our commitment to remain a nuclear alliance for as long as nuclear weapons exist, Allies agree that the NAC will task the appropriate committees to develop concepts for how to ensure the broadest possible participation of Allies concerned in their nuclear sharing arrangements.

As of 2014, five B61-type strategic/tactical gravity bombs are deployed in Europe or kept in the custody of the military for use in the United States, as shown in Table 2.

Table 2: Estimated B61-Type Bombs Inventory and Capabilities (2014)²⁴

Weapon	Yields	Tactical/ Strategic	Deployed in Europe	Stockpiled in the U.S.
B61-3	0.3, 1.5, 60, 170kt	Tactical	Yes (90)	110
B61-4	0.3, 1.5, 10, 50kt	Tactical	Yes (90)	110
B61-10	0.3, 5, 10, 80kt	Tactical	No	100
B61-7	10-360kt	Strategic	No	290
B61-11	400kt	Strategic (earth-penetrating)	No	35

The B61-type nuclear warheads are deployed in roughly ten bases in Europe and the U.S. mainland.²⁵ Two strategic warheads (B61-7, B61-11) are positioned in three strategic bomber bases in Minot (ND), Whiteman (MO), and Barksdale (LA), ready to be loaded to B-52H or B-2A bombers. The U.S. Air Force stations F-15Es capable of delivering tactical nuclear warheads at Lakenheath and Seymour-Johnson air bases. American tactical nuclear warheads are deployed in six air bases among five NATO member countries.

As of 2014, a total of 180 U.S. tactical nuclear warheads were stationed in six air bases among five NATO member countries, as shown in Table 3. Until 2001, 20 nuclear bombs were also placed in Greece.

Table 3: Status of U.S. Tactical Nuclear Weapons in Europe (2014)²⁶

Country	Air Base/Platform	Vaults	B61s
Belgium	Kleine Brogel/ Belgian F-16A/B	11	20
Germany	Buchel/ German Tornado	11	20
Italy	Aviano/ US F-16C/D	18	50
	Ghedi Torre/ Italian Tornado	11	20
Netherlands	Volkel/ Dutch F-16A/B	11	20
Turkey	Incirlik/ Rotating U.S. aircraft, Turkish F-16A/B	25	50
Total		87	180

As Table 1 indicates, as of July 2017, the total number of B61 bombs in Europe is estimated to be 150, which is less than that of 2014. Relevant data on how many bombs were withdrawn from which air bases are not available, and the Federation of American Scientists is yet to clarify the difference. A separate study indicates that the number of nuclear bombs deployed in Italy was 50 as of May 2016,²⁷ and thus, most of the bombs withdrawn are presumably from there.

Currently, the United States is in the process of upgrading and extending the life expectancy of B61 bombs for about 20 years. The four variant types of the B61 bombs (B61-3/4/7/10) are transformed to the modernized type B61-12.²⁸ The B61-12 bomb is the first of the five new warhead types planned as part of nuclear modernization, which is estimated to cost up to \$1 trillion over three decades.²⁹ The United States successfully tested a new B61-12 bomb in July 2015. It will cost more than \$11 billion to produce approximately 400 to 480 bombs by 2024,³⁰ which makes B61-12 the most expensive in the U.S. arsenal (about \$25 million per bomb). The B61-12 will be integrated to USAF F-15E, F-16C/D, B-2A, LRS-B (the future generation heavy bomber), and F-35A. The integration of the B61-12 into NATO F-16 and Tornado aircraft was planned for completion in 2018 and the U.S. Air Force plans to equip all F-35s in Europe with nuclear capability by 2024. In addition to the U.S. Air Force, the nuclear-capable F-35A will be supplied to the Dutch, Italian, Turkish, and possibly Belgian air forces.³¹

Unlike the free-fall gravity bombs it replaces, B61-12 is the first precision-guided nuclear bomb that has three major technical capabilities.

- **Increased Accuracy:** A tail kit adapted from the conventional JDAM bomb enables the bomb to hit targets far more precisely than its predecessors. The B61-12 is estimated to be accurate on the order of 30-plus meters, three to four times more accurate than the old gravity bombs, which were between 91 and 116 meters.³²
- **Yield Adjustment:** Using “Dial-a-Yield” technology, the bomb’s yield can be adjusted before launch from 0.3kt, 1.5kt, 10kt, and to 50kt depending on the target,³³ making it possible to minimize collateral damage.
- **Earth-Penetration Capability:** By penetrating below the surface and achieving enhanced ground-shock coupling against underground targets in soil, the B61-12 can create an effective

yield 15-25 times larger than the original yield of the bomb. For example, a 50kt B61-12 has maximum destructive potential of the capability of a surface-burst weapon with a yield of 750-1,250kt. A 0.3kt B61-12 would be equivalent to a surface-burst bomb with a yield of 4.5-7.5 kt.³⁴

As a smaller, more accurate and earth-penetrating weapon with minimum collateral damage, B61-12 set off a conflict between assurances of enhancing deterrence and worries of making nuclear weapons readily use-able. General James Cartwright, a retired vice chairman of the Joint Chiefs of Staff, summed up the logic with a gun metaphor: “It makes the trigger easier to pull but makes the need to pull the trigger less likely.”³⁵ According to a study on the impact of using two W88 (450kt) warheads or four 0.3k B61 bombs on five nuclear facilities in North Korea, in both cases, the mission was carried out successfully but with different collateral damage. A high-yield attack using W88 resulted in 2-3 million dead whereas a low-yield at-tack using B61 tactical bombs limited human casualties to less than 100 dead.³⁶ This study has demonstrated the usefulness of tactical nuclear weapons in terms of achieving mission objectives successfully while minimizing collateral damage.

The Alliance’s Response to Counter North Korea’s Nuclear Monopoly

North Korea’s nuclear monopoly epitomizes the security situation on the Korean peninsula today. North Korea’s three successful ICBM tests in July and November 2017 can be compared to the Soviet Union’s successful test of the Sptunik 1 in October 1957 that astonished the United States and Europe. A ballistic missile capability to place a satellite into orbit demonstrated that the Soviet Union had the long-range missile capability to hit the U.S. mainland. Immediately, Washington entered the ballistic missile competition with Moscow and at the same time, the West European countries raised a question about the credibility of U.S. extended deterrence. It was questioning American willingness to defend Hamburg or Paris at the cost of New York or Washington D.C. This question of deterrence credibility stirred by the Soviet Union’s strategic missile capability has evolved into Western Europe’s lingering worry that America might decouple itself from Europe for its own security.

Boosted by three successful ICBM tests in a row and the hydrogen bomb test in September 2017, the Kim Jong Un regime will accelerate its efforts to complete its nuclear missile development with the purpose of targeting the United States. North Korea is expected to implement its nuclear strategy in two stages. Firstly, Pyongyang will complete its capability to pose a direct nuclear threat to the United States, and then hold bilateral talks with Washington to trade a freeze on its nuclear and missile developments for America’s reciprocal reparation, such as reducing the presence of U.S. forces in Korea, giving diplomatic recognition to North Korea, and also accepting North Korea as a *de facto* nuclear weapon state. Secondly, under these favorable circumstances, North Korea will initiate a long-term strategic campaign to block American intervention in Korean affairs, to prevail over South Korea politically and militarily, and to avail itself of gathered momentum to accomplish unification on its terms. National Security Advisor, General H.R. McMaster also believes that the ultimate purpose of nuclear weapons to North Korea is to dominate South Korea and reunify the Korean peninsula under its terms.³⁷ CIA Director Mike Pompeo and Director of National Intelligence Dan Coats reportedly expressed the same view before a Senate Select Committee on Intelligence hearing on worldwide threats on February 13, 2018.³⁸ Admiral Harry Harris Jr. who leads U.S. Pacific Command echoed an

identical viewpoint during testimony before the House Armed Services Committee on February 14, 2018.³⁹

Reflecting on experiences in Western Europe, there are two options available to South Korea. As in the case of France, a great national leader who can match Charles de Gaulle emerges and launches an indigenous nuclear development program beating off objections within South Korea and beyond. Alternatively, following the precedents of the five West European countries, it could give up its own nuclear option but instead possess an indirect nuclear deterrence capability by redeploying U.S. tactical nuclear weapons. Seoul should discard the hackneyed logic behind the failed policies, in which it claimed that nuclear development in the South would justify Pyongyang's nuclear armaments or, conversely, that Seoul should be a nonproliferation role model for Pyongyang to follow as manifested by "denuclearization in South Korea." It is time for the ROK to stand up on its own to defend its vital national security interests and keep all options on the table.

Unfortunately, successive South Korean administrations have been locked into the logic of denuclearization and sought to develop conventional military capabilities as a deterrent to North Korean nuclear threats. The current Moon Jae In administration is continuing the previous administrations' policies and further beefing up conventional capabilities by constructing a so-called Korean Triad – Kill Chain (preemption), KAMD (Korea Air and Missile Defense) and KMPR (Korea Massive Punishment and Retaliation). Contrary to bureaucratic fixation, politicians across the board increasingly express their candid observation that bringing back U.S. tactical nuclear weapons is the only viable alternative for South Korea. The Liberty Korea Party, the main opposition and conservative force, adopted the redeployment of tactical nuclear weapons as the official party platform in August 2017. High-ranking National Assembly members from other parties, including the Democratic Party of Korea, the ruling and liberal forces, openly support the idea.

As a matter of fact, pursuing an indigenous nuclear program is a much more difficult option than reintroducing American tactical nuclear weapons. If South Korea were to announce a withdrawal from the NPT, the international community would understand that the failure to resolve the North Korean nuclear problem by relying on the NPT left no option for the South other than to take such a dramatic decision. Despite international sympathy, however, South Korea must be prepared to encounter visible or invisible criticism, counteractions, and even sanctions from individual countries and international institutions. Of course, historical precedents indicate that international sanctions will not remain permanent if a country succeeds in possessing nuclear weapons. Sanctions imposed on India and Pakistan over their series of nuclear tests in May 1998 have faded away, and the United States even has led diplomatic efforts to invite India to the Nuclear Suppliers Group – an international nuclear cooperation mechanism. The key is South Korea's national power, in particular, how determined South Koreans are to defend themselves against the first existential threat since the end of the Korean War.

This paper proposes that the reintroduction of American tactical nuclear weapons is a desirable and feasible option in line with U.S. nuclear strategy and an already proven policy in Western Europe. According to the so-called regionally tailored deterrence architecture, the Obama administration developed a specific deterrence posture tailored to each region's threat levels. In order to enhance the

credibility of the U.S. security commitments to its allies, a tailored deterrence posture should rightly confront specific threats of the region.⁴⁰ Trump administration puts the same emphasis on tailoring deterrence against adversaries. According to this logic, the United States must develop a specific deterrence posture on the Korean peninsula that is tailored to North Korea's nuclear and missile threats. The current U.S. deterrence postures in Western Europe and South Korea have their roles reversed in this respect. It is difficult to understand why America stations tactical nuclear weapons in Europe, with no overt nuclear threats to its allies, while it has continued to rely on occasional displays of force to allay South Korea, which directly faces overt nuclear intimidation from North Korea. As the North Korean threat intensifies, the current U.S. deterrence posture in South Korea is becoming increasingly insufficient and is facing strong pressure to upgrade from both countries.

Nuclear monopoly by North Korea simply means living under nuclear terror for South Koreans, making them hostages of North Korea's nuclear blackmail. South Korea needs to take a dramatic step to address this unprecedented asymmetric vulnerability and to establish a stable balance of power on the Korean peninsula. A stable balance of power is the least bad option for South Korea as long as North Korea retains nuclear weapons. A shortcut to achieve this is to redeploy U.S. tactical nuclear weapons. It is a reasonable policy alternative with steady support in South Korea, enjoying more than 60% approval in numerous polls over many years. When the idea was first brought up by the author in 2004, not long after North Korea admitted to acquiring nuclear deterrence capabilities,⁴¹ outright rejection was a typical response in Seoul and in Washington. While the ordinary public is generally supportive, the elites in South Korea, especially those who take pride in understanding the United States, such as high-ranking diplomats, tended to flatly reject the idea with disdain. On the U.S. side, military officials, diplomats, and Korea experts in academia were reluctant to redeploying tactical nuclear weapons in Korea. Their immediate reaction used to question why South Korea did not trust the U.S. security commitments. When this author presented the necessity of redeploying tactical nuclear weapon at a conference held at the Center for Strategic and International Studies on February 28, 2011, Walter Slocombe, former Under Secretary of Defense for Policy, refuted me and said it was the "disastrously bad idea".⁴² Now, after six nuclear tests by North Korea, a majority of the public and experts in South Korea are fully behind the idea. The two polls in the wake of North Korea's sixth nuclear test confirmed this established trend.⁴³

As North Korea's nuclear threat looms large, similar views supporting this idea are also expressed in the United States. It is reported that the Trump administration has considered the redeployment of tactical nuclear weapons as an option in the North Korea policy review.⁴⁴ Edwin J. Feulner, President of the Heritage Foundation, when asked about the reintroduction, said, "If Kim Jong Un keeps going the way he's going, it seems to me that it's one option to consider. I think, in the ideal world, we should be going back to a 'nuclear free Korean peninsula,' but if one side is going to break the deal, the other side can't sit there with their arms tied behind their back."⁴⁵ Just hours after North Korea's sixth nuclear test, President Trump and his top national security advisors reviewed a range of options and, reportedly, the Trump administration does not rule out moving tactical nuclear weapons to South Korea, should Seoul request them.⁴⁶ The Wall Street Journal proposed many tools to deal with North Korea's nuclear problem, one of which was to deploy tactical nuclear weapons to South Korea, which would make the U.S. threat to retaliate against North Korea's nuclear strike more credible.⁴⁷ Most recently, Senator John McCain also noted that "the Korean defense minister just a few days ago called

for nuclear weapons to be redeployed,” and added that he thought “it ought to be seriously considered.”⁴⁸

There are some worries that there could be a sharp clash of views in South Korea, similar to that of the THAAD deployment, but it should be noted that divisive views on THAAD were mainly centered around whether the deployment followed proper procedures and not about the decision to deploy. The previous Park government should have taken a firm and clear stance from the very beginning when the issue was raised by the United States in the summer of 2014. It was the Park administration’s ambiguous attitude that made it start off on the wrong foot, creating diplomatic and domestic political turbulence. The South Korean government should clearly explain to the general public about the grave security situation stemming from North Korea’s nuclear monopoly, consolidate public opinion for strengthening U.S. extended nuclear deterrence, and demand the United States redeploy an appropriate number of nuclear gravity bombs and dual-capable aircrafts as early as possible. Since the Trump administration puts emphasis on the role of nuclear weapons in general and that of forward-deployed tactical nuclear weapons in particular, the chance that the United States would view the South Korean request favorably is higher than any time since 1991. If Washington refuses, Seoul has no alternative but to launch its own nuclear development program, the sole purpose of which is to deter Pyongyang’s nuclear threat and to negotiate away its nuclear weapons. In the end, it is the ROK president who has to take a firm grasp of the steering wheel to guide our nation through the turbulent times ahead. It is only his leadership, determination, and sense of historical duty that can rescue Korean people from the insecurity imposed by North Korea’s nuclear monopoly.

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¹ Leonard Spector and Jacqueline Smith, “North Korea: The Next Nuclear Nightmare?” *Arms Control Today* (1991), 8-13.

² Seong Whun Cheon, “Nuclear-Armed North Korea and South Korea’s Choices,” *National Strategy* 10, 3 (2004), 5-32 (Korean).

³ Seong Whun Cheon, “Managing a Nuclear-Armed North Korea: A Grand Strategy for a Denuclearized and Peacefully Unified Korea,” *International Journal of Korean Studies*, XXI, 1 (2017), 120-148.

⁴ Article X of the NPT stipulates that each party is allowed to withdraw from the treaty if it decides that extraordinary events have jeopardized the supreme interests of its country by notifying all other parties and the United Nations Security Council three months in advance. North Korea cited Article X to announce its withdrawal from the treaty on March 12, 1993 but voided the withdrawal statement on June 11, a day before it started the first high-level talks with the United States since the end of the Korean War. Pyongyang gave notice of its withdrawal from the treaty again on January 10, 2003, following U.S. allegations regarding its illicit uranium enrichment program, and the U.S.’ subsequent stopping of fuel oil shipments as stipulated in the Agreed Framework. Some argue that North Korea’s withdrawal did not comply with Article X because it stopped effectuation of the withdrawal once. Regardless of legality, the reality is that North Korea is nuclear-armed and has no intention to return to the NPT.

⁵ Hans M. Kristensen and Robert S. Norris, *Status of World Nuclear Forces*, Federation of American Scientists, July 8, 2017, 2. Accessed January 20, 2018. <https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/>

⁶ The FAS report does not make explicit whether China possesses tactical nuclear weapons or not. China keeps strategic nuclear forces mainly directed toward the United States and has not deployed tactical nuclear warheads.

Eric Heginbotham, et al. *China's Evolving Nuclear Deterrent: Major Drivers and Issues for the United States* (Santa Monica: RAND Corporation, 2017), 110. The government of China is asked to publish a white paper on its nuclear forces and make public that it stopped producing weapon-usable fissile materials and does not possess tactical nuclear weapons. Wu Riqiang, "How China Practices and Thinks About Nuclear Transparency," in *Understanding Chinese Nuclear Thinking*, eds. Li Bin and Tong Zhao (Washington, D.C.: Carnegie Endowment for International Peace, 2016), 242.

⁷ Russia has deployed nuclear-capable Su-27SM and Su-35 fighter aircraft in the Russian Far East.

Heginbotham, et al. *China's Evolving Nuclear Deterrent*, 78.

⁸ Hans Kristensen, *Non-Strategic Nuclear Weapons*, Special Report No 3, Federation of American Scientists, May 2012, 11.

⁹ *Nuclear Posture Review Report* (Washington, DC: Department of Defense, April 2010), 28.

¹⁰ Kristensen, *Non-Strategic Nuclear Weapons*, 11, 45.

¹¹ *Ibid.*, 12.

¹² *Ibid.*, 13.

¹³ *Nuclear Posture Review Report*, 27.

¹⁴ *Ibid.*, 31-32.

¹⁵ *Ibid.*, 32.

¹⁶ *Nuclear Posture Review* (Washington, D.C.: Office of the Secretary of Defense, February, 2018).

¹⁷ Amy Woolf, *Nonstrategic Nuclear Weapons* (Washington, D.C.: Congressional Research Service, 2015), 24-25.

¹⁸ *Ibid.*, 30.

¹⁹ Ivo Daalder, *The Nature and Practice of Flexible Response: NATO Strategy and Theater Nuclear Forces Since 1967*, New York, Columbia University Press, 1991, 301-302.

²⁰ North Atlantic Treaty Organization, *The Alliance's Strategic Concept: Approved by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Washington D.C.*, April 24, 1999, paragraph 64.

²¹ NATO has maintained the same position since 2004. North Atlantic Treaty Organization, *NATO's Nuclear Forces in the New Security Environment: Background*, October 22, 2009, 1-2. Accessed January 20, 2018. http://www.nato.int/nato_static/assets/pdf/pdf_topics/20091022_Nuclear_Forces_in_the_New_Security_Environment-eng.pdf

²² Hans Kristensen, *Non-Strategic Nuclear Weapons*, 30.

²³ North Atlantic Treaty Organization, *Deterrence and Defense Posture Review*, May 20, 2012. Accessed January 20, 2018. http://www.nato.int/cps/en/natohq/official_texts_87597.htm

²⁴ Hans Kristensen, *B61-12: The New Guided Standoff Nuclear Bomb*, presented to the Third Preparatory Committee Meeting for the Nuclear Non-Proliferation Treaty, United Nations, New York, May 2, 2014, 3. Regarding 90 B61-3 and B61-4 bombs deployed in Europe, respectively, refer to Hans Kristensen and Robert Norris, "The B61 Family of Nuclear Bombs," *Bulletin of the Atomic Scientists*, May 1, 2014, 3.

²⁵ Kristensen, *B61-12: The New Guided Standoff Nuclear Bomb*, 4.

²⁶ *Ibid.*, 5. Regarding the air bases and types of dual-capable aircraft of the five NATO member countries, refer to Kristensen, *Non-Strategic Nuclear Weapons*, 17-25.

²⁷ The Center for Arms Control and Non-Proliferation, "Fact Sheet: United States Nonstrategic Nuclear Weapons," May 25, 2016. Accessed January 25, 2018. <https://armscontrolcenter.org/u-s-nonstrategic-nuclear-weapons/>

²⁸ "B61 Bombs in Europe and the U.S. Life Extension Program," A briefing by BASIC, March 2016, 1, Accessed January 25, 2018. http://www.basicint.org/sites/default/files/BASIC_B61_briefing_Mar2016.pdf

²⁹ William Broad and David Sanger, "As U.S. Modernizes Nuclear Weapons, 'Smaller' Leaves Some Uneasy," *New York Times*, January 11, 2016.

³⁰ Len Ackland and Burt Hubbard, "Inside the Most Expensive Nuclear Bomb Ever Made," *Mother Jones*, August 30, 2015, 2. Accessed January 25, 2018. <http://www.motherjones.com/politics/2015/08/nuclear-weapon-obama-most-expensive-ever/>

³¹ Hans Kristensen, "B61-12 Nuclear Bomb Integration on NATO Aircraft to Start in 2015," Federation of American Scientists, March 13, 2014, 2. Accessed January 25, 2018. <https://fas.org/blogs/security/2014/03/b61-12integration/>

³² Hans M. Kristensen and Matthew McKinzie, "Video Shows Earth-Penetrating Capability of B61-12 Nuclear Bomb," Federation of American Scientists, January 14, 2016, 3. Accessed January 25, 2018. https://fas.org/blogs/security/2016/01/b61-12_earth-penetration/

³³ Len Ackland and Burt Hubbard, "Inside the Most Expensive Nuclear Bomb Ever Made," 1.

- ³⁴ Hans M. Kristensen and Matthew McKinzie, “Video Shows Earth-Penetrating Capability,” 2.
- ³⁵ William Broad and David Sanger, “As U.S. Modernizes Nuclear Weapons.”
- ³⁶ Keir Lieber and Daryl Press, “The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence,” *International Security* 41, no. 4 (2017), 9-49.
- ³⁷ In his Fox News interview, McMaster said that “[Kim Jong Un’s] intentions are to use that weapon for nuclear blackmail, and then, to, quote, you know, ‘reunify’ the peninsula under the red banner. So, he would use this to drive the States and our allies away from this peninsula that he would then try to dominate.” “H.R. McMaster talks North Korea threat, Michael Flynn deal,” December 3, 2017. Accessed December 7, 2017. <http://www.foxnews.com/transcript/2017/12/03/>
- ³⁸ *Yonhap News Agency*, February 14, 2018 (in Korean).
- ³⁹ “I think we are self-limiting if we view North Korea’s nuclear ambitions as solely a means to safeguard his regime”; “I do think that he is after reunification under a single communist system. So he’s after what his grandfather failed to do and his father failed to do and he’s on a path to achieve what he feels is his natural place.” Richard Lardner, “Admiral says North Korea aiming to reunify Korean Peninsula,” *Associate Press*, February 14, 2018.
- ⁴⁰ *Quadrennial Defense Review Report* (Washington, D.C.: Department of Defense, February 2010), 14.
- ⁴¹ Seong Whun Cheon, “Nuclear-Armed North Korea and South Korea’s Choices,” 5-32.
- ⁴² Positive views began to appear in the United States around this time. At a seminar held at Tufts University on February 26, 2011, Gary Samore, then White House Coordinator for Arms Control and Weapons of Mass Destruction, made following important remarks: (1) the U.S. would say “yes” if Seoul made a formal request, and it was natural for Washington to accept a request made by a key ally; (2) the weapons redeployed would only have a symbolic and political meaning, not military significance; (3) China would exert efforts to dismantle Pyongyang’s nuclear programs in order to prevent the return of U.S. tactical nuclear weapons; and (4) redeployment of nuclear weapons was completely up to the South Korean government. *Korea JoongAng Daily*, March 1, 2011.
- ⁴³ According to Gallup Korea and Korea Society Opinion Institute, 65% and 68.2% of the public approved the reintroduction of American tactical nuclear weapons to counter North Korea’s nuclear threat, respectively. *Korea JoongAng Daily*, September 11, 2017.
- ⁴⁴ William Arkin, et al. “Trump’s Options for North Korea Include Placing Nukes in South Korea,” April 7, 2017. Accessed January 25, 2018. <http://www.nbcnews.com/>
- ⁴⁵ Edwin J. Feulner’s interview with the Chosun Ilbo, *the Chosun Ilbo*, August 19, 2017 (in Korean) and the quotation is Mr. Feulner’s remarks recorded by the reporter during the interview.
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