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U.S. Nuclear Weapons in Europe: Critical for Transatlantic Security

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Abstract

Since the end of the Cold War, the U.S. nuclear weapons posture has undergone a dramatic change. The U.S. has withdrawn about 90 percent of its forward-deployed nuclear weapons from Europe. In 2013, the Obama Administration initiated the Life Extension Program (LEP) for the B61 tactical nuclear weapon, which is the last nuclear weapon the U.S. keeps in Europe, and the only remaining tactical nuclear weapon in the U.S. arsenal. The LEP will extend the life of the B61 by 20 to 30 years, and could cost over $8 billion. The U.S. and NATO have a continued interest in maintaining the U.S. nuclear presence in Europe since U.S. weapons contribute to the cohesion of the alliance. The U.S. must maintain a strong position in order to protect its national security interests, assure allies, and deter adversaries. It must increase U.S. military strength and develop capabilities that allow it to pursue a "protect and defend" strategy. The B61 LEP is a part of that strategy. The LEP and B61 are important for maintaining a science and technology base that allows the U.S. to keep its weapons safe, secure, and reliable. It will also maintain a U.S. commitment to transatlantic security.

Since the end of the Cold War, the U.S. nuclear weapons posture has undergone a dramatic change. The U.S. has withdrawn about 90 percent of its forward-deployed nuclear weapons from Europe. In 2012, the Obama Administration initiated the Life Extension Program (LEP) for the B61 tactical nuclear weapon, which is the last nuclear weapon the U.S. keeps in Europe and the only remain-

Key Points

- The U.S. must fully fund the B61 Life Extension Program (LEP). The weapon is the most visible commitment to U.S. European allies, and has deterrence and assurance value beyond European borders.
- The U.S. must not unilaterally reduce the number of its tactical nuclear weapons in Europe, due to its massive disadvantage in this class of weapons with Russia, as well as Russia's violations of its political and arms control commitments in the European theater.
- The U.S. must invest in capabilities that will allow it to move toward a more defensive posture, especially considering new and emerging nuclear weapons states, some of which threaten the U.S. and its allies.
- The U.S., and American allies and partners, must engage diplomatically to address the Russian arms control violations.
- The U.S. must increase its military strength and develop capabilities that allow it to pursue a "protect and defend" strategy.

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ing tactical nuclear weapon in the U.S. arsenal. The program will extend the life of the B61 by 20 to 30 years, and could cost over $8 billion.[1] The U.S. and the North Atlantic Treaty Organization (NATO) have a continued interest in maintaining the U.S. nuclear presence in Europe since U.S. weapons contribute to the cohesion of the alliance.

Tactical Nuclear Weapons: The Great Equalizer

In 1953, the U.S. and European allies made a conscious decision to forward-deploy U.S. tactical nuclear weapons (TNWs) in order to counterbalance a massive Soviet conventional superiority.[2] American TNWs in Europe were linked with U.S. strategic weapons that would be employed if the use of TNWs was not enough to stop advancing Soviet forces. In the following years, NATO struggled with devising a concept of TNW operations that would be credible and not lead to an absolute destruction of allied territories.[3]

The U.S. TNW arsenal peaked at 7,000 in the 1960s.[4] The weapons were supposed to provide "firepower with less manpower."[5] The arsenal included nuclear mines, artillery, short-range ballistic missiles, cruise missiles, and gravity bombs for an aircraft delivery.[6] During the Cold War, these weapons were deployed to Greece, the U.K., Belgium, Germany, Italy, the Netherlands, and Turkey, and the U.S. has developed an elaborate nuclear-sharing framework within NATO itself. Today, all these states except for the U.K. and Greece host U.S. TNWs.[7]

The Soviet Union did not want to stay behind. While the exact number of Soviet TNWs is not known, experts believe that the Soviet Union deployed between 15,000 and 25,000, if not more, TNWs in the late 1980s and early 1990s.[8] The Soviet arsenal, just as diverse as that of the U.S., consisted of TNWs of various ranges, delivery modes, and yield.

The Davy Crockett, one of the smallest U.S. TNWs ever built, weighed about 76 pounds and had a maximum range of 6, 800 feet to 13,000 feet.[9] TNWs are highly mobile and relatively easy to conceal. Great diversity of weapons and delivery systems (some of which could be used in conventional roles) complicated agreements on their meaningful definitions for arms control purposes. Additionally, effective verification of any TNW arms control agreement required intrusive procedures, including short-notice on-site inspections and improved capabilities of national technical means. Some of these problems, such as lack of transparency on the Russian side, mobility, and need for an intrusive verification regime, continue to plague arms

1. Hearing of the House Armed Services Committee, "Nuclear Weapons Modernization Programs: Military, Technical, and Political Requirements for the B61 Life Extension Program and Future Stockpile Strategy," October 29, 2013, http://armedservices.house.gov/index.cfm/hearings-display?ContentRecord_id=a186ee67-acf8-45fd-9364-f907f967c1d3&ContentType_id=14f995b9-dfa5-407a-9d35-56cc7152a7ed&Group_id=41030bc2-0d05-4138-841f-90b0fbaa0f88&MonthDisplay=10&YearDisplay=2013 (accessed October 31, 2013).
2. The term tactical nuclear weapons (TNWs) in this *Backgrounder* refers to nuclear weapons not covered by any U.S.–Soviet or U.S.–Russian arms control treaties. Non-strategic nuclear weapons, a term used to describe the same class of weapons, is a misnomer, since any use of TNWs in the European theater will have strategic effects.
3. For example, the Pentagon's 1955 exercise Carte Blanche assumed that "335 nuclear weapons would be used within the first 48 hours of a conflict, and that 268 of them would strike West German territory. Immediate German casualties were estimated at 1.5 million dead and 3.5 million wounded." John Behuncik, "Neutron Weapons and the Credibility of NATO Defense," Heritage Foundation *Backgrounder*, May 4, 1978, p. 8, http://www.heritage.org/research/reports/1978/05/neutron-weapons-and-the-credibility-of-nato-defense.
4. Tom Nichols, Douglas Stuart, and Jeffry McCausland, eds., "Tactical Nuclear Weapons and NATO," Strategic Studies Institute, April 2012, p. 4, http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB1103.pdf (accessed January 8, 2014).
5. John Cappello, Gwendolyn Hall, and Stephen Lambert, "Tactical Nuclear Weapons: Debunking the Mythology," USAF Institute for National Security Studies *Occasional Paper* No. 46, August 2002, p. 8, http://www.usafa.edu/df/inss/OCP/OCP46.pdf (accessed January 8, 2014).
6. Amy Woolf, "Nonstrategic Nuclear Weapons," Congressional Research Service, December 19, 2012, p. 2, http://www.fas.org/sgp/crs/nuke/RL32572.pdf (accessed October 24, 2013).
7. The Center for Arms Control and Non-Proliferation, "U.S. Tactical Nuclear Weapons in Europe Fact Sheet," January 2011, http://armscontrolcenter.org/issues/nuclearweapons/articles/US_Tactical_Nuclear_Weapons_Fact_sheet/ (accessed February 6, 2014).
8. Woolf, "Nonstrategic Nuclear Weapons," p. 2.
9. The Brookings Institution, The U.S. Nuclear Weapons Cost Study Project, "The Davy Crockett," http://www.brookings.edu/about/projects/archive/nucweapons/davyc (accessed February 6, 2014). David Hoffman, "The Little Nukes That Got Away," *Foreign Policy*, April 1, 2010, http://www.foreignpolicy.com/articles/2010/04/01/the_little_nukes_that_got_away (subscription required).

control efforts to this day. Even if a violation is detected, it is not at all clear that the U.S. and the international community would be able to bring the violating nation back into compliance.[10]

End of the Cold War and U.S. Loss of Negotiating Leverage

The end of the Cold War brought tremendous geopolitical and economic changes between the U.S., NATO, and the Soviet Union. The latter collapsed under its own weight. The newly freed Eastern and Central European countries were eager to leave their Soviet legacies behind and integrate into Western security and democratic structures. As the Soviet planners watched NATO's mighty performance in the First Gulf War, which included participation of some soldiers from the former Soviet bloc, the alliance found itself ideologically and militarily superior to the Soviet Union.

Changes in the U.S. defense posture in Europe followed and resulted in the reduction of the U.S. forward-deployed presence, both conventional and non-conventional.[11] On September 27, 1991, President George H. W. Bush announced that the U.S. would:

- Eliminate all of its ground-launched short-range theater nuclear weapons;
- Bring home and destroy all U.S. nuclear artillery shells and short-range ballistic missile warheads; and
- Withdraw all TNWs from its surface ships and attack submarines, as well as all TNWs associated with U.S. land-based naval aircraft.[12]

President Bush also announced: "Many of these land- and sea-based warheads will be dismantled and destroyed. Those remaining will be secured in central areas where they would be available if necessary in a future crisis."[13] The President called upon the Soviet leadership to reciprocate his unilateral efforts. The President's initiatives led to an 85 percent reduction in U.S. operationally deployed TNWs between 1991 and 1993.[14]

Soviet President Mikhail Gorbachev reciprocated the speech and announced:

> The Soviet Union would destroy all nuclear artillery ammunition and warheads for tactical missiles; remove warheads for nuclear anti-aircraft missiles and destroy some of them; destroy all nuclear land-mines; and remove all naval nonstrategic weapons from submarines and surface ships and ground-based naval aviation, destroying some of them.[15]

Subsequently, Russian President Boris Yeltsin promised to continue and even broaden President Gorbachev's initiative.[16] The statements of Presidents Bush, Gorbachev, and Yeltsin on the issue of TNWs are collectively known as the Presidential Nuclear Initiatives (PNI).

On TNWs, the former Soviet Union and its Russian successor state have never agreed, with the U.S.

10. Fred Iklé, "After Detection–What?" *Foreign Affairs*, January 1961, http://csis.org/images/stories/ikle/037.ForAffairs1961.pdf (accessed October 24, 2013), and Paula DeSutter, "Verification and the New START Treaty," Heritage Foundation *Lecture* No. 1160, July 12, 2010, http://www.heritage.org/research/lecture/verification-and-the-new-start-treaty.
11. This *Backgrounder* focuses on TNWs and ballistic missile defense systems deployments. For more information on U.S. forward-deployed presence, see Luke Coffey, "Keeping America Safe: Why U.S. Bases in Europe Remain Vital," Heritage Foundation *Special Report* No. 111, http://www.heritage.org/research/reports/2012/07/keeping-america-safe-why-us-bases-in-europe-remain-vital, and Michaela Dodge, "Beyond BRAC: Global Defense Infrastructure for the 21st Century," Heritage Foundation *Backgrounder* No. 2791, May 3, 2013, http://www.heritage.org/research/reports/2013/05/beyond-brac-global-defense-infrastructure-for-the-21st-century.
12. George H. W. Bush, "Address to the Nation on Reducing United States and Soviet Nuclear Weapons," George Bush Presidential Library and Museum, September 27, 1991, http://bushlibrary.tamu.edu/research/public_papers.php?id=3438&year=1991&month=9 (accessed January 8, 2014).
13. Ibid. The President also decided to alter the U.S. strategic nuclear weapons posture and cancel some strategic and TNW modernization programs.
14. Cappello, Hall, and Lambert, "Tactical Nuclear Weapons: Debunking the Mythology," p. 11.
15. Woolf, "Nonstrategic Nuclear Weapons," p. 11.
16. Hans M. Kristensen, "Non-Strategic Nuclear Weapons," Federation of American Scientists *Special Report* No. 3, May 2012, p. 46, http://www.fas.org/_docs/Non_Strategic_Nuclear_Weapons.pdf (accessed January 8, 2014).

or any other government, on meaningful transparency and verification measures. It is, however, clear that Russia has not fulfilled its commitments under the PNI.[17] Since the end of the Cold War, the U.S. and NATO further decreased the importance of TNWs in their strategic doctrines and failed to modernize their TNWs. Russia, on the other hand, has modernized its TNWs. The Clinton Administration denuclearized the surface fleet and the George W. Bush Administration reportedly withdrew TNWs from the U.K., Greece, and from the U.S. Air Force base in Ramstein, Germany.[18]

In 2004, Stephen Rademaker, then Assistant Secretary of State for Arms Control, observed that "considerable concern exists that the Russian commitments have not been entirely fulfilled."[19] In 2006, Rademaker indicated that while the U.S. fulfilled all of its obligations under the PNIs, "Russia has not completely fulfilled the Russian side of the [PNIs]." He further asserted that "no Russian official with responsibility for this matter has ever claimed to me that Russia has fully implemented the [PNIs]."[20]

Russia's inability to deliver on its political commitment, and efforts of successive U.S. Administrations to deliver on U.S. commitments, have left the U.S. with as much as a 10-to-1 disadvantage in TNWs in the European theater. Gary Samore, President Obama's Senior Director on the National Security Council Staff, stated:

> I think there are big challenges, because there's a disparity between the U.S. and Russia when it comes to tactical nuclear weapons. The U.S. has a very small number—only a few hundred tactical nuclear weapons—and we don't really have a strong military reliance on them as far as European security goes. In contrast, the Russians have a much larger number—probably a few thousand nuclear weapons—and they say that they need those tactical nuclear weapons to counteract NATO's conventional superiority.[21]

As Samore's statement illustrates, while the U.S. has decreased the role and importance of its strategic and tactical nuclear weapons, Russia has done the opposite. In fact, Russia is investing significant resources into the development of new TNWs and considers the use of TNWs as de-escalatory.[22] In May 2012, Nikolai Makarov, the Russian Chief of General Staff, stated that a "decision to use destructive force pre-emptively will be taken if the situation [U.S. missile defense deployments to Europe] worsens."[23]

Since deterrence and assurance in the European theater are intimately interwoven, it is appropriate to point out another source of emerging disparity between the U.S. and its allies and Russia. U.S. strategic weapons are part of extending deterrence and assuring allies not only in Europe, but around the world. The New Strategic Arms Reduction Treaty (New START), signed by the Obama Administration in 2011, is a flawed treaty that allows Russia to build up while the U.S. must bear most of the nuclear weapons reductions.[24] The Administration is already falling short on its nuclear weapons infrastructure funding promises, and its policy precludes any new nuclear weapons, new missions or capabilities for

17. Mark B. Schneider, "New START: The Anatomy of a Failed Negotiation," National Institute for Public Policy, July 2012, pp. 64–68, http://www.nipp.org/Publication/Downloads/Downloads%202012/New%20START%20Final%20for%20web.pdf (accessed October 31, 2013).
18. Hans M. Kristensen, "U.S. Nuclear Weapons Withdrawn from the United Kingdom," Federation of American Scientists Strategic Security Blog, June 26, 2008, http://blogs.fas.org/security/2008/06/us-nuclear-weapons-withdrawn-from-the-united-kingdom/ (accessed January 8, 2014).
19. News release, "Press Roundtable at Interfax," remarks by Stephen Rademaker, U.S. Department of State, October 6, 2004, http://2001-2009.state.gov/t/isn/rls/rm/37275.htm (accessed October 24, 2013).
20. News release, "Press Conference on the G-8 and Nonproliferation Issues," U.S. Department of State, April 12, 2006, http://2001-2009.state.gov/t/isn/rls/rm/66428.htm (accessed October 24, 2013).
21. "Obama Adviser Gary Samore: 'The Ball Is Very Much in Tehran's Court,'" Radio Free Europe / Radio Liberty, April 14, 2011, http://www.rferl.org/content/interview_samore_russia_iran_us_policy/3557326.html (accessed October 24, 2013).
22. Mark Schneider, prepared statement, testimony before the Subcommittee on Strategic Forces, Armed Services Committee, U.S. House of Representatives, October 14, 2011, p. 3.
23. S. Smithson, "Russia Threatens to Strike NATO Missile Defense Sites," *The Washington Times*, May 3, 2012, http://www.washingtontimes.com/news/2012/may/3/russia-threatens-strike-nato-missile-defense-sites/?page=all (accessed October 24, 2013).
24. The New START Working Group, "An Independent Assessment of New Start," Heritage Foundation *Backgrounder* No. 2410, April 20, 2010, http://www.heritage.org/research/reports/2010/04/an-independent-assessment-of-new-start-treaty.

the weapons currently in U.S. possession.[25] Russia is taking a different approach to the maintenance of its nuclear stockpile. Not only did Moscow launch the most substantive nuclear weapons modernization program since New START was signed, it has also conducted yield-producing experiments allowing its workforce to maintain technical proficiency and to possibly improve its nuclear weapons designs.[26]

This disparity might result in allies questioning the U.S. commitment to their security, since requirements of deterrence and assurance might vary significantly depending on the situation.[27] During the New START ratification debate, the Senate was aware of the problem caused by a massive difference in the number of TNWs. Its resolution of ratification contains a condition that the U.S.

> will seek to initiate, following consultation with NATO allies but not later than one year after the entry into force of the New START Treaty, negotiations with the Russian Federation on an agreement to address the disparity between the nonstrategic (tactical) nuclear weapons stockpiles of the Russian Federation and of the United States and to secure and reduce tactical nuclear weapons in a verifiable manner.[28]

President Obama's 2013 speech in Berlin included the statement that the U.S. will seek "bold reductions in U.S. and Russian tactical weapons in Europe," leaving the question of massive disparity between the two states aside.[29]

The U.S. Nuclear Weapons Posture in Europe

The U.S. nuclear posture in Europe is part of the U.S. overall strategic posture that should be guided by principles stemming from damage limitation and "protect and defend" strategies. At the heart of these concepts is a U.S. posture that discourages nuclear weapons developments by decreasing the number of weapons that pose the greatest threat to civilian populations.[30] The posture also recognizes the need to develop and deploy ballistic missile defenses as a means to strengthen deterrence and protect life and property in the event that deterrence fails.[31] This posture is essential since there are more nuclear-armed states today than at any point in history. Today's vastly different international environment warrants a departure from the Cold War thinking rooted in the philosophy of mutually assured destruction (MAD).

Today, the need for a credible mix of conventional and nuclear weapons, offensive and defensive weapons, and active and passive defenses is underscored by a fundamental asymmetry when it comes to what the U.S. on the one hand, and U.S. adversaries and likely future adversaries on the other hand, value. The U.S. values its citizens' lives and the economic means that foster their prosperity. Russian, North Korean, Iranian, and Chinese leaders have demonstrated time and again that they care more for their own power than the well-being of those they rule.

As The Heritage Foundation's Baker Spring put it,

25. Michaela Dodge and Baker Spring, "Bait and Switch on Nuclear Modernization Must Stop," Heritage Foundation *Backgrounder* No. 2755, January 4, 2013, http://www.heritage.org/research/reports/2013/01/bait-and-switch-on-nuclear-modernization-must-stop.
26. Robert G. Joseph, "Second to One," *National Review*, October 17, 2011, http://www.nationalreview.com/articles/304310/second-one-robert-g-joseph (accessed January 8, 2014), and William J. Perry and James R. Schlesinger, "America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States," United States Institute of Peace, 2009, p. 83, http://www.usip.org/sites/default/files/America%27s_Strategic_Posture_Auth_Ed_0.pdf (accessed January 8, 2014).
27. For a more detailed discussion of this issue, see "Minimum Deterrence: Examining the Evidence," Heritage Foundation discussion, September 26, 2013, http://www.heritage.org/events/2013/09/minimum-deterrence.
28. *Congressional Record*, December 22, 2010, p. S10984.
29. News release, "Remarks by President Obama at the Brandenburg Gate—Berlin, Germany," June 19, 2013, http://www.whitehouse.gov/the-press-office/2013/06/19/remarks-president-obama-brandenburg-gate-berlin-germany (accessed November 1, 2013).
30. Baker Spring, "Toward an Alternative Strategic Security Posture," Heritage Foundation *WebMemo* No. 2183, January 2, 2009, http://www.heritage.org/research/reports/2009/01/toward-an-alternative-strategic-security-posture.
31. Baker Spring, "Congressional Commission Should Recommend 'Damage Limitation' Strategy," Heritage Foundation *Backgrounder* No. 2172, August 14, 2008, http://www.heritage.org/research/reports/2008/08/congressional-commission-should-recommend-damage-limitation-strategy.

> [I]t is a morally dubious proposition that the U.S. should respond to a nuclear attack by the North Korean regime by incinerating a large number of half-starved North Korean peasants who are also victims of the regime. Given that the North Korean regime is not particularly concerned about the well-being of the North Korean population, it is not likely to be deterred by retaliatory threats against that population.[32]

Conventional weapons and active and passive defenses are an essential part of the protect and defend strategy. The U.S. should focus on developing weapons that can credibly threaten what U.S. adversaries value most: their leadership's survival, their means of internal oppression, and their means of external attack. The U.S. values life, its institutions, and instruments of economic well-being, so there is a fundamental deterrence asymmetry between the U.S. and its adversaries. It should also pursue defensive measures, both active and passive, to protect what the U.S. values in the case deterrence fails.

A credible U.S. strategic posture is an essential component of allied assurance and deterrence.[33] It is also prudent to recognize that U.S. allies in Asia, especially Japan and South Korea, are concerned with U.S. security guarantees in Europe as well as the credibility of U.S. extended deterrence. As Keith Payne, former deputy assistant secretary of defense, points out:

> [M]any allies confronted by Russia, China or emerging nuclear powers North Korea and Iran do not believe that their security problems are mainly in their minds. They confront real external threats and want the assurance of security that resides in the U.S. nuclear extended deterrent.[34]

According to Heritage Foundation estimates, the U.S. should increase its number of deployed TNWs in Europe from a few hundred[35] today to a minimum of 800 weapons so that it is able to meet requirements of the protect and defend nuclear targeting strategy with respect to the Russian TNWs.[36] These weapons should be modernized for rapid delivery. Heritage's approach also recognizes that the U.S. targeting list will continually evolve in accordance with the threat to U.S. interests and allies.[37]

Currently, the U.S. has around 200 B61 free-fall gravity bombs in Europe. The 2010 Nuclear Posture Review (NPR) establishes tenets of the Administration's policy regarding U.S. TNWs policy. The document states that

> 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.[38]

It also emphasizes that any changes to NATO's nuclear posture "should only be taken after a thorough review within—and decision by—the Alliance."[39]

Regarding the systems themselves, the NPR states that the U.S. will "retain the capability to forward-deploy U.S. nuclear weapons on tactical fighter-bombers and heavy bombers"; "proceed with full scope life extension for the B61 bomb"; and "retire the nuclear-equipped sea-launched cruise missile."[40]

The NPR also establishes a policy of three "nos": (1) The U.S. will not develop new nuclear warheads;

32. Ibid.
33. Rebeccah Heinrichs and Baker Spring, "Deterrence and Nuclear Targeting in the 21st Century," Heritage Foundation *Backgrounder* No. 2747, November 30, 2012, http://www.heritage.org/research/reports/2012/11/deterrence-and-nuclear-targeting-in-the-21st-century.
34. Keith Payne, "PAYNE: Zero Nuclear Sense: Is Reckless Disarmament the Plan for Second Obama Term?" *The Washington Times*, May 29, 2012, http://p.washingtontimes.com/news/2012/may/29/zero-nuclear-sense/ (accessed October 24, 2013).
35. The exact number is classified.
36. Heinrichs and Spring, "Deterrence and Nuclear Targeting in the 21st Century."
37. Baker Spring, "Congressional Commission Should Recommend 'Damage Limitation' Strategy."
38. U.S. Department of Defense, "Nuclear Posture Review Report," April 2010, p. xii, http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf (accessed October 21, 2013).
39. Ibid., p. xiii.
40. Ibid.

(2) will not support new military missions; and (3) will not provide new military capabilities for the weapons the nation currently has (both strategic and TNWs).[41] Instead of advancing U.S. nuclear weapons modernization, the Administration has opted to pursue the Life Extension Program. For B61 weapons currently deployed in Europe, the LEP is supposed to increase the operational life of these weapons by 20 to 30 years.

Allied Considerations

Since the end of World War II, NATO allies have been split on the issue of U.S. TNWs in Europe. Ambivalence has been related to uncertainty regarding how limited-strike TNWs would be employed or what the actual consequences of their use would be. From ideological protests in the 1980s to more recent efforts to persuade the U.S. to withdraw its TNWs from Europe, TNWs have been somewhat divisive within NATO. The removal of U.S. TNWs from Europe would eliminate one of the most visible signs of U.S. commitment to European security. The 1997 NATO–Russia Founding Act, the political document signed two years before Poland, Hungary, and the Czech Republic joined NATO, states that "the member States of NATO reiterate that they have no intention, no plan and no reason to deploy nuclear weapons on the territory of new members, nor any need to change any aspect of NATO's nuclear posture or nuclear policy—and do not foresee any future need to do so."[42]

The alliance's latest Strategic Concept commits NATO "to the goal of creating the conditions for a world without nuclear weapons" but also "reconfirms that, as long as there are nuclear weapons in the world, NATO will remain a nuclear Alliance." It also promises to "seek to create the conditions for further reductions in the future."[43] The Strategic Concept states that deterrence is based on an appropriate mix of conventional and nuclear capabilities and that the strategic nuclear forces of the U.S., U.K., and France, provide the "supreme guarantee of the security of the Allies."[44] The document also elevated capabilities to defend populations and territories against ballistic missile attack as a core element of NATO's collective defense.[45] In 2012, NATO declared that American TNWs will remain in Europe, but did not give any details.[46]

It is essential that NATO maintain its "nuclear culture." As a part of burden sharing, NATO allies should maintain their dual-capable aircraft in addition to providing personnel and space for TNWs.[47] In 2012, the Center for Economics and Foreign Policy Studies found that 54 percent of participants in a survey would support Turkey obtaining its own nuclear weapons capability in reaction to a possible threat from a nuclear-armed Iran.[48] According to the same survey, only 8.4 percent believe that NATO's security umbrella is sufficient.[49] British Prime Minister David Cameron recently defended his government's decision to modernize and retain the Royal Navy's *Vanguard*-class submarine, a sea-based nuclear deterrent, on these grounds: "Furthermore, trying to save money by just relying on the United States to act on our behalf allows potential adversaries to gamble that one day the U.S. might not put itself at risk in order to deter an attack on the U.K."[50]

41. Ibid., p. 39.
42. North Atlantic Treaty Organization, Founding Act, May 27, 1997, http://www.nato.int/cps/en/natolive/official_texts_25468.htm (accessed October 25, 2013).
43. NATO, "Active Engagement, Modern Defence: Strategic Concept for the Defence and Security of the Members for the North Atlantic Treaty Organization," November, 2010, p. 5 and 24, http://www.nato.int/strategic-concept/pdf/Strat_Concept_web_en.pdf (accessed October 25, 2013).
44. Ibid., p. 14.
45. Ibid., p. 16.
46. Coffey, "Keeping America Safe: Why U.S. Bases in Europe Remain Vital."
47. Luke Coffey, "Five Principles That Should Guide U.S. Policy Toward NATO," Heritage Foundation *Issue Brief* No. 3536, March 8, 2012, http://www.heritage.org/research/reports/2012/03/5-principles-that-should-guide-us-policy-toward-nato.
48. "54 Pct of Turks Support Nukes if Iran Has Them," *The Journal of Turkish Weekly*, March 29, 2012, http://www.turkishweekly.net/news/133087/54-pct-of-turks-support-nukes-if-iran-has-them.html (accessed January 9, 2014).
49. Ibid.
50. "David Cameron: We Need a Nuclear Deterrent More than Ever," *The Telegraph*, April 3, 2013, http://www.telegraph.co.uk/news/politics/david-cameron/9969596/David-Cameron-We-need-a-nuclear-deterrent-more-than-ever.html (accessed October 25, 2013).

For the U.S., it is important that its TNWs in Europe uphold the principle that Washington can deploy nuclear weapons on other nations' territory. Russian Foreign Minister Sergey Lavrov pointed out, "Unlike Russian non-strategic nuclear weapons, U.S. weapons are deployed outside the country."[51] He implied that U.S. TNW withdrawal from Europe is a precondition for continuing talks on Russian and U.S. nuclear weapons in Europe. In 2012, Russian Deputy Foreign Minister Sergei Ryabkov demanded that the U.S. dismantle its TNW infrastructure even before negotiations begin.[52] While Russian TNWs can reach the European theater even when deployed outside Europe, U.S. TNWs would not be able to reach the European theater in similar time lines should it withdraw its TNWs to its territory.

NATO members expressed their desire for an agreement that reduces the disparity in this class of weapons and relocates Russian TNWs away from the territory of NATO member states.[53] If the U.S. withdraws its TNWs from Europe before negotiations even start, it will effectively eliminate Russia's incentive to negotiate in the future.[54] The most recent National Research Council report on nuclear weapons testing states that Russia could field low-yield nuclear weapons without new nuclear explosions tests, if these weapons are based on previous designs.[55] This, and a lack of Russia's transparency regarding this class of weapons, may further complicate any future TNW arrangements.

Perceptions matter and at the time when all the nuclear powers have a robust nuclear weapons modernization program and would-be nuclear powers are trying their best to obtain their own nuclear weapon capabilities, current U.S. withdrawal of TNWs from Europe would be ill-advised. It could be misinterpreted as U.S. indifference to the transatlantic alliance and increase Europe's vulnerability to other nations' blackmail. Even worse, should a conflict break out, it would place Europe's posture at disadvantage.[56] In such a situation, re-introduction of TNWs to Europe could be interpreted as an escalatory step and would likely be opposed by both Americans and Europeans.

International Implications

The principle that the U.S. can deploy its TNWs on foreign territory is crucial for an uncertain future. If the U.S. withdraws these weapons, it would be difficult to reintroduce them to Europe, for both political and technological reasons. South Korea, for instance, might demand a visible demonstration of U.S. nuclear security guarantees, including deploying weapons on its territory, if North Korea continues or expands its aggressive actions and rhetoric toward South Korea. Following North Korea's third nuclear weapons test in February 2013, a public opinion poll conducted by the Asan Institute, a South Korean think tank, found that 66 percent of South Korean citizens supported development of a nuclear weapons program.[57] In a separate poll conducted by Mono Research, only 8.3 percent of South Koreans said that U.S. nuclear weapons "were sufficient to preclude the need for South Korea's own nuclear weapons."[58]

These numbers should be alarming. If the U.S. is faced with a choice between dealing with a new nuclear-armed ally and re-introducing its TNWs on the Peninsula, relations with European nuclear pow-

51. "Russia on AMD: Words Not Enough," *Russian Times*, April 19, 2012, http://rt.com/politics/nato-lavrov-nuclear-defense-460/ (accessed October 25, 2013).
52. "Russia Seeks Nonstrategic Nuke Talks With U.S.," Nuclear Threat Initiative, November 8, 2012, http://www.nti.org/gsn/article/russia-calls-talks-nonstrategic-nukes/ (accessed October 25, 2013).
53. NATO, "Active Engagement, Modern Defence."
54. Baker Spring and Michaela Dodge, "The United States Must Not Concede the Russian Position on Tactical Nuclear Weapons," Heritage Foundation *WebMemo* No. 3491, February 8, 2012, http://www.heritage.org/research/reports/2012/02/us-strategy-on-russias-tactical-nuclear-weapons.
55. Paul Robinson, John Foster, and Thomas Scheber, "The Comprehensive Test Ban Treaty: Questions and Challenges," Heritage Foundation *Lecture* No. 1218, November 7, 2012, http://www.heritage.org/research/lecture/2012/11/the-comprehensive-test-ban-treaty-questions-and-challenges.
56. Sally McNamara and Baker Spring, "President Obama Must Not Remove Nuclear Weapons from Europe," Heritage Foundation *WebMemo* No. 2824, March 4, 2010, http://www.heritage.org/research/reports/2010/03/president-obama-must-not-remove-nuclear-weapons-from-europe.
57. K. J. Kwon, "Under Threat, South Koreans Mull Nuclear Weapons," CNN, March 18, 2013, http://www.cnn.com/2013/03/18/world/asia/south-korea-nuclear/index.html (accessed October 25, 2013).
58. Samuel Lee, "Hawks Urge South Korea's Nuclear Armament," *The Korean Herald*, February 2, 2013, http://www.asianewsnet.net/Hawks-urge-South-Korea%E2%80%99s-nuclear-armament-42819.html (accessed October 25, 2013).

ers, especially with the United Kingdom, or European states where U.S. TNWs are currently deployed, could be a model for responding to what would be a new nature of relationship. Similar discussions, albeit on a smaller scale, are being held in Japan. "Having nuclear plants shows to other nations that Japan can make nuclear weapons," stated former Japanese Defense Minister Shigeru Ishiba in July 2013.[59]

Benefits to U.S. Nuclear Science

Introduced in the 1970s, the B61 bombs are the oldest weapons family in the U.S. nuclear stockpile. The B61-3, B61-4 and B61-10 are free-falling gravity bombs currently deployed in Europe.[60] These weapons are deliverable by allied aircraft, provided appropriate certifications are in place. According to Don Cook, Deputy Administrator for Defense Programs at the National Nuclear Security Administration (NNSA): "The B61 has been in service a decade longer than planned, and our refurbishment program is a scientific and engineering challenge."[61] Aside from the B61 LEP's importance for extended deterrence, the U.S. "strategic arsenal depends, in part, on the B61 bomb."[62] The B61 LEP is essential to "retain the viability of the B-2 within the nuclear role."[63] Current U.S. policy directs these weapons to be refurbished without conducting any yield-producing nuclear weapons experiments.[64]

To be able to meet and uphold the U.S. commitment to NATO, Washington must proceed with the B61 LEP. In May 2012, General William Chambers, assistant chief of staff for strategic deterrence and nuclear integration at the U.S. Air Force headquarters in Washington, D.C., underscored the program's importance for allied assurance: "This weapon will produce effective deterrent capability for the bomber force, *particularly for extended deterrence roles*, and that will happen starting later this decade."[65] Essential components of this weapon will be reaching the end of their service life soon.[66] The LEP affects four of five of its variants: B61-3, B61-4, B61-7, and B61-10.[67] The LEP would upgrade the reliability of the arming, fusing, firing, and also add improved security features.[68] According to the Administration's plan, these four B61 weapons types will be refurbished and consolidated into one: the B61-12.[69] This approach is expected to save long-term weapons maintenance costs and allow further reductions in the non-operationally deployed nuclear weapons in the U.S. stockpile.

General C. Robert Kehler, former Commander, U.S. Strategic Command, stated that the LEP pro-

59. "Japan's Pro-Bomb Voices Rise as Nuke Power Debated," Fox News, July 31, 2012, http://www.foxnews.com/world/2012/07/31/japan-pro-bomb-voices-grow-louder-amid-nuke-debate/ (accessed October 25, 2013).
60. Kristensen, "Non-Strategic Nuclear Weapons," p. 14.
61. News release, "B61-12 Life Extension Program Radar Drop Tests Completed Successfully," National Nuclear Security Administration, August 29, 2013, http://nnsa.energy.gov/mediaroom/pressreleases/droptest082913 (accessed October 25, 2013).
62. "U.S.–Russian Arms Control, Chinese Nuclear Weapons and Strategic Stability," National Defense Industrial Association, Air Force Association and Reserve Officers Association Capitol Hill Breakfast Forum, unofficial transcript, June 28, 2012, p. 3, http://secure.afa.org/HBS/transcripts/2012/6-28-2012%20Linton%20Brooks.pdf (accessed October 25, 2013).
63. "The Strategic Nuclear Triad's Enduring Contribution to America's Security," National Defense Industrial Association, Reserve Officers Association, Air Force Association and Task Force 21 Conference, transcript September 13, 2012, p. 37, http://secure.afa.org/HBS/transcripts/2012/TRIAD/9-13-2012_TRIAD_Symposium.pdf (accessed October 25, 2013).
64. Michaela Dodge and Baker Spring, "Keeping Nuclear Testing on the Table: A National Security Imperative," Heritage Foundation *Backgrounder* No. 2270, February 27, 2013, http://www.heritage.org/research/reports/2013/02/keeping-nuclear-testing-on-the-table-a-national-security-imperative.
65. Emphasis added. "Nuclear Weapons and Strategic Deterrence," National Defense Industrial Association, Air Force Association and Reserve Officers Association Capitol Hill Breakfast Forum, unofficial transcript, May 24, 2012, p. 6, http://secure.afa.org/HBS/transcripts/2012/5-24-2012%20Gen%20Chambers%20v2.pdf (accessed October 25, 2013).
66. The precise time is classified.
67. U.S. Government Accountability Office, "Nuclear Weapons: DOD and NNSA Need to Better Manage Scope of Future Refurbishments and Risks to Maintaining U.S. Commitments to NATO," May 2011, p. 2, http://www.gao.gov/new.items/d11387.pdf (accessed October 25, 2013).
68. News release, "Senator: Cost of B61 Refurbishment Skyrockets to as Much as $10 Billion," Los Alamos Study Group *Nuclear Weapons and Materials Monitor*, Vol. 16, No. 32, July 27, 2012, http://www.lasg.org/press/2012/NWMM_27Jul2012.html (accessed October 25, 2013).
69. News release, "B61-12 Life Extension Program Radar Drop Tests Completed Successfully," National Nuclear Security Administration, August 29, 2013, http://nnsa.energy.gov/mediaroom/pressreleases/droptest082913 (accessed October 25, 2013).

gram is "absolutely necessary," and that due to previous deferrals "we don't have the luxury of waiting."[70] Deferrals and a lack of commitment to sustain U.S. nuclear weapons infrastructure partly reflect the price tag for this LEP.[71] In fiscal year 2014, the Senate's Energy and Water Development Appropriations bill recommended a $168 million decrease for the B61 LEP, citing cost and risk concerns.[72] It is unclear whether this decrease will translate into increased costs in the long term, or delay the program, or perhaps both. In addition, the NNSA, just like the Department of Defense, will bear the burden of sequestration under the Budget Control Act of 2011. These cuts are likely to cause further problems for the B61 LEP as well as for the already underfunded nuclear weapons complex.

The Pentagon's Cost Assessment and Program Evaluation office estimates that the LEP program will cost approximately $10 billion.[73] This assessment is $2 billion higher than the NNSA's own assessment.[74] The longer the U.S. waits to invest in its nuclear weapons infrastructure (and to sustain and advance technology allowing the U.S. to maintain its nuclear weapons without having to conduct yield-producing experiments), the more expensive it will be to keep the U.S. nuclear weapons arsenal safe, secure, reliable, and effective. The B61 LEP is the start of a relatively robust sustainment effort envisioned by the Obama Administration. This effort includes strategic warheads W78/W88-1, W87/W88, and W76-1 refurbishments.[75] Unless the current policy changes and the U.S. decides to develop new nuclear weapons, the LEPs are one of a few ways to preserve at least some science and engineering capabilities necessary to sustain the current stockpile.

A Way Forward for the U.S.

To maintain the credibility of its assurance and deterrence over the next several years, the United States should:

- **Sustain U.S. TNWs in Europe.** For reasons associated with strategic and extended deterrence, the U.S. must not further delay the B61 LEP. Execution of this program is important to sustaining the U.S. science, technology, and engineering base within the nuclear infrastructure complex. U.S. TNWs have dissuaded allies from pursuing their own nuclear weapon capabilities or enlarging their nuclear weapons arsenals. They will continue to serve this important role in the future, as other nations are vigorously modernizing their nuclear weapons arsenals and new nuclear-armed states emerge. U.S. TNWs in Europe are a sign of a visible political commitment to NATO and the security of its members.

- **Pursue effectively verifiable negotiations with the Russian Federation as a treaty.** The PNIs and Russian disregard for fulfilling its obligations under this non-formal agreement show that it is essential that any further agreement regarding U.S. nuclear weapons reductions be pursued as a treaty. The treaty must be subject to the Senate's advice and consent. The agreement must be effectively verifiable and address the disparity between U.S. and Russian TNWs.

- **Pursue active and passive defenses in Europe.** The spread of ballistic-missile and weapons-of-mass-destruction technologies continues to undermine regional stability in areas

70. Steve Liewer, "Clock Is Ticking on Aging B61 Bomb, StratCom Chief Says," Omaha.com, September 23, 2013, http://www.omaha.com/article/20130922/NEWS/130929616 (accessed October 25, 2013).
71. Michaela Dodge and Baker Spring, "Bait and Switch on Nuclear Modernization Must Stop," Heritage Foundation *Backgrounder* No. 2755, January 4, 2013, http://www.heritage.org/research/reports/2013/01/bait-and-switch-on-nuclear-modernization-must-stop.
72. Senate Report, "113-047–Energy and Water Development Appropriations Bill," 2014, http://thomas.loc.gov/cgi-bin/cpquery/?&sid=cp113s0tv8&r_n=sr047.113&dbname=cp113&&sel=TOC_420141& (accessed January 9, 2014).
73. Kate Brannen, "Pentagon More than Doubles Cost Estimate for B61 Nuclear Bomb," *Defense News*, July 25, 2012, http://www.defensenews.com/article/20120725/DEFREG02/307250004/Pentago (accessed October 25, 2013).
74. News release, "NNSA Outlines Price Tag of '3+2' Vision For Future of Nuclear Stockpile," Los Alamos Study Group *Nuclear Weapons and Materials Monitor*, Vol. 17, No. 26, June 21, 2013, http://www.lasg.org/press/2013/NWMM_21Jun2013.html (accessed October 25, 2013).
75. Ibid.

vital for U.S. and allied national security interests. NATO must continue its development, testing, and deployments of ballistic missile defense systems. Passive defenses are also worth pursuing because NATO territory faces a diverse set of security challenges, including terrorist attacks originating on NATO's territory.

- **Reiterate U.S. commitment to maintaining TNWs in Europe.** U.S. TNWs have served, and will continue to serve, as a visible demonstration of U.S. commitment to the security of the transatlantic region. This commitment and assurance provided by U.S. TNWs are likely to become more important in the future, especially as new nuclear-armed states emerge and threats to the alliance continue. The commitment should also be backed by full funding for the B61 LEP.

- **Pursue targeting policy and advance capabilities that are in accordance with the protect and defend strategy.** This targeting policy would advance counterforce strategic capabilities and emphasize the role of active and passive defenses, including ballistic missile defense. While the U.S. and its allies most value the well-being of their populations and their continued social and economic viability, adversaries view their means of strategic attack and internal repression as their most valuable assets. NATO and the U.S. must account for this asymmetry in their strategic planning.

- **Seek Allied support in addressing Russian arms control violations.** Russian violations of the PNIs and its violations of the Intermediate-Range Nuclear Forces Treaty must not go without a response. The U.S. has a range of diplomatic and military tools with which to address the Russian cheating, including advancing the U.S. missile defense program, conditioning implementation of arms control agreements with Russia, reviving the Senate Arms Control Observer Group, and modernizing its own nuclear weapons arsenal.[76]

Conclusion

The U.S. must maintain a strong position in order to protect its national security interests, assure allies, and deter adversaries. It must increase U.S. military strength and develop capabilities that allow it to pursue a protect and defend strategy. The B61 LEP is a part of that strategy. The program and the B61 are important for maintaining a science and technology base that allows the U.S. to keep its weapons safe, secure, and reliable. It will also maintain U.S. commitment to transatlantic security.

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76. Michaela Dodge and Ariel Cohen, "Russia's Arms Control Violations: What the U.S. Should Do," Heritage Foundation *Issue Brief* No. 4105, December 11, 2013, at http://www.heritage.org/research/reports/2013/12/russia-s-arms-control-violations-what-the-us-should-do.