

The Current State of the US Nuclear Arsenal

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Abstract

The US nuclear arsenal has reached a critical point in its existence. Approaching the end of their service lives, the weapons that make up the current arsenal must either be upgraded or replaced in order to maintain their effectiveness as deterrents. Nuclear deterrence is still necessary to prevent other states from deploying nuclear weapons, and the arsenal in its current state will not be able to serve this purpose in the near future. To create a long-term, reliable nuclear deterrent, it is recommended that the current weapons in the US nuclear arsenal be replaced with a Reliable Replacement Weapon. Current Life Extension Programs are short-term solutions that do not guarantee the United States will have a modern, reliable nuclear force well into the twenty-first century.

About the Author

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Introduction

Since the fall of the Soviet Union, the state of and the need for the US nuclear arsenal has been a topic of debate. Because there is no longer a daily threat of total nuclear annihilation to the American public, the necessity of the nuclear arsenal has become unclear. The need to spend large amounts of money on weapons that are unlikely to be used is hard to justify to the American taxpayers. This paper will explore the need for a nuclear arsenal in the twenty-first century and why the current arsenal should be modernized. The focus will be on ongoing modernization programs, such as the Life Extension Program, and the proposed Reliable Replacement Weapon program to replace the current arsenal.

The Need for a Nuclear Arsenal

The threat of a nuclear attack on the United States or its allies has not vanished with the fall of the Soviet Union. Although the Cold War has ended, there are still high tensions between the United States and two nuclear armed states: the Russian Federation and the Democratic People's Republic of Korea (North Korea). Russian military action in Eastern Europe strained the relations between it and the US. In 2014, Russia annexed the Crimean Peninsula, a Ukrainian territory of strategic value in controlling the Black Sea. Although this did not escalate into a major war between Russian and NATO forces, this conflict was evocative of the Cuban Missile Crisis, where a regionalized situation greatly affected global stability.

If a war between Russia and NATO were to occur, it is possible that the Russian military would deploy either tactical or strategic nuclear weapons. Jacek Durkalec, a research analyst for the Polish Institute of International Affairs, explains that "Russia's nuclear brinkmanship has strengthened the presumption that any hypothetical conflict between NATO and Russia would

involve Russian nuclear threats, implicit or explicit” (Durkalec, 2015). By maintaining a nuclear deterrent, the United States is dissuading the Russian military from deploying nuclear weapons due to fear of retaliation. The situation is similar with North Korea: although their nuclear program cannot currently mass produce nuclear weapons, the state still maintains the ability to attack Japan or South Korea with nuclear weapons (Cha & Kang, p. 27).

The fear of retaliation from the United States under the doctrine of mutually assured destruction keeps the North Korean military from launching such an attack. In his article “Modernizing Nuclear Arsenals: Whether and How,” Eugene Miasnikov puts forward the idea that a nuclear force will be necessary until every nuclear power in the world disarms itself (2015). However, worldwide simultaneous nuclear disarmament is an unlikely event; therefore it is advisable to the US to maintain a capable nuclear arsenal to deter a nuclear strike.

By maintaining a worldwide nuclear deterrent, allies of the United States do not have to create their own nuclear arsenal. In a 2008 speech, former Secretary of Defense Robert Gates noted the importance of the nuclear arsenal in defending US allies (Garwin, 2008). The United States discourages its allies from creating their own nuclear weapons programs, instead guaranteeing protection under the US “nuclear umbrella.” The nuclear umbrella promises its signatories that the United States will treat any attack against one of its allies as an attack against the US itself. This policy grants smaller states the protection of a deterrent force without having to create and protect their own nuclear weapons.

This policy also limits the ability for terrorist groups to obtain nuclear weapons or material by reducing the amount available worldwide. By preventing the creation of new weapons programs, the US is preventing the creation of new, nascent nuclear weapons programs

and new nuclear weapon states, two main points to preventing nuclear terrorism proposed by Graham Allison, a Harvard professor specializing in nuclear terrorism research. With its nuclear deterrent force, the US is protecting its allies while simultaneously limiting the number of nuclear weapons worldwide, making nuclear terrorism more difficult.

Just as it stops US allies from creating nuclear arms, a strong nuclear deterrent force discourages the development of nuclear arms by states that may be hostile to the US and its allies. In his paper “Missions for Nuclear Weapons After the Cold War,” Ivan Oelrich, the Senior Fellow for the Strategic Security Program at the Federation of American Scientists, argues that a strong nuclear arsenal can be used to discourage the creation of another nuclear arsenal (2005, p. 34). If the US maintains a nuclear arsenal that is easily capable of annihilating a state’s new nuclear arsenal, then there is almost no advantage to having created the arsenal in the first place.

The argument put forth by Oelrich is that any state planning to create a new nuclear arsenal would realize this and would not invest the time, money, or resources in such a futile effort. This argument can be expanded to cover the creation of chemical, biological, or radiological weapons. This idea of developmental deterrence relies entirely on the US maintaining a nuclear arsenal strong enough to launch an attack that would render a state’s nuclear production line inoperable. This could involve the destruction of multiple independent and reinforced structures, such as breeder reactors, enrichment facilities, and weapon assembly plants. If it were possible that a few enemy weapons were to survive the US strike, then the hostile state may continue with its weapons program. Therefore, another reason that the United States must maintain a highly capable nuclear deterrent force is to deter the creation of new nuclear weapons programs.

Why the Current Arsenal Needs Modernization

The current nuclear arsenal is not optimized for the threats, strategies, and missions of the twenty-first century. The US military's conventional forces have evolved over time to meet the demands it faces today; since the threat of thousands of Soviet tanks rolling across Eastern Europe has been replaced with that of insurgency and terrorism the equipment and tactics of the military are now developed and deployed with this new threat in mind. However, the US nuclear arsenal is still deployed with one goal: the annihilation of any state that launches a nuclear attack against the United States or its allies. Although this idea of brinkmanship was effective during the Cold War, the weapons created to support it do not meet the needs of today.

In a report for Congress titled "Nuclear Weapons: The Reliable Replacement Weapon Program," National Nuclear Security Administration administrator Linton Brooks argues that current nuclear weapons are too high in yield and do not allow for precision strikes (Medalia, 2005, p. 21). This is a major problem for the US military, which has focused on limiting collateral damage as much as possible in the recent years. With the deployment of small yield and precision guided conventional munitions, it follows that the US nuclear force would be upgraded to minimize collateral damage. Brooks also argues that nuclear weapons could be tailored to maximize the output of certain capabilities, such as the electromagnetic pulse released when a nuclear device detonates (Medalia, 2005, p. 22). This pulse would give the US the ability to destroy electronic equipment while limiting civilian casualties. By upgrading it to meet the demands of today, the US arsenal becomes a more effective and diversified worldwide deterrent.

Upgrades to the US arsenal are currently underway in the form of Life Extension Programs (LEPs). LEPs are defined by the NNSA as "programs to repair or replace components

of nuclear weapons to ensure the ability to meet military requirements” (2016). These programs allow weapons that are approaching the end of their service lives to continue to serve in the US nuclear arsenal. To do this, individual components of current weapons are upgraded to maintain their initial function capability.

For example, the arming systems in all W88 warheads, used in Trident II submarine launched ballistic missiles, are currently being replaced with an up-to-date system (2016). Although these programs allow nuclear weapons to function an estimated additional thirty years, LEPs are expensive and do not provide a long-term solution to the aging nuclear arsenal. After thirty years, the entire arsenal will need to be quickly replaced to maintain a nuclear deterrent, an expensive undertaking. If the modernization of the nuclear arsenal began immediately, the money that would be spent extending the service life of twenty-year-old weapons could be spent developing and deploying a new nuclear weapon that would have a significantly longer service life.

How to Modernize the Nuclear Arsenal

A Reliable Replacement Weapon (RRW) would supplant the current arsenal and increase the safety and reliability of the nuclear arsenal. One advantage of creating an entirely new weapon is that it would make use of modern, cutting-edge technology. Instead of spending money replacing individual parts of an old weapon in order to maintain its ability to function, a new weapon could be designed with the intention to incorporate these new technologies. This would allow for higher reliability and a longer service life for all new weapons.

In a report for Congress titled “Nuclear Weapons: The Reliable Replacement Weapon Program,” Jonathan Medalia, a specialist in national defense at the Congressional Research

Service, explains that an RRW could allow for replacing the current nuclear arsenal with a longer lasting, smaller one (Medalia, 2005, p. 4-5). Because of the reliability of the new weapon, fewer spare warheads would need to be produced. By reducing the number of nuclear weapons in the US arsenal, the nuclear complex that creates and maintains these weapons could also be reduced, increasing safety and security by allowing more oversight over fewer facilities.

A smaller, more modern nuclear arsenal would save money and maintain proper worldwide nuclear deterrence. By investing in an advanced, reliable nuclear weapon, the US government could produce fewer weapons. The current mission of the US nuclear deterrent force could be carried out by an arsenal a fraction of its current size armed with the high reliability and modern capabilities of the Reliable Replacement Weapon. There would no longer be a need to launch multiple weapons at a single target in fear of one not functioning properly. This reduction would allow the US government to save money on the production and maintenance of the weapons, as well as the facilities that service and house them.

In his Los Angeles Times article "To Save Money, Look to Nukes," Michael O'Hanlon argues that a smaller nuclear force and smaller weapons production facilities could save the US government between \$30 and 35 billion over a ten-year period (O'Hanlon, 2011). With its newly modernized nuclear arsenal, the United States could maintain a strong nuclear deterrent while reducing military expenditures.

Conclusion

This report has shown that even in a post Cold-War world, it is in the best interest of the United States military to develop and maintain a modern nuclear arsenal. This arsenal would be better suited for modern conflict than the aging stockpile the government is trying to maintain

with costly Life Extension Programs. Given its commitment to global peace through strength, the US military has both the fundamental interest and strategic imperative it needs to create a modern, long-term, cost-effective nuclear arsenal.

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