



Strategic National Defense

Summary and Key Talking Points

Policy Proposals

1. Modernize the nuclear deterrent to ensure its reliability and effectiveness in the coming decades.
2. Develop and deploy a comprehensive, layered missile defense system.
3. Address vulnerability to an electromagnetic pulse (EMP) and increase the domestic electric grid's resilience.
4. Support the development of a space-based sensor layer to augment the data needed for missile defense systems.

Quick Facts

1. The U.S. has not tested a nuclear warhead since 1992.
2. The U.S. currently has only 44 Ground-Based Midcourse Defense interceptors to protect the homeland.
3. Over 20 countries have ballistic missiles, including such U.S. adversaries as China, Russia, and North Korea.

Power Phrases

The Duty to Defend

- Providing for the common defense is one of the primary responsibilities of the federal government.
- There is a widening gap between this responsibility and the readiness of the U.S. missile defense programs.

Nuclear Consequences

- U.S. nuclear weapons have kept peace by deterring a large-scale attack against our country and allies.

A Developing Threat

- As our adversaries build their missile arsenals, the U.S. nuclear weapons age, and our nuclear triad is overdue for modernization.

The Issue

Ever since the end of World War II, U.S. nuclear weapons have kept the peace by deterring a large-scale attack against the United States and its allies. They are the most powerful weapons the United States currently has at its disposal. Nuclear weapons are an effective deterrent because they force adversaries that might be considering whether to attack the United States or its allies to face the prospect of immediate and overwhelming retaliation. Additionally, more than 30 countries around the world depend on U.S. nuclear security guarantees in exchange either for not developing their own nuclear weapons or, in the case of France and the United Kingdom, keeping their nuclear arsenals smaller than they otherwise would be.

At the same time, however, U.S. nuclear forces are old. The nuclear triad (bombers, intercontinental-range ballistic missiles, and submarine-launched ballistic missiles) is overdue for modernization. Nuclear warheads were last tested in 1992, and unlike its adversaries, the United States is currently unable to produce new warheads except for an extremely limited number in laboratory conditions. Because of their critical importance in maintaining national security, the government must ensure that America's nuclear weapons remain safe, secure, and militarily effective. Modernizing these weapons and the infrastructure that supports them has therefore been a number one priority for U.S. defense policy since at least 2010.

Providing for the common defense is one of the federal government's primary constitutional responsibilities. Perhaps nowhere is the gap between this duty and actual U.S. conduct as apparent as it is with respect to U.S. missile defense programs. Despite adversaries building up their missile arsenals, the United States deploys only a limited number of missile defense interceptors that are capable of defending the U.S. homeland from small-scale ballistic missile threats such as those posed by North Korea or, potentially, Iran. This means that America is vulnerable to Russian and Chinese missiles.

U.S. vulnerability to a missile attack is an issue because it leaves Americans with no protection if deterrence should fail. Another threat is an electromagnetic pulse (EMP). An EMP, which would be generated by the airburst of a nuclear weapon, would disable all electronics within its line of sight of the blast, potentially sending the United States back to a pre-industrial era. Americans deserve better than the perpetuation of these vulnerabilities.

Recommendations

Modernize the U.S. nuclear deterrent. U.S. nuclear bombers, submarines, and intercontinental-range ballistic missiles badly need modernization. Since the end of the Cold War, the United States has neglected its nuclear forces because of expectations that the international environment would become more secure. These hopes have dimmed with the return of great-power competition with Russia and China.

Congress has supported the nuclear weapons modernization program initiated by President Obama and continued by President Trump on a bipartisan basis. The Trump Administration made two small adjustments to this program that the Biden Administration has thus far supported: deployment of a low-yield warhead for the submarine-launched ballistic missile and development of a sea-launched cruise missile to address what Russia and China could perceive as a gap in U.S. nuclear weapon capabilities. Russian leaders appear to think that the use of a low-yield nuclear weapon in a conventional conflict would compel the United States to back down. Moscow believes Washington would not want to escalate the conflict to a possibly uncontrollable nuclear exchange, thereby accepting any gains from Russian aggression. That misconception is dangerous. Similarly, China may use its diverse range of nuclear missiles to coerce the United States not to respond in a regional contingency such as a Taiwan conflict. The United States must ensure that its nuclear deterrent remains safe, secure, reliable, and effective for decades to come.

Develop and deploy a comprehensive, layered missile defense system. Ballistic missiles launched by an adversary could reach anywhere in the United States in about 30 minutes—even less if launched from shorter range. They can deliver devastating payloads including an EMP if a nuclear warhead on the top of a missile were detonated at high altitude. The spread of ballistic missiles into the hands of dangerous actors such as North Korea increases the imperative need to develop a comprehensive, layered missile defense system. Such a system would include interceptors that can address missiles at all stages of flight including the boost phase where they are the most vulnerable to an intercept. Congress should therefore support the development and deployment of missile defense capabilities.

Increase awareness of the electromagnetic pulse issue. Americans depend on a stable and reliable supply of electricity for every aspect of life. That makes the nation uniquely vulnerable to an EMP, a perfect asymmetric choice of a weapon for less technologically advanced adversaries such as North Korea. The Administration and Congress should work jointly to address this vulnerability, including by increasing awareness of the importance of emergency preparedness among Americans and increasing the resilience of the domestic electric grid.

Increase nuclear weapon test readiness. Nuclear test readiness is a critical component of deterrence. U.S. nuclear warheads are old, and the nation might need to conduct yield-producing experiments on its nuclear warheads in the future, whether because of an issue with the current warhead stockpile that requires a significant fix or because of developments in adversaries' nuclear capabilities that require a new weapon design. Congress and the Administration should support steps that give the United States more flexibility in the event it finds itself surprised by any of these developments.

Advance new nuclear weapons designs. The United States currently conducts only very limited activities to train future generations of weapon scientists and engineers in skills that would allow them to develop new nuclear warhead designs. Currently deployed U.S. nuclear warheads are based on 1970s and 1980s designs and prioritize yield-to-weight ratios over, for example, security features. The National Nuclear Security Administration (NNSA), the government agency responsible for nuclear stockpile maintenance, should ensure that the next generation of scientists not only has access to knowledge that their predecessors developed, but also gets to exercise the skills necessary for the design, development, and deployment of a new warhead.

Develop and deploy a capable space-based sensor layer. Adversaries are developing missiles that fly on cruise or hypersonic glide trajectories that are more difficult to detect and track than are ballistic missiles. To improve these capabilities, the United States should deploy a layer of sensing satellites in space to augment data that missile defense systems need to cue an interceptor toward an incoming missile. The first step in deterring or intercepting a missile attack is to be able to see it.

Modernize the U.S. NNSA complex. The NNSA is tasked with the critical mission of maintaining a safe and effective stockpile of nuclear warheads. However, together with decades of underfunding since the end of the Cold War, the laboratories have lost critical nuclear weapon design and manufacturing skills. In addition, the facilities that host nuclear weapons activities are decades old and subject to different single points of failures. Congress should support the NNSA's efforts to address these issues and modernize the nuclear infrastructure. As current U.S. warheads continue to age and adversaries deploy more advanced nuclear capabilities, the United States will need to refurbish its own nuclear stockpile, and this requires modern design and manufacturing capabilities.

Facts + Figures

FACT: U.S. nuclear weapons have deterred large-scale attacks against the U.S. homeland and allies without fail every day since the dawn of the nuclear age. Having modernized, flexible, and agile nuclear weapons and the infrastructure to support them is the best guarantee of U.S. and allied security for the foreseeable future.

- U.S. nuclear delivery systems badly need modernization. The United States has not tested its nuclear warheads since 1992, and more than half of the buildings in the NNSA complex date from the Manhattan Project era.
- Modernization of nuclear weapons is affordable and a great deal for the value the United States would get by preventing the most devastating attacks known to mankind. Even at its peak, the planned nuclear modernization program would cost only around 6 percent of the Department of Defense's budget.
- More than 30 countries around the world depend on U.S. nuclear security guarantees. Some of these countries could develop their own nuclear weapons should U.S. commitments be perceived as unreliable.

FACT: More adversaries and potential adversaries are investing in missile technologies and threatening the safety of what the U.S. values.

- Missiles are a weapon of choice for U.S. adversaries because they are fast, are cheap, and can deliver a lethal payload against the homeland in less than 30 minutes.
- More than 20 countries around the world, including such U.S. adversaries as China, Russia, Iran, and North Korea, have ballistic missiles.
- The United States currently has only 44 ground-based midcourse defense interceptors in Alaska and California protecting the U.S. homeland. That is enough to address only a relatively small number of unsophisticated missiles like those that North Korea can field.

FACT: An electromagnetic pulse could send the United States back into the pre-industrial era at great loss of both life and economic prosperity.

- A successful EMP attack would disable—most likely permanently—all electronics within its line of sight. The United States could be sent back into a pre-industrial age in an instant.
- A 1962 atmospheric test of a U.S. nuclear weapon at Johnston Island generated an EMP that knocked out electric lights hundreds of miles away in Hawaii.
- A man-made EMP is only one part of the concern regarding the reliability of energy supplies and transmission lines. The sun can also generate solar storms with EMP-like effects on large areas of the Earth.
- An EMP is a perfect asymmetric weapon. Due to our dependence on electricity, potential adversaries like Russia, China, and North Korea talk about using EMPs in a conflict against the United States.

Additional Resources

Dakota L. Wood, ed., *2022 Index of U.S. Military Strength* (Washington: The Heritage Foundation, 2022).

Patty-Jane Geller, "How the Upcoming Missile Defense Review Can Make America Safer," Heritage Foundation *Issue Brief* No. 5224, October 4, 2021.

Patty-Jane Geller, "Dangerous Nuclear Policy Idea No. 4: Defunding the Nuclear Sea-Launched Cruise Missile," Heritage Foundation *Issue Brief* No. 5217, September 27, 2021.

Patty-Jane Geller, "Dangerous Nuclear Policy Idea No. 3: Delaying or Canceling the Ground-Based Strategic Deterrent Program," Heritage Foundation *Issue Brief* No. 6071, March 23, 2021.

Peter Brookes, "Texas's Winter Electrical Grid Failures Highlight the Nation's Vulnerability to EMP Attacks," Heritage Foundation *Commentary*, March 9, 2021.

Patty-Jane Geller, "Dangerous Nuclear Policy Idea No. 2: A U.S. Policy of No First Use or Sole Purpose," Heritage Foundation *Issue Brief* No. 6047, February 16, 2021.

Michaela Dodge, "Nuclear Weapons: United States Should Rebuild Its Plutonium Pit Manufacturing Capability," Heritage Foundation *Backgrounder* No. 3581, February 1, 2021.

Patty-Jane Geller, "Dangerous Nuclear Policy Idea No. 1: Unconditionally Extending New START for Five Years," Heritage Foundation *Issue Brief* No. 6039, January 19, 2021.

Patty-Jane Geller, "Developing a Clear Path for Homeland Missile Defense," Heritage Foundation *Backgrounder* No. 3515, August 7, 2020.

Michaela Dodge, Katie Tubb, Thomas W. Spoehr, Jack Spencer, and David Inerra, "The Danger of EMP Requires Innovative and Strategic Action," Heritage Foundation *Backgrounder* No. 3299, April 4, 2018.