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INSIGHT

New Nuclear Warheads: Legislative Provisions

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The 2018 Nuclear Posture Review (NPR) identifies a plan to "modify a small number of [submarine-launched ballistic missile] warheads to provide a low-yield option" so that the United States could respond promptly and penetrate an adversary's defenses after a nuclear attack. The NPR contends that this capability would strengthen nuclear deterrence, while critics argue it would lower the nuclear threshold and increase the risk of nuclear war.

This Insight reviews legislation addressing research and development on new or low-yield nuclear weapons and notes that under current law, an Administration must request specific authorization and appropriations from Congress before funding new or modified warheads. It does not address the policy debate on the benefits and risks of this capability.

Background

During the Cold War, the United States deployed low-yield nuclear warheads with troops in Europe and Asia for potential use on the battlefield during a conflict. Although the United States withdrew battlefield weapons from service in 1991, it retains B61 gravity bombs and nuclear-armed air-launched cruise missiles that contain options for low-yield use. The United States has not designed or developed a new low-yield nuclear warhead since the late 1980s.

1993 – The PLYWD Ban

After the 1991 Persian Gulf War, studies showed that the United States had a limited ability to destroy hardened underground structures. The Pentagon began to consider whether a very low yield nuclear warhead could destroy underground bunkers, and according to some reports, the Department of Energy began a concept definition study for an Aircraft Delivered Precision Low-Yield Weapon. Some in

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Congress, however, questioned whether this effort would undermine U.S. security and nonproliferation objectives. In its report on the FY1994 National Defense Authorization Act (H.R. 2401), the House Armed Services Committee argued that "very low yield nuclear warheads threaten to blur the distinction between conventional and nuclear conflict, and could thus increase the chances of nuclear weapons use by another nation." It also argued that "the utility of very low yield nuclear weapons is questionable given the increasing effectiveness and availability of precision guided conventional munitions."

Congress passed an amendment to the FY1994 NDAA (P.L. 103-160) banning research and development on low-yield nuclear weapons. The amendment, known as the Spratt-Furse amendment, or PLYWD, for Precision Low-Yield Weapon Design ban, states that "it shall be the policy of the United States not to conduct research and development which could lead to the production by the United States of a new low-yield nuclear weapon, including a precision low-yield warhead." A low-yield nuclear warhead was defined as one with explosive yield of less than 5 kilotons.

Some in Congress remained interested in the potential for low-yield nuclear weapons addressing threats from chemical and biological weapons. In the National Defense Authorization Act for 2001 (H.R. 4205, Section 1044), Congress requested a study that assessed the U.S. ability to defeat hardened and deeply buried targets, including those that might house chemical or biological agents. Although the resulting study focused on conventional weapons, special operations forces, intelligence, and other capabilities, it also noted that some deeply buried targets could not be "held at risk with conventional high-explosive weapons or current nuclear weapons" and that "nuclear weapons have a unique ability to destroy both agent containers and CBW agents" if the fireball is located near the target. The report asserted that "given improved accuracy and the ability to penetrate the material layers overlying a facility, it is possible to employ a much lower-yield weapon to achieve the needed neutralization."

Publicly available excerpts of the 2001 Nuclear Posture Review noted that an underground nuclear warhead explosion could destroy many buried facilities with much lower yield, reducing fallout by a factor of 10 to 20. It also outlined plans to establish small "advanced warhead concepts teams" to evaluate evolving military requirements and assess options for new or modified warheads. The George W. Bush Administration then called for the repeal of PLYWD, arguing that it "undercuts efforts that could strengthen our ability to deter, or respond to, new or emerging threats." It also argued PLYWD had a "chilling effect" on efforts to "train the next generation of nuclear weapons scientists and engineers... by impeding the ability of our scientists and engineers to explore the full range of technical options" because it prohibited any activities "which could potentially lead to production by the United States" of such a warhead.

2004 – Current Law

The Senate Armed Services Committee proposed a repeal of PLYWD in its version of the FY2004 NDAA (S. 1047). The full Senate defeated amendments that would either retain the ban or limit its scope – allowing research and development but banning engineering and manufacturing – but specified that "the Secretary of Energy may not commence the engineering development phase or any subsequent phase of a low-yield nuclear weapon unless specifically authorized by Congress." The House version of the bill contained a more limited adjustment, allowing some research, but continuing to ban engineering development.

The conference report (H.Rept. 108-354) included the requirement that the Secretary of Energy specifically request authorization and appropriations for research, development, engineering, and manufacturing of a new or modified nuclear warhead, regardless of yield. According to current law (50 U.S.C. §2529), a new nuclear weapon is one that contains a pit or canned subassembly that was not in the stockpile or in production on December 2, 2002. A modified warhead is one that contains a pit or canned

subassembly that was in the nuclear weapons stockpile as of December 2, 2002, and is being modified to meet a military requirement other than the military requirement it met when placed in the stockpile.

Hence, the question of whether an Administration would have to request that Congress authorize and appropriate funding to modify an existing warhead would likely reflect assessments of whether the changes sought in the warhead constituted a "modification" and whether the modified warhead was intended to meet a new military requirement.