The major national security threats facing the U.S. today come from advances in nuclear weapon technologies and the corresponding colors from (B) also correspond to the nations in (A). The Timeline of nuclear weapon deployments since 2010 colored by non-strategic or tactical weapons. We adopt the threshold for nuclear weapon states. Russia and China have evolved with the malignant influence in their respective regions. Increasingly assertive in matters relating to security, diplomacy, and (R.F.) and The People’s Republic of China (P.R.C.) have become two sources: renewed great power competition and the continued escalation to war.

Ensured support and defense of our allies, and prevention of the axes of technical considerations, tailored response capabilities, of the W76-2 program and the continuance of the low-yield SLCM-N program; we present our argument for low-yield synthesis along the axes of technical considerations, tailored response capabilities, ensured support and defense of our allies, and prevention of escalation to war.

The Discrimination Problem

The discrimination problem arises when an adversary cannot tell what type of payload will be delivered by an incoming missile, forcing them to act under the assumption of the worst case-scenario[3]. This arises with the use of the W76-2. It is important that a state employing a nuclear weapon minimizes the risk of escalation that the discrimination problem can cause. A concern with the W76-2 is that under most conditions it cannot be distinguished from its standard-yield counterpart. The W76-2 is the only low-yield option currently available to the U.S. arsenal, having an expected yield of 8 kilotons. The Trident II D5 also carries two standard-yield warheads: the W76-1 and the W88[3]. No adversary can distinguish whether the Trident II D5 is carrying either of the two standard-yield warheads or the low-yield warhead prior to detonation[5]. When faced with this uncertainty, the target nation will have no choice but to interpret a launch of the Trident II D5 to contain standard-yield warheads, and thus respond proportionately with strategic forces; deploying the W76-2 on the Trident II D5 missiles greatly increases the risk of strategic forces being used, as described in Table 3 below. The SLCM-N could be developed to potentially avoid the heightened risk associated with the current deployment of W76-2 warheads on Trident II D5 missiles. The development of the SLCM-N could potentially reduce the risk of unintentional escalation and resolve this discrimination problem. If so deployed on a delivery vehicle with no standard-yield counterpart, in accordance with its current development track. However, this does not disregard the role of the W76-2 to deter, as it is ready-made and provides a low-yield option with more range and penetrative power than the SLCM-N, and it should therefore be the larger component of the low-yield arsenal based on the current low-yield programs.

Policy Options for the 2022 NPR

The purpose of a Nuclear Posture Review (NPR) is to develop and propagate declaratory nuclear policy for transparent and clear communication with other nuclear players. A successful U.S. NPR will help deter nuclear proliferation, maintain strategic deterrence and stability, reassure U.S. allies and partners, and sustain a safe, secure, and effective nuclear arsenal. To do this, there are four general options the Biden White House may take.

1. Roll out the W76-2: Follow in the precedent of the 2018 NPR and focus on development and rollout of the W76-2, while continuing to explore other low-yield options in order to strengthen extended deterrence and fill the missile gap[1].

2. Rollback the W76-2: Revet to the policies of the 2010 NPR and rollback low-yield weapons to avoid the interpretation that the U.S. is seeking out more “useable weapons”[4].

3. Transition to New Low-Yield Options: In order to avoid warhead ambiguity posed by the W76-1 (standard-yield) and W76-2 (low-yield) being launched on the same platform, transition to developing a low-yield SLCM-N and use it to replace the W76-2’s role in low-yield deterrence[5].

4. Low-Yield Synthesis: Make both the W76-2 and the SLCM-N key players in the U.S. nuclear arsenal, thus maximizing the flexibility of options and best maintain extended deterrence capabilities. The SLCM-N avoiding warhead ambiguity, and the SLCM-N being ready-made and with larger range and utility.

We argue that option 4, “Low-Yield Synthesis,” is the best option to pursue for the 2022 NPR for low-yield weapons programs and policy.

Keeping Pace with Peace

The U.S. faces nations with varied levels of nuclear development. Developing and introducing the SLCM-N alongside the W76-2 provides greater ability to tailor responses to the heterogeneous nuclear threat landscape. The continued development of weapons programs by various states, primarily the R.F., the P.R.C., and the D.P.R.K., creates the potential for regional deterrence gaps. Both Russia and China are expanding their nuclear capabilities with Russia deploying the Avangard, a hypersonic glide vehicle, and China working on increasing its number of land-, sea-, and air-based nuclear weapons delivery systems, to support the purposes of a new nuclear strategy. The R.F. is also aiming to develop its nuclear capabilities and programs; in 2016, Kim Jong-un expressed that North Korea was successful in a hydrogen bomb test, though the veracity of this claim is unverified[6]. The development of non-strategic weapons by other states continues to oblige the U.S. to respond in kind. However, we assess that the potential for deterrence gaps exists and there are conceivable missions in which low-yield weapons would be preferred.

References


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