

## Comparison of the 2010/2018 Nuclear Posture Reviews and its Implications

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### 1. Introduction

The 2018 Nuclear Posture Review (NPR), which contains the national objectives and the roles of nuclear weapons in U.S. National Security Strategy, was published. The Trump administration's NPR reflects both continuity and change from the policy of the Obama administration. With its emphasis on modernizing U.S. nuclear forces and the importance of nuclear deterrence, the NPR shows their strong will to resolve current proliferation issues. Accordingly, it raises the questions about their implementation of arms control obligations under Article VI of the NPT.

As the nuclear issues in the Democratic People's Republic of Korea (DPRK) are beyond the range of non-proliferation and have become a part of disarmament issues, Republic of Korea (ROK), the country directly involved, needs to give more attention to this change in U.S. position. This study compares the 2010 and 2018 NPRs to draw out the findings from a technical point of view and its impact on nonproliferation.

### 2. Two NPRs and Comparison Results

In this section, the main content of the 2010 and 2018 NPRs are addressed and compared in terms of "Nuclear capabilities, NSA, Policy on nuclear weapons uses, Non-Proliferation, Arms Control." Focused on their aims to produce nuclear material and enhance nuclear deterrence, and its impact on arms control, three major findings are suggested.

#### 2.1 2010 NPR

The 2010 NPR provides the roadmap of Obama's agenda, which settles into the five key objectives: preventing nuclear proliferation and nuclear terrorism, reducing the role of U.S. nuclear weapons in U.S. national security strategy, maintaining strategic deterrence and stability at reduced nuclear force levels, strengthening regional deterrence and reassuring U.S. allies and partners, and sustaining a safe, secure, and effective nuclear arsenal [1].

While the NPR contains the plan to retain the U.S. nuclear capabilities at a reduced nuclear force level, it makes clear that the U.S. would not conduct nuclear testing and not develop new nuclear warheads.

The NPR places the leadership to rebuild and strengthen the global nuclear non-proliferation regime atop the U.S. nuclear agenda for the first time. The U.S.

commitment to "Negative Security Assurance (NSA)" is also emphasized even in the case of chemical or biological weapons uses of non-nuclear weapons states which are party to the NPT and in compliance with their nuclear non-proliferation obligations.

#### 2.2 Iran and DPRK issues

In the non-proliferation regime, nuclear issues in Iran and DPRK were raised seriously after 2010. Iran was suspected of nuclear weapons development using uranium enrichment. After a long consultation among the P5+1 and Iran, Iran has agreed to constraints on its nuclear program in the Joint Comprehensive Plan of Action (JCPOA) since 2015. The Trump administration, however, points out that Iran retains the capability to develop a nuclear weapon within one year of a decision to do so and asserts a renegotiation or withdrawal of JCPOA.

DPRK has conducted six underground nuclear tests and a number of missile tests in the name of protecting their homeland security. The yield of the latest nuclear test was one or two hundred kilotons. The 2017 U.S. intelligence assessment concluded that DPRK has developed the technology to miniaturize a nuclear warhead to fit its ballistic missiles [2].

#### 2.3 2018 NPR

The 2018 NPR emphasizes the role of U.S. nuclear weapons in an advanced nuclear-threat environment than ever before to protect the U.S. allies, and partners. Its contributions are described as follows: deterrence of nuclear and non-nuclear attack, assurance of allies and partners, achievement of US objectives if deterrence fails, and capacity to hedge against uncertain future [3].

The NPR concludes two unprecedented declaratory policies on use of the U.S. nuclear weapons. First, while NSA for the NPT parties is in good standing, it is explicitly addressed that a No-First-Use policy is not justified today and they need to retain some ambiguity of a U.S. nuclear response. Second, the NPR explains that employment of nuclear weapons would be only considered in extreme circumstances, including significant non-nuclear strategic attacks, such as attacks on civilian population or infrastructure, nuclear forces, etc., to defend vital interests.

Regarding the U.S. nuclear capabilities, the NPR calls for two new capabilities not currently in the U.S. arsenal – a Sea-Launched Nuclear Cruise Missile (SLCM) and a "low-yield" warhead for Submarine-

Launched Ballistic Missiles (SLBM). It fully supports the retention and modernization of the current triad of delivery systems of land-and sea-based missiles and bombers as the basis for deterring war and assuring the allies of continued U.S. commitments to their security.

The NPR also clarifies that the U.S. will not seek Senate ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT) and not support the Nuclear Weapons Ban Treaty (NBT). They conclude the NBT without the prerequisite transformation of the security environment could damage the non-proliferation regime and security of the U.S. and its allies.

#### 2.4 Comparison

Both the 2010 and 2018 NPR continue to make the U.S. commitment on extended deterrence and security assurance for their allies and partners. Compared to the Obama administration, however, the Trump administration has different views on the U.S. nuclear capabilities and takes the DPRK's nuclear threat seriously as well as Iran's ability to continuously produce weapons grade uranium if it decides to do so.

Based on the structure of the main content in the NPR, the comparison factors are organized into five items: nuclear capabilities, NSA, policy on nuclear weapons uses, non-proliferation, and arms control. For each item, the 2010 and 2018 NPRs are compared, and the results are presented in Table I.

Table I: Comparison between the 2010 and 2018 NPR

	2010 NPR	2018 NPR
Nuclear Capabilities	Not develop new nuclear warheads, Use only LEPs <sup>1)</sup>	Two new nuclear capabilities (SLCM, low-yield SLBM)
	Retain nuclear triad under New START <sup>2)</sup>	Retain and Modernize nuclear triad
NSA	Not use or threaten to use nuclear weapons against NPT non-nuclear weapons states fully complying with their non-proliferation obligations	Continuous NSA, Reject No-First-Use policy
Policy on Nuclear Weapons Uses	Extreme circumstances excluding chemical or biological	Extreme circumstances including significant non-nuclear strategic

	weapons uses	attacks
Non-Proliferation	Consider nuclear terrorism and proliferation as top urgent threats	Emphasize the DPRK nuclear threat and Iran's enrichment capability, Deny NBT
Arms Control	Pursue New START, CTBT and FMCT <sup>3)</sup>	Not seek to ratify CTBT,

1) LEPs: Life Extension Programs

2) New START: New Strategic Arms Reduction Treaty

3) FMCT: Fissile Material Cutoff Treaty

#### 2.5 Findings

There are three significant changes between two NPRs, in terms of nuclear material production, nuclear deterrence enhancement and arms control.

The Trump Administration calls for ensuring the U.S. capability to produce sufficient low-enriched uranium, lithium compounds, and tritium, to meet military requirements generated for nuclear warheads by the Department of Defense. These strategic materials are expected to be used to support the retention and replacement program of the nuclear force with hydrogen bombs and boosted fission bombs, or to hedge against unforeseen developments including low-yield nuclear weapons.

The NPR calls for a low-yield warhead development, which qualifies as one to 20 kilotons of energy, to give a "flexible" nuclear option, especially when it comes to smaller-scale regional conflicts [5]. This means that the U.S. plans to pressure rogue countries and relieve the allies and partners by enhancing extended nuclear deterrence. The No-First-Use policy would be rejected for the same reason.

Regarding new nuclear warhead development, it could raise concerns on the U.S. commitment over arms control obligations under Article VI of the NPT. Despite the international movement to make a legally binding instrument to prohibit nuclear weapons, NBT, it indicates that the U.S. believes there is no other way to resolve the proliferation issues other than by strengthening their nuclear capability.

### 3. Conclusions

The NPR represents the modern tendency of world nuclear deployment reflecting the security environment and socio-political circumstances. The new NPR's strengthened declaration on extended deterrence and reassurance makes the U.S. allies and partners relieved. Meanwhile, it is also interpreted into the return of great power competition with China and Russia.

The ROK, facing the DPRK nuclear issues, could reaffirm the reassurance of the U.S. However, there are also concerns on their nuclear capability development

and its negative impact on arm control as one of non-nuclear weapon states. The comparison results between the 2010 and 2018 NPRs and the following major findings can be used to suggest policy implications on the national strategy for ROK-U.S. policy toward DPRK.

#### **REFERENCES**

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