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Testimony
before the
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US Nuclear Strategy and Policy
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Good morning, Chairman Reed, Senator Inhofe, distinguished members of the committee, it is always an honor to appear before the Senate Committee on Armed Services, particularly in the company of such distinguished panelists

Thank you for the invitation and the opportunity to discuss the future of US strategic relationships with Russia and China, the US nuclear modernization programs, how these programs will enable the United States to meet future deterrence requirements, the future of arms control post New START, and how China's rise can be taken into consideration in future arms control agreements.

These are important, complex topics that should be discussed more openly and more frequently.

To start, I want to be clear that today I share with you my own personal thoughts and do not represent or speak on behalf of any organization or entity.

The world today is more dangerous, more chaotic, and more uncertain than any time since the end of the Cold War. Russian President Putin's distorted version of Russian history and his aggressive, unprovoked attack on Ukraine, has resulted in a previously unthinkable land war in Europe.

A global pandemic from which we are slowly emerging, and which killed 1 in every 500 people, has called into question the degree of reliance previously placed on the global supply chain.

The combined aftereffects of COVID 19 and Russia's invasion of Ukraine have generated inflationary rates not seen since the 1980s.

The United States now finds itself in what can only be described as a 3 peer or near peer, multipolar environment, complicated by North Korea. Overlay the regional competition of India and Pakistani, their nuclear arsenals and their respective complex relationships with Russia and China, and the chance of nuclear use is high.

The doomsday clock tool is now set at 100 seconds to midnight; In contrast, in 1991 at the end of the Cold War the clock setting was 17 minutes to midnight.

We live in a world that depending on your point of view, is either on the cusp of a new arms race or already in one. A world in which norms are being flaunted, agreements violated or abrogated, where only one nuclear arms treaty remains in force—the New START. Even New START is challenged, given Russia's recent decision to suspend inspections.

Progress toward the nuclear disarmament goals of the treaty that underpins efforts to prevent the spread of nuclear weapons—the Treaty on the Nonproliferation of Nuclear Weapons has reversed.

President Biden has said he is ready to “expeditiously” negotiate a framework to replace New START, which expires in 2026, even as bilateral talks on strategic stability have stopped. Is Russia even interested in further discussions? China has shown little to no interest in any arms control-like discussions.

Russia and China engaged in significant military modernization over the last 15 years, and both have expanded dramatically the size and variety of their conventional capabilities and nuclear arsenals.

Russia has developed a wide range of nonstrategic, dual capable and novel nuclear systems in addition to the mostly complete modernization of its strategic nuclear forces, including the SARMAT, a new, MIRV ICBM.

Russia also invested substantial sums in modernizing its conventional and non-kinetic systems as well as its cyber, space and counter space weapons. Recall that Russia tested a kinetic ASAT weapon in November of last year, generating thousands of pieces of space debris possibly putting the international space station at risk.

The unprovoked invasion of Ukraine has been a real-life test of Russia’s conventional modernization program. Consumption of what are now seen

as underperforming conventional capabilities may well bring increased reliance on nuclear capabilities, and greater instability in the future.

China has been focused on growing and improving its significant conventional, space and cyber capabilities, including the recent test of a fractional orbital bombardment system that ended with a hypersonic glide vehicle impacting a target.

Now China is amid a surprisingly rapid expansion of its nuclear capabilities including a true nuclear triad. China has thousands of missiles of all ranges and is expanding its dual use capabilities. Although estimates vary, China is projected to have between 1000 and 1500 nuclear weapons by 2030.

Russia of course is the near-term nuclear threat but over the longer-term China will pose the greatest threat to the United States. Beijing has a stated goal of being a world class military power by 2049 and is employing a whole of government approach to exert its influence globally.

North Korea is also increasing its nuclear saber-rattling via a new nuclear policy law reinforcing its commitment to never give up nuclear weapons, clearly stating its preemptive nuclear use policy, and declaring that nuclear weapons would be used if the regime leadership was threatened. This nuclear policy law is yet another DPRK mechanism to seek acceptance and recognition of its status as a nuclear weapons state.

While none of this is new news, the timing of the law, and the possibility of an underground nuclear test, during increased nuclear tensions with Russia, is unfortunate.

The US has also embarked on a challenging nuclear modernization program.

As you well know, the US modernization program covers all legs—sea, air, and land-- of the nuclear triad, the NC3 system, as well as the continued life extension and now development of new nuclear weapons based on US testing pedigrees.

There is little to no margin in any of these programs.

Moreover, much of the necessary infrastructure is old, there are continued supply chain issues, significant workforce challenges and the industrial capacity is limited.

Looking ahead, inflation could well delay progress in the modernization programs. Unless the modernization funding at least keeps pace with inflation, there is a real probability that the existing systems, which have already been life extended, may not last.

Until the hand off from old to new is finished, maintaining the current systems is essential and must be funded adequately. We shouldn't underestimate how hard this hand-off will be---placing significant demands on people and handling and support equipment.

Infrastructure investments across the enterprise must also continue, including major projects at NNSA such as the Uranium Production Facility (UPF), the Savannah River Pit Production Facility (SRPPF), and new lithium and tritium facilities.

Underpinning all the nuclear enterprise is the scientific and technical expertise that must be sustained, particularly the experimental and computational capabilities at the NNSA.

A question going forward is how to keep the existing modernization program of record threat relevant. At a minimum, the replacement programs and the infrastructure must be substantially more flexible and modular than the systems they replace.

Moreover, the warhead design and manufacturing process must be faster, more efficient, and more linked, and use modern digital approaches and advanced manufacturing techniques, such as additive manufacturing. The whole process from design to manufacture takes too long and costs too much.

Nuclear deterrence remains the ultimate underpinning of deterrence, but integrating deterrence across the whole of government, engaging where possible to increase transparency and reduce risks, seeking international norms or agreements if useful, and clearly and openly analyzing and discussing this uncertain and dangerous world are all essential.

Thank you and I look forward to your questions.