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BLUNDERING TOWARD NUCLEAR CHAOS

THE TRUMP ADMINISTRATION AFTER 3 YEARS

American Nuclear Policy Initiative
Jon Wolfsthal, ed.
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Introduction

The world has changed considerably since this assessment of the nuclear policies of the Trump administration was written in 2019. The coronavirus pandemic of 2020 has thrown the entire world into uncertainty, and tested the US government and President Donald Trump's ability to handle a global crisis of unprecedented proportions. The demands of managing this crisis, and repairing the damage done to our societies, economies and populations rightfully demand our priority attention.

However, even a pandemic does not erase the persistent and even systemic challenges facing the United States in other areas. The nuclear dynamics that undermined stability and threatened to unleash disaster – even when compared against a pandemic – remain in place and can materialize almost without warning. Thus, we must meet the new challenges of today while still seeking to assess and repair the risks that existed before anyone ever heard of COVID-19. While some aspects of these materials may seem dated due to the onset of COVID-19, the authors rightly remain concerned about the underlying global nuclear dynamics and remain committed to assessing them clearly and deliberately.

President Trump is unlike any previous US president. Among other traits, he prides himself on rejecting old approaches to both domestic and foreign policy challenges. This has created broad tensions between the current administration and established policy practitioners who have invested time, energy, and expertise in protecting US interests for decades.

The implications of this approach are clearly on display with regards to US efforts to prevent the spread and use of nuclear weapons. The nuclear dangers facing the United States are getting worse, both through neglect and through specific policy choices made by this administration. The authors of the papers in this report have closely reviewed the Trump administration's efforts on nuclear proliferation, strategic stability, nuclear modernization, and related issues. These papers make clear that there are growing concerns in most, if not all, of the various nuclear dangers facing the United States and its allies.

This publication is a product of the American Nuclear Policy Initiative (ANPI) – a unique collection of experienced government practitioners and non-governmental policy analysts with deep

and multifaceted expertise on nuclear issues. The report and the top line assessment are designed to provide an objective summary of nuclear policy under the current administration, detailing and analyzing its record on protecting the United States and its allies against perhaps the greatest national security danger facing humanity. It is the goal of the ANPI for this report to be a valuable resource for those focused on the current and future direction of nuclear weapons issues.

ANPI members have made this work possible through generous contributions of their time, skill, expertise, and engagement. Funding for this project came from the John D. and Catherine T. MacArthur Foundation. Additional funding has been made available by the Carnegie Corporation of New York. This product owes much to the constant and thoughtful work of Global Zero Program Director Jessica Sleight. We are also thankful for the editing work of Jennifer Knox and for the guidance and support of the entire Global Zero team.

Over the next twelve months, the ANPI will work to develop informed, cohesive, and pragmatic policy solutions for many of the issues and challenges contained in this report. Beyond protecting US security interests, particular attention will be paid to the special efforts needed to repair the considerable damage done by the Trump administration – both on policy and the capabilities of the US government to address these complex issues. Drawing from members' own expertise and benefitting from the analysis of respected and experienced US national security and military experts, the ANPI will assess what steps will be required to effectively and swiftly implement a new nuclear policy direction in the aftermath of the current administration's approach.

The papers contained in this report were finalized at the end of 2019, save for "The Trump Administration's Response to the Iranian Nuclear Challenge," which was updated following the events of early 2020. Any mistakes or errors in this report are solely the fault of the project director.

The Trump Administration After Three Years: Blundering Toward Nuclear Chaos

The nuclear dangers facing the United States, its allies, and the world are increasing. Some of these dangers were inherited by President Donald Trump when he assumed office in January 2017, and his chosen policies have not effectively addressed them. Other nuclear dangers have emerged as a direct result of the president's actions and those of his administration. Three years after entering office, the administration lacks a coherent set of goals, a strategy to achieve them, or the personnel or effective policy process to address the most complex set of nuclear risks in US history. Put simply, the current US administration is blundering toward nuclear chaos with potentially disastrous consequences. The prospects for deliberate or unplanned nuclear use and increasing crisis instability among nuclear-armed powers are as high as at any point in the nuclear age.

Whether old or new, all of the nuclear risks facing the United States have gotten worse over the last three years.

Today's global nuclear risks come in many shapes and sizes. Some challenges are decades old, including the challenges of managing the deterrent relationships with Russia and China and preventing nuclear terrorism. Other dangers are of this administration's own making. These include the accelerating arms race between the United States and Russia; the risk of direct conflict with North Korea in 2017-2018; the spiraling escalation with Iran since the US withdrawal from the Joint Comprehensive Plan of Action (JCPOA) in May 2018; and growing interest among US allies and other states to reconsider their own nuclear capabilities.

Whether old or new, all of the nuclear risks facing the United States have gotten worse over the last three years. Even in areas where the president has a reasonable goal, he and his team have proven incapable of making real progress due to conflicting approaches, lack of a coordinated policy process, or simply a lack of concerted and disciplined effort and follow-through. Almost as bad, the tools that the United States has used effectively in the past to address such issues – including well-coordinated diplomacy, alliance management, integrated policy implementation throughout the US government, cooperation from other countries, a dedicated and empowered

workforce of civil servants, foreign service officers and non-partisan experts inside the US government, and just plain consistency – have all been deliberately undermined or neglected, leaving both the current and future presidents less able to address these dangers.

> Without a fundamental change by the president or his successor in both concept and implementation, the risks of nuclear proliferation, crisis and arms race instability, and even nuclear use will continue to grow.

As a whole, it is clear that current US policies, personnel, and processes are incapable of effectively addressing the full host of nuclear dangers facing our country. A deliberate and broad change in both policy and implementation is needed. While we are not optimistic that the needed changes could come under the current president, it is clear that, without a fundamental change by the president or his successor in both concept and implementation, the risks of nuclear proliferation, crisis and arms race instability, and even nuclear use will continue to grow.

While there is much to criticize regarding the president's approaches and results, there are elements of the administration's policy that, if effectively pursued with consistency and properly prioritized and staffed, could improve US security. For instance, some elements of the traditional, bipartisan approach of the United States to nuclear security have been effectively continued by the Trump administration through its engagement and cooperation with other countries.

In addition, the decision to engage North Korea's leadership directly could have produced real progress on capping or rolling back North Korea's nuclear and missile capabilities had it been clear-eyed, pragmatic, and not oversold after modest initial results. President Trump built on the tough and coordinated global sanctions regime that he inherited against North Korea, but that system has eroded in the face of his direct engagement without any material benefits with regards to denuclearization. The failure of the president's diplomatic efforts has left North Korea's nuclear and missile capability untouched and the global system of isolation and pressure on North Korea in disarray.

Some cautiously welcomed President Trump's willingness to directly engage North Korean leader Kim Jong Un, only to be disappointed when the president's efforts failed. The president's overconfidence in his own negotiating prowess, combined with a fundamental misunderstanding of both the history of negotiating with North Korea and what steps would be necessary to

make progress on the issue of denuclearization, left the United States with fewer options and damaged its credibility. These put North Korea in an even stronger position to end its global isolation and continue the expansion of its nuclear and missile capabilities.

Similarly, the president could have used his skepticism of the JCPOA with Iran to negotiate broader and more durable constraints on Iran's nuclear program and other activities without putting the valuable benefits of the JCPOA at risk. By deliberately working to kill the JCPOA, reestablishing economic sanctions, escalating military tensions, and failing to establish a clear and achievable set of objectives, President Trump has shredded US credibility and enabled Iran to reverse its self-imposed nuclear constraints. The result is that the United States is more at odds with its key allies on the issue of Iran and has fewer effective tools to bring global political pressure to bear on what promises to be a pressing security and stability issue in the coming decades. The prospects for maintaining the hard-won constraints contained in the JCPOA, let alone building on the deal to secure additional restrictions on Iran's nuclear and missile programs, are increasingly thin. The president's actions have undermined the ability of the United States to use negotiated agreements in service of nuclear and security goals in the future. As we have seen with both Iran and North Korea, the president's high-risk, high-reward strategies have massive downsides when they fail.

Reinforcing nuclear stability and deterrence with Russia – and, to a lesser extent, China – is another area where even reasonably stated goals have been undermined by the administration's inconsistencies.

Reinforcing nuclear stability and deterrence with Russia – and, to a lesser extent, China – is another area where even reasonably stated goals have been undermined by the administration's inconsistencies. The president's nuclear goals, as laid out in the 2018 Nuclear Posture Review conducted under former Secretary of Defense James Mattis, make clear the desire to reinforce deterrence and strategic stability with Russia. In pursuit of this goal, the Department of Defense decided to pursue additional low-yield nuclear capabilities to counter Russia's willingness to use nuclear weapons first, a move that may have little influence on Russian plans but that could further lower the nuclear threshold and increase the risk of rapid escalation through miscalculation.

Using nuclear capabilities to reinforce nuclear deterrence is not new. However, President Trump's

erratic behavior and dangerously loose threats to use nuclear weapons have rightly raised concerns about nuclear instability and lowering the nuclear threshold. There is an increasingly strong and important debate to be had about whether the size and content of the current nuclear modernization plan are necessary or sustainable. There are historical examples in which the United States pursued enhanced nuclear capabilities to confront Russian threats and then sought to use that position to negotiate an agreement with Russia that enhanced security and stability. Some of these efforts succeeded and others failed. However, the administration has a clear, if unacknowledged, antipathy for arms control, increasing the risk of a needless arms race and undermining bipartisan support for existing nuclear modernization efforts. Worse, there is an absence of any sustained engagement between US and Russian security, military, or political officials under this administration. In this context, the decision to develop new, more usable weapons is even more dangerous and makes understanding and influencing Russian thinking and reinforcing deterrence harder.

When it comes to verifiable arms control agreements – proven and essential elements of nuclear stability – the administration has a clear aversion to their continuation. To its credit, the administration pursued engagement over Russian violations of the Intermediate-Range Nuclear Forces (INF) Treaty and gained unanimous support from NATO allies for its position that Russia was in violation of the 1987 pact. Yet despite these gains, the Trump administration chose to end diplomatic efforts prematurely and withdraw from the treaty – without a compelling military or political rationale and despite the fact that withdrawal benefits Russia more than the United States. Indeed, it appears that US withdrawal was driven as much by a reflexive hostility to arms control as by a desire to achieve any specific policy or political gains. The result is greater instability. It remains unclear whether the United States will be able to deploy intermediate-range systems in Europe and how doing so will improve the strategic situation. The same remains true of the possible introduction of intermediate-range systems by the United States into Asia.

The most important question now is about the future of the New Strategic Arms Reduction Treaty (New START), an agreement that is verifiably capping deployed US and Russian strategic, offensive nuclear warheads at 1,550 each, providing critical transparency and predictability to the nuclear bilateral relationship. President Trump has said he favors extending the existing New START agreement only if China joins the agreement or a separate arms control process. While including China in arms control processes is a laudable goal, no informed expert believes China will join an agreement that locks in their current 10-to-1 disadvantage in nuclear force levels. Experts also doubt the administration has the time or capacity to negotiate a new trilateral

arms control agreement before New START expires on February 5, 2021.

The administration has also raised the likely deployment of new types of nuclear weapons by Russia as a reason not to extend New START. As President Putin made clear in a March 2018 speech, these weapons are a direct response to the refusal of the United States to accept any limitations on missile defense. The Trump administration's drive to expand missile defenses, including the testing of existing interceptors against ICBM targets and the development of boost-phase and space-based interceptors, has served to accelerate Russian efforts to field systems that can defeat or are immune to missile defenses. These include a new heavy ICBM that can attack the United States via the South Pole, hypersonic glide vehicles and nuclear-powered cruise missiles that fly below and around radar coverage, and a long-range, high-speed nuclear-powered torpedo. Without the extension of New START or the negotiation of a replacement treaty, these developments presage the beginning of a new and unconstrained arms race, denying the United States its best chance at limiting these new Russian weapons. In fact, the deployment of two weapons systems, the Avangard hypersonic glide vehicle and Sarmat heavy ICBM, are currently limited by New START. It is imperative, therefore, to extend New START to avoid giving Russia an advantage in strategic weapons.

After three years, it is not clear that the Trump administration has either the interest or commitment to sustain or expand the long track record of verified arms control agreements dating back to President Nixon. Two of the positions most important for negotiating new arms control agreements, the Under Secretary of State for International Security and Arms Control and the Assistant Secretary of State for Arms Control Verification and Compliance, are filled by "acting" officials, demonstrating the lack of attention and priority for these critical areas.

Worse still, the president and his team have undermined the goal of deterrence in other, more consequential ways. In particular, undermining the NATO alliance and fueling questions about whether the United States remains committed to the defense of its allies, even in the face of Russian provocation, weaken the very basis of deterrence. Taken within the broader context of both Russian policy under the Trump administration and the loose, often contradictory way the president talks about nuclear weapons use, arms racing, and disarmament, it is all but impossible to discern what the president thinks or is likely to do with respect to deterring Russian aggression. These uncertainties create a heightened risk of conflict and escalation, which is further enhanced by the accelerating pace of military exercises and interactions between US, NATO and Russian forces in Europe.

Conclusions and Assessment

The attached papers, written by US experts and analysts on nuclear issues, lay out the specific US policies and actions undertaken since President Trump took office. While some important events have taken place since they were last updated, particularly regarding Iran and Russia, the trends and analysis remain relevant. Taken as a whole, these analyses show an administration that is capable of setting lofty goals, achieving some steps in selected cases, but that falls far short of any major, lasting progress while undermining the traditional basis and tools of US security. In many cases, the picture these papers paint is one of inconsistency, faulty assumptions, and wishful thinking, resulting in an overall increase in nuclear dangers without any real hope for a reversal in these trends under the current administration.

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The participants in the American Nuclear Policy Initiative (ANPI) assess that the current approaches being pursued by the Trump administration leave the United States and its allies with an overall greater nuclear risk, one that requires a fundamental change in direction, priorities, and procedures to mitigate. We are gravely alarmed by what we see as an inconsistent and ineffective administration taking steps that, by design or neglect (both benign and malignant), have increased the prospect for nuclear use, the proliferation of nuclear weapons, and the emergence of additional nuclear-armed states while diminishing the ability of the United States to pursue constructive policies to reverse these trends. We are also alarmed that the administration continues to undervalue and, in many cases, ignore the expertise and capabilities within the US government. The president and his team have undermined the credibility of the United States and, with it, the ability to use negotiated agreements, global institutions, and alliances in the future.

The exodus of expertise from the US government is of particular and acute concern. It takes years to develop experts and train them in the complex military, policy, technical, and diplomatic skills needed to identify and solve nuclear dangers. Although we are thankful for and recognize the dedicated and talented individuals who continue to serve, the dismissal of such expertise and the hostile way experts have been demonized and dismissed within the Trump

administration have triggered a large-scale exodus of experienced and trained civil servants and foreign service officers. It will take years to recover from this dynamic to ensure that the United States is adequately prepared to carry out a global nuclear security agenda.

The collective ANPI participants may not agree on every aspect of the analyses contained in this report or every word in this top-line assessment regarding the deep and dangerous shortcomings of the administration's policy failures. Yet we are united in our commitment to US security and in the belief that the United States can and must commit its considerable skill, resources, and credibility to address nuclear risks around the world. We believe a new direction and approach to these issues is urgently needed by this administration or the next.

During 2020, the ANPI experts will review options for nuclear policy in a range of areas, including those in this report, and prepare ideas, options, and materials that the administration taking office in January 2021 can use to advance US security interests and reduce the nuclear dangers we now face. As analysts with experience in government, diplomacy, policy advocacy, and academia, we believe fundamentally in the ability of the United States – working with other countries and using proven and effective tools – to reduce the risk of nuclear use, the role played by nuclear weapons in national security, and the size of nuclear arsenals around the world.

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US-Russian Nuclear Stability and Deterrence

Jon Wolfsthal

Growing nuclear instability and the accelerating arms race between Russia and the United States, combined with the risk of nuclear escalation between the two nuclear superpowers, are the most pressing and consequential of the nuclear challenges facing the United States today. Russia's nuclear arsenal remains the only man-made force on the planet capable of permanently eliminating the United States as a functioning society. The president – tasked with protecting US security – has a fundamental obligation to reduce the risk of nuclear war and to maintain and enhance nuclear stability and deterrence with Russia. Success in this mission is also critical to reducing the global risk of nuclear use, reinforcing the global nonproliferation and disarmament agenda, and deterring Russian aggression against the United States or its allies, many of whom rely on the US extended deterrent (conventional and nuclear) for their security. When US-Russian nuclear relations are positive and stable, progress in other areas is more likely; when the relationship deteriorates, the rest of the global agenda can suffer.

Under President Donald Trump, the United States has maintained the military capability of its nuclear arsenal and avoided major conflict with Russia. However, significant instability and confusion have been injected into the US-Russian deterrent relationship, driven in part by Russia's own actions, the development of new US nuclear capabilities, President Trump's inconsistent statements on nuclear issues and his personal behavior toward Russia, and the continued policy disconnect between the president and his key security officials. In addition, the lack of a functioning national security decision-making process and the hostility of administration officials toward proven means for maintaining nuclear stability, including a sustained strategic dialogue and negotiated arms reduction agreements, have undermined the ability of the United States to improve the outlook on US-Russian nuclear issues. In short, bilateral nuclear dangers are increasing, and the United States does not appear to have a clear strategy of reducing them or the capacity to effectively manage a nuclear crisis should one erupt.

Based on these factors, it is clear that the record of the administration in managing the bilateral nuclear relationship with Russia is mixed at best. At worst, the administration has seriously undermined US security and the confidence allies have in the commitment of the United States

to their security. Moreover, the president's inattention to these complex issues exacerbates the perceived lack of commitment by the United States to stand up to possible Russian aggression, including Russia's possible use of nuclear weapons.

Deterrence

Nuclear deterrence is a complex equation that requires a country to understand how its commitment to act influences the behavior of potential adversaries. Deterrence has two main components: capability and commitment. The deterrence posture of the United States with Russia includes a number of factors. It will never be (and has never been) possible to conclusively determine which elements are the most important at any given time. However, the nuclear forces of the United States – its weapons, their means of delivery and supporting infrastructure, and the people that operate them – are an especially visible component of the US deterrent posture toward Russia. Under President Trump, these forces have been maintained roughly in the same composition and posture as his predecessor, and there is high credibility in the *physical reliability* of US nuclear forces and the perceived *ability* of the United States to use these forces if necessary to defend the interests of itself and its allies.

The United States continues to maintain a secure second-strike capability able to respond to any plausible scenario of Russian, Chinese, or other aggression against the United States and its allies. As far back as 2013, the Joint Chiefs determined that the United States was maintaining more nuclear weapons and capabilities than were needed to ensure that the United States could survive and retaliate against a Russian nuclear attack.[1] This assessment appears to remain valid. Consistent with the position of previous administrations, the 2018 Nuclear Posture Review (NPR) states that "nuclear weapons have and will continue to play a critical role in deterring nuclear attack and in preventing large-scale conventional warfare between nuclear-armed states for the foreseeable future. U.S. nuclear weapons not only defend our allies against conventional and nuclear threats, they also help them avoid the need to develop their own nuclear arsenals. This, in turn, furthers global security."[2]

The Trump administration has sought to increase the reliance of the United States on nuclear weapons and enhance the options available for use. As such, the administration has requested multi-billion dollar increases in funds to enhance US nuclear capabilities. One stated goal of these enhanced capabilities is to "tailor" deterrence policy to convince Russia and other nuclear adversaries that any use of nuclear weapons would be met with an unacceptable response, theo-

retically deterring nuclear use. The NPR specifically calls for a "diverse set of nuclear capabilities that provides an American president flexibility to tailor the approach to deterring one or more potential adversaries in different circumstances."[3] For many defense and nuclear analysts, this posture signals increased commitment by the United States to its nuclear deterrent and a desire to enhance its deterrent relationship with Russia and other states (most notably China).

Two specific capabilities endorsed by the NPR and subsequent budget requests include a new low-yield warhead for the submarine-launched D-5 missile and research into a new sea-launched, nuclear-armed cruise missile to replace the TLAM-N system retired in 2009. The Department of Defense announced in early 2020 that it had begun deployment of the low-yield W76-2 warhead on US strategic submarines.[4] Both of these systems have proven controversial due to the risk that they will lower the threshold for nuclear use, reversing previous efforts to reduce the role played by nuclear weapons in the security strategy of the United States. The exact impact of the new low-yield submarine warhead is unknown, but there is considerable concern that its deployment will lower the threshold for nuclear use, the exact opposite of its intended effect. While the deployment of the W76-2 warhead is expected to continue throughout the remainder of President Trump's term in office, the prospects for a new nuclear cruise missile and for longer term sustained deployment of the W76-2 remain uncertain.

New Factors

For decades, the United States has sought to manage its nuclear and military forces in a way that maintains a state of "strategic stability." This term means different things to different people, but in practice the United States sought to create an environment that reduces the risk of nuclear war by avoiding a situation in which either Russia or the United States would see any advantage in using nuclear weapons first. This concept began to unravel in the early 2000s when the United States withdrew from the Anti-Ballistic Missile Treaty with Russia, enabling the United States to develop national missile defenses, a move that undermined Russia's confidence that it could maintain a survivable nuclear deterrent. Despite the nascent US missile defense capabilities deployed to date, continuing arms control and transparency processes over the past nearly two decades prevented the complete erosion of strategic stability.

Whatever remains of nuclear stability between Russia and the United States is now threatened. Russia and the United States are both seeking more diverse means to use nuclear weapons to enhance their own security, moves that undermine the security perception of the other. Specific

to its nuclear program, Russia has announced the development of a suite of new nuclear systems, including nuclear-powered, long-distance cruise missiles, underwater long-distance nuclear torpedoes, and a new heavy intercontinental ballistic missile (ICBM) that can carry 10 warheads.[5] From the perspective of the United States, these weapons threaten to disrupt the strategic balance; from the perspective of Russia, they appear designed to restore it. For its part, the United States has maintained the ability to rapidly increase its stockpile by putting more warheads on existing delivery systems (uploading). In addition, the United States is developing a new generation of missiles and submarines, a new stealthy bomber and cruise missile, additional low-yield nuclear capabilities, and advanced plans for regional and national missile defenses.[6] Both the United States and Russia (as well as China) are pursuing fast-flying and potentially destabilizing hypersonic glide missiles that can accurately target leadership and strategic facilities and maneuver to effectively evade missile defenses.

The United States sees its development of these systems as stabilizing, while Russia worries that these steps combined with missile defenses and advanced conventional capabilities could give America a strategic military advantage over Russia even in the face of Russian nuclear capabilities. These differing views are, in large part, what fuel the new arms race between the two states. No one country holds sole responsibility for the emerging and accelerating arms race. Both the United States and Russia are contributing to an ongoing action-reaction cycle, with both sides claiming they are merely seeking to restore stability or address unrelated dangers.

By themselves, these developments would be worrisome. They are even more alarming in an environment in which the United States and Russia increasingly see the other as military and political competitors and in which there is little if any sustained strategic contact among senior political or military officials. The risk of misunderstanding, crisis, or conflict escalating to the use of nuclear weapons remains unacceptably and unnecessarily high. Even if nuclear deployments and procurement were potentially stabilizing, the risk of an unanticipated or accidental military encounter fueling a crisis or conflict remains all too real.

Undermining Proven Tools

The Trump administration has pursued conflicting approaches to enhancing strategic stability with Russia and sustaining a transparency and control regime through negotiated arms-control agreements. The United States and Russia convened one set of strategic stability talks in 2017 and a second round, now coined "strategic security talks," in July 2019. Similar but smaller

talks have been held twice since then. The Trump administration has not prioritized or maintained these high-level discussions, failing to gain an agreement with Russia on mutual steps to enhance stability or a more detailed and reliable understanding of Russia's approach to nuclear deterrence, stability, and doctrine. This is a glaring flaw in the current US approach to managing the bilateral nuclear relationship. Without sustained dialogue, progress is all but impossible, allowing the deteriorating security environment to take on its own dynamics.

Russia has offered on multiple occasions to extend the New Strategic Arms Reduction Treaty (New START) that limits both the United States and Russia to no more than 1,550 deployed strategic nuclear warheads and requires extensive inspection and information-sharing between the two parties. Then-National Security Advisor and long-time opponent of negotiated arms control agreements John Bolton said in June 2019 that extension of the treaty was unlikely. President Trump has a demonstrated aversion to agreements negotiated by anyone but him, particularly those created during the Obama administration. During his first phone call with Russian President Vladimir Putin upon entering office, President Trump criticized New START.[7]

More recently, the president stated that he wants to include China in strategic arms control processes with Russia, either by conditioning the extension of New START on the inclusion of China or by negotiating a larger, more comprehensive deal that would include both China and Russia.[8] The president's position reflects a growing narrative promoted by arms control critics that any future agreement between the United States and Russia, including a decision to extend New START, would have to include additional types of Russian nuclear weapons as well as additional parties, namely China.

There are several reasons why including China in US-Russian arms control is a political and legal non-starter. First, China's nuclear forces are less than 10% the size of either the United States or Russia.[9] It is not clear why China would need to be included at this stage of the arms control process to enhance either transparency or stability. Secondly, China has maintained for decades a position that it will only pursue arms control with the two other nuclear states when their forces come down to the range of China's forces. China recently reaffirmed this position in response to President Trump's statements.[10] Third, it is likely that Russia will push to include French and UK nuclear forces in any new deal that also seeks to include Chinese nuclear forces, as happened during the Cold War. The nuclear forces of France and the United Kingdom are comparable in size to the nuclear forces of China.

There are serious questions about the capability of the Trump administration to negotiate any new arms control agreement with Russia, China, or anyone else due to its failure to appoint or hire experienced arms-control negotiators. In fact, the only person brought in by President Trump with any arms control negotiation experience at all was Bolton, who negotiated the 2002 Treaty of Moscow – a two-page agreement that failed to include any verification or legally binding constraints on Russia's nuclear forces.[11] The office that would normally lead such talks, the bureau of Arms Control Verification and Compliance (AVC), was led by a person who had no arms-control experience and who was terminated without explanation by the Department of State.[12] While there remain lower-level professional staff with negotiation and arms control expertise, many arms control experts and practitioners doubt the ability of the current personnel to quickly or professionally negotiate any new agreements with Russia or China in the time that remains before New START expires on February 5, 2021.

While there is a good argument for expanding strategic stability discussions to include either a bilateral or multilateral discussion with China, the Trump administration has not prioritized bilateral talks with Russia or made any effort to expand those talks to other nuclear states to date.[13] Rather than arms control, the president has prioritized trade in talks with China, imposing sanctions and adopting a more confrontational approach to resolving long-standing trade issues. It is hard to see how China would view the US approach on trade as compatible with a more cooperative and engaged discussion on matters of nuclear deterrence or stability.

A final troubling development in the arms control landscape is the Trump administration's decision to withdraw from the Intermediate-Range Nuclear Forces (INF) Treaty. This decision, apparently made without prolonged internal consideration by members of the administration, comes in response to years of Russian violations. Russia has allegedly deployed several battalions of land-based cruise missiles with ranges formerly banned by the INF Treaty. However, the demise of the agreement leaves Russia free to continue deployment of its intermediate-range land-based cruise missiles (9M729) and possibly other types of intermediate-range missiles with less concern about secrecy or testing. The United States has begun pursuing conventional, intermediate-range systems of its own, although it remains unclear when and where such missiles might be deployed. Nevertheless, the end result is that Russian, European, and US military officials and political leaders have a new set of military threats to worry about: systems that can dramatically reduce the time leaders have to act in a crisis.

In the end, the administration deserves credit for releasing enough information to make a more

public case about Russia's violations of the INF Treaty and gain NATO support for the decision to withdraw. However, the administration and the president have since failed to lay out a strategy for how it will protect European security in the wake of the INF Treaty's demise, how it will counter Russia's continued deployment of intermediate-range systems in Europe, or how new military options freed from the constraints of the INF Treaty will enhance US security. One reported motive for the US decision to leave the INF Treaty is the desire to confront China's considerable arsenal of intermediate-range missiles in East Asia. However, the INF Treaty never covered or included Chinese forces. Further, China is thought to have over 1000 such missiles, complicating US defense planning in the region.

If New START is allowed to expire and the collapse of the INF Treaty leads to both US and Russian deployment of intermediate-range, nuclear-capable missiles in Europe and elsewhere, the basic fabric of nuclear stability and predictability will be undermined. The confidence of allies in the ability of the United States to effectively manage nuclear risks that directly affect their security will erode further. There are no simple or quick solutions to these challenges, but the apparent unwillingness or inability of President Trump to articulate a strategy for managing these risks undermines US and allied security and increases the risk of nuclear use and conflict.

Ally Assurance

The other major component of the US deterrent is the perceived commitment of the president to protect and defend US interests and to take action – diplomatic, economic, or military – should the United States or its allies be threatened.

President Trump has been inconsistent in his support for NATO and other allies in the face of military threats from Russia (and China), and he has routinely hinted that the US commitment to the security of other states is far from guaranteed.[14] Before the 2016 NATO summit, President Trump sent letters encouraging allies to meet their 2% spending commitment to the military alliance, suggesting that failure to do so would make the alliance unsustainable.[15] Numerous other statements suggest that the president himself is not fully committed to the defense of allies in general, raising questions in the minds of both allies and adversaries of how the United States might respond to aggression. Such concerns have even prompted Chancellor Angela Merkel of Germany to say that "it is no longer the case that America will simply defend us."[16]

Concerns over the willingness of the president to act in the face of direct threats to the United

States and its allies are not based solely on his statements and behavior. There is a clear disconnect between the commitment of key US officials to the defense of US interests and allies and the seemingly uncoordinated and unsupported tweets and statements of the president. This appears not only due to the president's own approach to management but also due to a less formal and disciplined policy process under this president and his national security advisors. It appears that major decisions related to the US-Russian nuclear relationship, including the issuance of the 2018 NPR and the US decision to withdraw from the INF Treaty, are made without the deep, sustained, and full attention of the president and his cabinet. As such, it remains impossible for allies, adversaries, and even the US public to know who speaks for the president or which of several inconsistent statements represent the president's policies. This problem is not unique to the president's nuclear policy or even foreign policy, but these challenges are particularly troubling when nuclear deterrence might be adversely affected.

The president's lack of precision and discipline can have even more dangerous consequences. One example is the 2017 statement by President Trump that a naval "armada" was steaming toward the Korean peninsula; in fact, the USS Carl Vinson Aircraft Carrier group was actually steaming away from the peninsula at the time.[17] Such statements, made during times of heightened tension or even in the midst of a military incident, could exacerbate a crisis and even lead to nuclear escalation. Part of a long tradition of the United States in managing nuclear affairs is caution with statements that can be seen as threatening or escalatory. President Trump's departure from this approach has unsettled the global nuclear balance and poses serious risks, particularly in the US-Russian context.

President Trump on Russia

It is impossible to consider the US-Russian strategic relationship without addressing President Trump's behavior toward both President Putin and Russia in general. President Trump's refusal to take strong action in the face of Russian interference in US elections and his general demeanor and deference to President Putin call into question his personal commitment to act against Russia if necessary. President Trump's failure to confront Russian aggression and misinformation at a summit meeting in Helsinki is a stark example of how the president's actions undermine US security and alliance cohesion.

To be sure, the US government under President Trump has taken some actions to confront Rus-

sian behavior. Additional sanctions have been imposed on some key Russian actors, defensive weapons have been provided to Ukraine, and President Trump did take limited military action in Syria against the forces of President Bashar al-Assad. However, such actions have been criticized as halfhearted and lacking any real impact on Russian behavior in the major areas in which Russia is taking action contrary to US interests. These examples are often cited by supporters of the president to defend his record on Russia, but they arguably fall far short of what is needed to enhance deterrence in the face of aggressive Russian behavior.

Assessment

Taken as a whole, the US-Russian deterrent relationship has suffered under President Trump. While the military and nuclear capabilities of the United States remain formidable and capable of deterring from a military perspective, the political commitment of the United States to protect its allies and respond effectively to both low-level and more significant Russian acts of aggression and malfeasance remains in doubt. President Trump's own inability to acknowledge Russian efforts to interfere with US democracy, his ongoing efforts to destabilize and undermine NATO unity, his proposed expansion of US nuclear capabilities, and his ideologically-driven disregard of proven means of managing the US-Russian strategic balance all create unnecessary and dangerous risks.

The backbone of the US deterrent and extended deterrence network remains intact, a credit to the abilities and professionalism of the US military and civil service in times of extraordinary challenges. At the same time, the strategic capabilities of the United States cannot be managed effectively on autopilot or without a well-organized, thoughtful, and coordinated decision-making process led by the White House. The strains on nuclear deterrence will continue to grow unless the president and his national security officials take a more concerted approach to managing the arsenal and reducing nuclear-weapons risks.

Notes

1. The White House, Office of the Press Secretary, "FACT SHEET: Nuclear Weapons Employment Strategy of the United States," (Washington, DC, June 19, 2013), https://obamawhitehouse.archives.gov/the-press-office/2013/06/19/fact-sheet-nuclear-weapons-employment-strategy-united-states.

2. US Department of Defense, Office of the Secretary of Defense, *Nuclear posture review report* (Arlington, VA, 2018), III, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

3. Ibid, II.

4. US Department of Defense, *Statement on the Fielding of the W76-2 Low-Yield Submarine Launched Ballistic Missile Warhead*, by John Rood, (Washington, DC, February 4, 2020), https://www.defense.gov/Newsroom/Releases/Release/Article/2073532/statement-on-the-fielding-of-thew76-2-low-yield-submarine-launched-ballistic-m/.

5. Hans M. Kristensen and Matt Korda, "Russian Nuclear Forces, 2019," *Bulletin of the Atomic Scientists* 75, no. 2 (March 4, 2019): 73-84, https://doi.org/10.1080/00963402.2019.1580891.

6. Hans M. Kristensen and Matt Korda, "United States Nuclear Forces, 2020," *Bulletin of the Atomic Scientists* 76, no 1 (January 13, 2020): 46-60, https://doi.org/10.1080/00963402.2019.1701286.

7. Jonathan Landay and David Rohde, "Exclusive: In call with Putin, Trump denounced Obama-era nuclear arms treaty – sources," Reuters, February 9, 2017, https://www.reuters.com/article/us-usa-trump-putin/exclusive-in-call-with-putin-trump-denounced-obama-era-nuclear-arms-treaty-sources-idUSKBN15O2A5.

8. Deb Riechmann, "Trump still hoping for US-Russia-China nuclear arms pact," *The Washington Post*, February 14, 2020, https://www.washingtonpost.com/world/national-security/trump-still-hoping-for-us-russia-china-nuclear-arms-pact/2020/02/14/e197dbd4-4f72-11ea-967b-e074d302c7d4_story.html.

9. Hans M. Kristensen and Matt Korda, "Status of world nuclear forces," Federation of American Scientists, May 2019, https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/.

10. Ben Westcott, "China 'will not participate' in Trump's proposed three-way nuclear talks," *CNN*, May 6, 2019, https://www.cnn.com/2019/05/06/asia/us-china-russia-nuclear-deal-intl/index.html.

11. "The Strategic Offensive Reductions Treaty (SORT) At a Glance." Arms Control Association, September 2017, https://www.armscontrol.org/factsheets/sort-glance.

12. John Hudson and Paul Sonne, "Senior arms control official resigns from State Department, aides say," *The Washington Post*, May 13, 2019, https://www.washingtonpost.com/world/national-security/senior-arms-control-official-resigns-from-state-department/2019/05/13/2eeb4b81-1a63-4570-976e-2cb18d8baf3a_story.html.

13. Richard Burt and Jon Wolfsthal, "How Trump Can Transform Nuclear Arms Control," *The National Interest*, May 10, 2019, https://nationalinterest.org/feature/how-trump-can-transform-nuclear-arms-control-56892.

14. Nic Robertson, "Leaders learn the hard way that Trump will be Trump at NATO meeting," *CNN*, December 5, 2019, https://www.cnn.com/2019/12/05/politics/trump-nato-analysis/index.html.

16. Julie Hirschfield Davis, "Trump Warns NATO Allies to Spend More on Defense, or Else," *The New York Times*, July 2, 2018, https://www.nytimes.com/2018/07/02/world/europe/trump-nato.html.

17. Damien Sharkov, "Angela Merkel: Europe can no longer rely on U.S. protection," *Newsweek*, May 10, 2018, https://www.newsweek.com/europe-cannot-fully-rely-us-protection-anymore-says-germanys-merkel-919410.

18. Philip Ewing, "That 'Armada' Heading to North Korea? Actually, It Sailed South." *NPR*, April 18, 2017, https://www.npr.org/sections/thetwo-way/2017/04/18/524560773/that-armada-heading-to-north-korea-actually-it-sailed-south

The Trump Administration on Nuclear Policy and Modernization

Kingston Reif

In December 2016, President-Elect Donald Trump tweeted that the United States "must greatly strengthen and expand its nuclear capability" and later told MSNBC that he would "outmatch" and "outlast" other potential competitors in a nuclear arms race.[1] The Trump administration's Nuclear Posture Review (NPR), released in February 2018, comports with this objective by calling for a significant expansion of the role and capability of the US nuclear arsenal.[2] In addition to continuing full speed ahead with the previous administration's excessive plans to replace the nuclear triad and its associated warheads on a largely like-for-like basis, the Trump administration is proposing to develop two new sea-based, low-yield nuclear options, broaden the circumstances under which the United States would consider the first use of nuclear weapons, and lay the groundwork to grow the size of the arsenal.

At the same time, key US-Russian nuclear arms control agreements are now in serious doubt. The Trump administration withdrew the United States from the landmark 1987 Intermediate-Range Nuclear Forces (INF) Treaty in August 2019 and has shown little interest in extending the 2010 New Strategic Arms Reduction Treaty (New START).[3] Set to expire in 2021, New START can be extended by up to five years with the agreement of the presidents of the United States and Russia without requiring Senate approval. Instead of taking Russia up on its offer to discuss prolonging the treaty, the White House announced in early 2019 that it is seeking a more comprehensive arms control deal that includes Russia and China and limits nuclear weapons not covered by New START, such as Russia's large arsenal of shorter-range "tactical" nuclear weapons. But it remains to be seen whether this is a serious gambit or a poison pill designed to justify walking away from New START after having already walked away from the INF Treaty.

In short, the Trump administration is preparing to compete in a new nuclear arms race while simultaneously increasing the likelihood of such a contest. The projected cost of this approach is staggering and growing. According to the Congressional Budget Office (CBO), the United States currently plans to spend nearly $500 billion to maintain and replace its nuclear arsenal over the next decade after accounting for the effects of inflation.[4] This is an increase of nearly $100 billion, about 23 percent, above the already enormous cost projected at the end of the Obama

administration. Over the next 30 years, the price tag is likely to top $1.5 trillion and could even approach $2 trillion.[5]

Taken together, the changes being pursued by the administration are unnecessary, setting the stage for an even greater and more unsustainable rate of spending on US nuclear weapons, threatening to accelerate global nuclear competition, and increasing the risk of nuclear conflict in the years ahead.

The administration's overreach presents both opportunities and challenges. The power of the purse in the House provides the new Democratic majority with greater leverage to push back against the Trump administration's controversial nuclear weapons policy and spending goals. Yet key voices in the Senate Democratic caucus and the wider Democratic foreign policy establishment, citing in particular concerns about more aggressive Russian nuclear behavior, do not support more transformational change to US nuclear policy and spending, in some cases expressing support for the approach outlined in the NPR. There is some appetite for change among the public: recent public opinion polling demonstrates that an overwhelming majority of US citizens are concerned about the sole authority of the president to order the use of nuclear weapons, which in turn informs how they perceive other nuclear policy issues.[6] However, when President Trump leaves office, the opportunity to broaden interest in adjusting US nuclear strategy could dissipate.

The Trump Nuclear Expansion

The NPR contains elements of continuity with long-standing US nuclear policy that would have likely featured in a review conducted by any US administration and deserve support. These policies include an emphasis on the importance of enhancing deterrence and reducing the risk of nuclear weapons use, maintaining the moratorium on nuclear weapons testing, continuing to pursue the political and security conditions to enable further nuclear reductions, overcoming the technical challenges of verifying nuclear reductions, strengthening alliances, and upgrading US nuclear command, control, communications, and early-warning capabilities. In particular, upgrading command and control capabilities and reducing their vulnerability to attack should be a top priority and will likely require additional funding beyond what the Pentagon has identified to date.

However, there are several significant proposed changes to US policy in the review and its

subsequent implementation that reverse decades of efforts to reduce the role and number of nuclear weapons in US policy. To justify these changes, the Trump administration argues that the world is a far more dangerous place than it was at the time the Obama administration conducted its NPR in 2010. Citing Russia, China, North Korea, and Iran, the 2018 NPR states that "global threat conditions have worsened markedly since the most recent 2010 NPR, including increasingly explicit nuclear threats from potential adversaries. The United States now faces a more diverse and advanced nuclear-threat environment than ever before."[7]

It is true that the international security environment is less favorable than it was a decade ago. Some of the other nuclear-armed states have not been responsible actors. Technology is advancing in new and unpredictable ways. The existing US nuclear arsenal – much of which was originally built during the Cold War-era and has only been refurbished since – is aging.

But the NPR does not provide any conclusive or compelling evidence that these challenges will be addressed or overcome by the review's strategy. The United States maintains a larger and more diverse nuclear arsenal than is required to deter and respond to a nuclear attack against itself or its allies.[8] Despite claims that nuclear weapons "don't actually cost that much," the simple fact is that, unless the administration and its successors find a pot of gold at the end of the rainbow, planned spending to maintain and replace the arsenal will pose a significant affordability problem and threaten other national security priorities.[9] Moreover, the plans appear likely to increase the risks of miscalculation and unintended escalation.

The Risks of New Low-Yield Weapons

In an attempt to correct Russia's purported "mistaken impression" that its non-strategic forces could "provide a coercive advantage in crises or at lower levels of conflict," the NPR proposes to supplement the US arsenal with the near-term deployment of low-yield nuclear warheads on submarine launched ballistic missiles (SLBMs) and the longer-term development of a new nuclear-armed sea-launched cruise missile (SLCM).[10]

The fiscal year 2019 budget request of the National Nuclear Security Administration (NNSA) included $65 million for modifying a small number of 100-kiloton W76-1 SLBM warheads to reduce their explosive yield. The Department of Defense requested $22.6 million for developing the low-yield variant, dubbed the W76-2. Production of the W76-2 was slated to be completed by the end of fiscal year 2019.[11] The Republican-controlled Congress in 2018 approved the request

for the capability, but there was strong opposition from Democratic lawmakers.[12] In 2019, the Democrat-controlled House unsuccessfully sought to block deployment of the weapon. The Department of Defense announced in February 2020 that it had begun fielding the capability.

In addition, the Pentagon received $1 million in fiscal year 2019 to begin an analysis of the performance requirements and costs to pursue a new SLCM. The fiscal year 2020 request included $5 million to begin an analysis of alternatives. The total cost to develop the capability is uncertain given that the administration has yet to decide on which weapon system to pursue. The CBO projects a new SLCM and its associated warhead will cost $9 billion in then-year dollars from 2019 to 2028.[13]

There are several problems with the NPR's rationale for the development of additional low-yield nuclear options. The claim that Russia has lowered the threshold for the first use of nuclear weapons is hotly disputed.[14] However, even if Moscow has done so, this is likely a result of Moscow's perceived conventional inferiority. Inexplicably, the NPR fails to cite an intelligence assessment demonstrating that Russia might believe the United States would be self-deterred from using the weapons in its current arsenal, including higher-yield nuclear or conventional weapons, in response to a limited Russian nuclear attack.

Regardless, adding a third and fourth low-yield warhead option to the US arsenal is a solution in search of a problem. The United States already possesses hundreds of low-yield warheads, including nuclear gravity bombs stationed in Europe in support of NATO, as part of the air leg of the triad. There are plans to invest over $150 billion in then-year dollars in the coming decades to ensure these warheads can penetrate the most advanced air defenses.

In addition, the belief that a nuclear conflict could be controlled is dangerous thinking. The fog of war is thick; the fog of nuclear war would be even thicker. Such thinking could also have the perverse effect of convincing Russia that it could get away with limited nuclear use without putting its survival at risk. The W76-2 in particular could increase the risk of unintended nuclear escalation. Given that US strategic submarines currently carry SLBMs armed with higher-yield warheads, how would Russia know that an incoming missile armed with a low-yield warhead was not actually armed with high-yield warheads? How would it know that such limited use would not be the leading edge of a massive attack, especially if the targets would not be battlefield targets but targets of high value to the Russian leadership, as some have claimed? The answer is that Russia would not know.

A low-yield SLBM is not necessary to promptly strike time-perishable targets. If military action has already started in the European theater and Russia uses a low-yield nuclear weapon to seek to end a conflict it believes NATO would win conventionally, it is likely that the United States would have had sufficient time to forward deploy forces, including conventional and nuclear fighters and bombers, to provide a prompt response. Regardless, it's far from clear why the United States would need or want to respond to Russian limited nuclear use in minutes, rather than hours or even days.

The claim that a new SLCM is necessary to provide an assured theater strike option and serve as a hedge against Russian or Chinese advances in antisubmarine warfare capabilities is unconvincing. The United States is already planning to invest scores of billions of dollars in the B-21, LRSO, and F-35A to address the air defense challenge. A new SLCM would make it more difficult for an adversary to eliminate US sea-based nuclear forces in the event of a major, unforeseen breakthrough in anti-submarine warfare capabilities, but ICBMs and bombers exist in part to guard against such a scenario. Meanwhile, the Navy is unlikely to be pleased with the additional operational and financial burdens that would come with re-nuclearizing the surface or attack submarine fleet. Arming attack submarines with nuclear SLCMs would also reduce the number of conventional Tomahawk SLCMs each submarine could carry. In other words, a new SLCM would be a costly hedge on a hedge.

What makes the Trump administration's proposal to develop additional low-yield nuclear weapons even more concerning is that the 2018 NPR envisions a greater role for nuclear weapons against a wider range of threats. Trump administration officials claim that their NPR is consistent with the 2010 Obama NPR on declaratory policy. Both in tone and substance, it is not. Unlike the previous administration, the Trump administration defines the "extreme circumstances" under which the United States would consider nuclear use more broadly to include "significant non-nuclear strategic attacks" against "U.S., allied or partner civilian population or infrastructure, and attacks on U.S. or allied nuclear forces, their command and control, or warning and attack assessment capabilities."[15] Threatening nuclear retaliation to counter new kinds of asymmetric attacks would lower the threshold for nuclear use, increase the risks of miscalculation, and make it easier for other countries to justify excessive roles for nuclear weapons in their policies. Such threats are also unlikely to be proportional and therefore would be difficult to make credible.

Preparing for a Nuclear Buildup

The NPR proposes to lay the groundwork to provide "capabilities needed to quickly produce new or additional weapons" beyond the roughly 3,800 warheads currently in the active US nuclear stockpile.[16] One measure of the scale of the plan for building "new or additional weapons" is given in the commitment to "provide the enduring capability and capacity to produce plutonium pits [nuclear warhead cores] at a rate of no fewer than 80 pits per year by 2030."[17] No basis is offered for this minimum capacity target, which is an increase over the requirement of 50-80 pits mandated by Congress during the Obama administration. Prior to 2013, the Los Alamos National Laboratory only had the capacity to produce about 10 pits annually. The CBO projects that using two sites, including repurposing the partially built Mixed Oxide Fuel Fabrication Facility in South Carolina, to expand pit production will cost $9 billion in then-year dollars from 2019 to 2028, although that estimate is very uncertain.[18]

A recent report by the Institute for Defense Analyses concluded that the NNSA's pit production goals are a fantasy. The report found that none of the options analyzed by the NNSA can be expected to provide 80 pits per year by 2030.[19] Regardless, there is no need to expand the US capability to produce plutonium pits, the nuclear cores of warheads, since the NNSA can use pits from dismantled weapons if more are needed to sustain the arsenal. Approximately 15,000 excess pits and another 5,000 in strategic reserve are already stored at the Pantex Plant near Amarillo, TX.[20] The Department of Energy announced in 2006 that studies by Lawrence Livermore and Los Alamos National Laboratories show the pits of most US nuclear weapons "will have minimum lifetimes of at least 85 years," which is about twice as long as previous official estimates.[21]

In addition to the two new low-yield capabilities, the NPR seeks to retain the high-yield B83-1 gravity bomb, the only remaining megaton-class warhead in the US stockpile, until a suitable replacement is found. The decision reverses the Obama administration's proposal to retire the warhead once confidence in the B61-12 gravity bomb, currently under development, is achieved by the mid- to late 2020s.[22] If North Korea has built new hardened or deeply buried targets, it is far from clear why these targets cannot be held at risk by other high-yield nuclear weapons, such as W88 warheads carried by SLBMs. Moreover, it is hard to imagine a scenario in which the benefits of detonating a megaton-class warhead on the Korean peninsula would outweigh the massive human casualty and environmental impacts.

Unsustainable Excess

As the costs and scope of the Obama administration's plans to recapitalize the arsenal began to grow during the administration's second term, numerous Pentagon and NNSA officials warned about the affordability and execution challenges they posed. Brian McKeon, former Principal Deputy Under Secretary of Defense for Policy, said in October 2015 that "we're looking at that big bow wave [of nuclear weapons spending] and wondering how the heck we're going to pay for it, and probably thanking our stars we won't be here to have to answer the question."[23] These big nuclear bills are coming due as the Department of Defense is seeking to replace large portions of its conventional forces and contending with internal fiscal pressures, such as rising maintenance and operations costs.[24] In addition, external fiscal pressures, such as the growing national debt, are likely to limit the growth of — and perhaps reduce — military spending. Alan Shaffer, Deputy Under Secretary of Defense for Acquisition and Sustainment, said in February 2019 that "we're going to have enormous pressure on reducing the debt which means that defense spending – I'd like to tell you it's going to keep going up – [but] I'm not terribly optimistic."[25]

Trying to replace nearly the entire arsenal at roughly the same time means less money is likely to be spent on each individual modernization program, thereby increasing the time and cost required to complete each one. The absence of reasonable planning will also result in more suboptimal choices when hard decisions become inevitable.[26] The current path is an irrational and costly recipe for diverting funds from other defense programs or buying fewer new nuclear delivery systems and reducing the size of the arsenal. The longer military and political leaders continue to deny this reality, the worse off the US nuclear deterrent and armed forces will be.

Supporters of the Trump administration's NPR argue that, even at its peak, spending on nuclear weapons will consume no more than 6 to 7 percent of total Pentagon spending. But even 6 percent of a budget as large as the Pentagon's is an enormous amount of money. By comparison, the March 2013 congressionally mandated sequester reduced national defense spending (minus exempt military personnel accounts) by 7 percent. Military leaders and lawmakers repeatedly described the sequester as devastating.

While the Trump administration's nuclear weapons spending plans pose significant challenges, they need not prevent the United States from continuing to field a powerful and credible nuclear force sufficient to deter nuclear attack against the United States and its allies. The United States could save nearly $150 billion in fiscal year 2017 constant dollars over the next 30 years

while still retaining a triad and deploying the New START limit of 1,550 deployed strategic warheads.[27] Nearly $300 billion could be saved by deploying 1,000 deployed strategic warheads and eliminating the ICBM leg of the triad.

Of course, pressure on the defense budget cannot be relieved solely by reducing nuclear weapons spending. A significant portion of the overall cost of nuclear weapons is fixed. That said, changes to the nuclear replacement program could make it easier to execute and ease some of the hard choices facing the overall defense enterprise while still leaving a force more than capable of deterring nuclear attacks against the United States or its alliance partners.

The question, then, is not whether the United States is falling behind its competitors – it is not – but whether the size and configuration of the current arsenal and the Trump recapitalization plans are necessary, sustainable, and safe. The answer is that the current course is unnecessary, unsustainable, and unsafe – and must be rethought. It is not too late to pursue a different path. Now is the time to re-evaluate nuclear weapons spending plans before the largest investments are made.

Arms Control at Risk

Unlike the Obama administration, the Trump administration's plan to rebuild the arsenal is not accompanied by a proactive arms control and nonproliferation agenda aimed at reducing nuclear weapons risks.

Since the release of the NPR, the Trump administration has withdrawn from the 2015 Joint Comprehensive Plan of Action (the Iran nuclear deal) and the INF Treaty without a viable plan for alternatives. So far, the administration has also failed to take Russia up on its offer to begin discussions about an extension of New START or resume a regular dialogue on strategic stability. Recently, the president has told his staff to pursue a grand, new arms control deal with Russia and China to attempt to head off a costly arms race. The goal of a new agreement with Russia is apparently to seek to capture tactical weapons. The goal of talks with China, which is estimated to have no more than 300 nuclear weapons and has never been a party to an agreement that limits the number of types of nuclear weapons, is unclear.

At first glance, this initiative may sound promising. Bringing other nuclear actors and all types of nuclear weapons into the disarmament process is an important and praiseworthy objective.

But this administration has no plan, strategy, or capacity to negotiate such a far-reaching deal. Even if it did, negotiations would likely take years. Beijing is highly unlikely to engage in any such talks until the United States and Russia significantly cut their far larger arsenals, estimated at over 6,000 warheads each. Russian President Vladimir Putin may be open to broader arms control talks with President Trump, but he has a long list of grievances about US policies and weapons systems, particularly the ever-expanding US missile defense architecture. These realities strongly suggest that this new grand-deal gambit does not represent a serious attempt to halt and reverse a global arms race.

Without the INF Treaty and New START, there would be no legally-binding, verifiable limits on the US and Russian nuclear arsenals for the first time since 1972. The collapse of the US-Russian arms control architecture would mean that Russian nuclear forces would be un constrained, our insight into Russian nuclear force structure and modernization would be curtailed, and the incentives to engage in costly nuclear competition would be magnified.

Opportunities and Challenges

There are several obstacles facing the successful implementation of the Trump administration's NPR. The crushing cost to replace the arsenal and its supporting infrastructure is almost certainly unsustainable. Support for the current plans inside the Pentagon could diminish as the opportunity costs grow more severe. In recent years, both uniformed and civilian defense officials have repeatedly stated that the nuclear modernization plan is the number-one priority among all other competing modernization necessities. However, such support is not assured moving forward. The Pentagon has rapidly reoriented its thinking toward long-term competition with Russia and China, thereby elevating the relevance of conventional modernization.

Over the past several years, Congress has largely backed both the Obama and Trump administrations' proposals to replace the nuclear arsenal, though not without controversy. But future bipartisan political support for increasing nuclear weapons spending is fragile and far from assured in the future.

Now in the majority in the House following the 2018 midterm elections, Democrats have conducted more aggressive oversight of the administration's nuclear policy and spending proposals. They are increasingly concerned about the rising price tag of nuclear modernization, the Trump

administration's controversial proposals for expanded nuclear capabilities, and the risk of a total breakdown of the US-Russian arms control architecture. Rep. Adam Smith (D-WA), the new chairman of the House Armed Services Committee, has repeatedly made it clear that he believes the United States has more nuclear weapons than it needs for its security and than it can realistically afford.

The House-passed version of the fiscal year 2020 National Defense Authorization Act would prohibit deployment of the W76-2; express support for extending New START and require reports on the implications of allowing the treaty to expire in 2021 with nothing to replace it; prohibit funding to develop land-based, intermediate-range missiles banned by the 1987 INF Treaty; and reduce funding to build a new fleet of intercontinental ballistic missiles and expand the production of plutonium pits. None of these provisions were ultimately included in the final version of the bill signed by President Trump in December 2019, but House Democratic opposition to the administration's modernization plans is likely to continue.

Buoyed by the Trump administration's overreach, many of the 2020 Democratic candidates for president – Senator Bernie Sanders, and former Vice President Joe Biden – have expressed support not only for extending New START and rolling back the excesses of the NPR but also for more transformational change, such as adopting a no-first-use policy and scaling back the Obama-era nuclear force structure and spending plans. It remains to be seen whether and how nuclear weapons issues will feature in the 2020 presidential campaign, but the next year provides an opportunity to promote and popularize alternatives to the Trump administration's policies and build these alternatives into the platforms of the candidates.

Concern about President Trump's temperament and reckless statements about nuclear weapons has increased the salience of the issue in the minds of the public. People intuitively understand the stakes: President Trump can't be trusted with nuclear weapons. Recent polling conducted by ReThink Media and the University of Maryland shows that large majorities of Republicans and Democrats are uneasy about vesting the sole authority to order the use of nuclear weapons in the fallible hands of one person and support reforming the sole authority protocol. Polling also indicates that there is support, particularly among Democrats, for a policy platform combining New START extension, continued negotiated reductions in nuclear weapons, scaling back US nuclear weapons spending plans to redirect the savings toward other priorities, and a no-first-

use declaration.

But Republican control of the Senate will act as a brake on major policy change through the 2020 election. Moreover, there continue to be serious divisions within the Democratic party about the future of US nuclear policy. Moderate and conservative Democrats in the Senate, together with a significant number of former Obama administration officials and moderate- to left-leaning national security experts, strongly support the Obama-era spending plans and object to further circumscribing the role of nuclear weapons in US policy. In some cases, these voices have even expressed support for the supplemental capabilities proposed in the NPR, pointing to the deteriorating international security environment, Russia's emphasis on and modernization of a large arsenal of non-strategic nuclear weapons, and the need to assure allies as reasons to oppose more transformational change. They are also reluctant to hold hostage spending on nuclear modernization to attempt to compel better behavior from the Trump administration on arms control. US allies have also largely either expressed support for or refrained from criticizing the approach outlined in the NPR. Furthermore, while polling suggests there is popular support for a progressive alternative to the NPR, some of this support is likely a reaction to Trump himself. When President Trump leaves offices, the opportunity to broaden interest in and support for adjusting US nuclear strategy could wane, sharpening the real divides among Democrats on nuclear weapons.

Notes

1. Donald Trump, Twitter post, December 22, 2016, 11:50 a.m., https://twitter.com/realDonaldTrump/status/811977223326625792; Carrie Dann, "Donald Trump on Nukes: 'Let It Be an Arms Race.'" *NBC News*, December 23, 2016, https://www.nbcnews.com/politics/politics-news/trump-nukes-let-it-be-arms-race-n699526.

2. US Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review* (Washington, DC, 2018), III, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

3. US Department of Defense, Office of the Secretary of Defense, *U.S. Intent To Withdraw from the INF Treaty*, by Michael R. Pompeo, (Arlington, VA, February 2, 2019), https://www.state.gov/u-s-intent-to-withdraw-from-the-inf-treaty-february-2-2019/.

4. US Congressional Budget Office, *Projected Costs of U.S. Nuclear Forces, 2019 to 2028*, CBO-54914, (January 2019), https://www.cbo.gov/system/files?file=2019-01/54914-NuclearForces.

pdf.

5. US Congressional Budget Office, *Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046*, CBO-53211, (October 2017), https://www.cbo.gov/system/files?file=115th-congress-2017-2018/reports/53211-nuclearforces.pdf.

6. "Large Bipartisan Majorities Favor Prohibiting President from Using Nuclear Weapons First Without Congressional Approval," School of Public Policy, University of Maryland, May 20, 2019, https://cissm.umd.edu/news/large-bipartisan-majorities-favor-prohibiting-president-using-nuclear-weapons-first-without.

7. U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review*, V.

8. Bruce Blair, Jessica Sleight and Emma Claire Foley, *The End of Nuclear Warfighting: Moving to a Deterrence-Only Posture*, (Princeton: Program on Science and Global Security, Princeton University, September 2018), https://www.globalzero.org/wp-content/uploads/2018/09/anpr-ExecSummary.pdf.

9. Kingston Reif and Mackenzie Eaglen, "The Ticking Nuclear Budget Time Bomb," *War on the Rocks*, October 25, 2018, https://warontherocks.com/2018/10/the-ticking-nuclear-budget-time-bomb/.

10. U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review*, 53.

11. Dan Leone, "NNSA Has Started Building Low-Yield Sub Warhead," *Exchange Monitor*, January 25, 2019, https://www.exchangemonitor.com/nnsa-started-building-low-yield-sub-warhead/.

12. Kingston Reif, "Congress Funds Low-Yield Nuclear Warhead," *Arms Control Today*, November 2018, https://www.armscontrol.org/act/2018-11/news/congress-funds-low-yield-nuclear-warhead.

13. US Congressional Budget Office, *Projected Costs of U.S. Nuclear Forces, 2019 to 2028*.

14. Kristin Ven Bruusgaard, "Here's Why U.S. Tactical Nukes Are a Bad Idea," *The National Interest*, December 10, 2018, https://nationalinterest.org/feature/heres-why-us-tactical-nukes-are-bad-idea-38372.

15. U.S. Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review*, 21.

16. Ibid., 39.

17. Ibid., XV.

18. US Congressional Budget Office, *Projected Costs of U.S. Nuclear Forces, 2019 to 2028*.

19. Dan Leone, "New Study Finds NNSA Pit Strategy Unlikely to Meet Production Deadline, Lawmaker Says," *Exchange Monitor*, May 2, 2019, https://www.exchangemonitor.com/235121-2/.

20. Nuclear Watch New Mexico, "Groups Release Key DOE Documents on Expanded Plutonium Pit Production, DOE Nuclear Weapons Plan Not Supported by Recent Congressional Actions." Press release, (May 31, 2018), https://nukewatch.org/pressreleases/PR-Pit-Production-Docs-5-31-18.pdf.

21. James Sterngold, "Doubts cast on need for new nukes / Study finds plutonium may last twice as long as expected." *SFGate*, November 15, 2006, https://www.sfgate.com/news/article/Doubts-cast-on-need-for-new-nukes-Study-finds-2466709.php.

22. "Hagel, Moniz Seek to Assure Feinstein Over B61 Refurbishment." *Exchange Monitor*, March 17, 2014, https://www.exchangemonitor.com/hagel-moniz-seek-to-assure-feinstein-over-b61-refurbishment/.

23. Aaron Mehta, "Is the Pentagon's Budget About To Be Nuked?" *Defense News*, February 5, 2016, https://www.defensenews.com/2016/02/05/is-the-pentagon-s-budget-about-to-be-nuked/.

24. Reif and Eaglen, "Nuclear Budget Time Bomb;" US Congressional Budget Office, *Long-Term Implications of the 2020 Futures Defense Program*, CBO-55500, (August 2019), https://www.cbo.gov/system/files/2019-08/55500-CBO-2020-FYDP_0.pdf.

25. Paul McLeary, "Bigger Debt Means Smaller Budgets (But We Need More Shipyards): DoD Officials." *Breaking Defense*, February 15, 2019, https://breakingdefense.com/2019/02/bigger-debt-means-smaller-budgets-but-we-need-more-shipyards-dod-officials/.

26. Kingston Reif and Alicia Sanders-Zakre, "U.S. Nuclear Excess: Understanding the Costs, Risks, and Alternatives," *Arms Control Association*, April 2019, https://www.armscontrol.org/sites/default/files/files/Reports/Report_NuclearExcess2019_update0410.pdf.

27. Ibid.

The Trump Administration's Response to the Iranian Nuclear Challenge

Richard Nephew

As of early March 2020, Iran's nuclear program is dangerously poised on the precipice: though still subject to intrusive monitoring by international inspectors and incapable of producing a nuclear weapon quickly, Iran's steady moves away from parts of the 2015 Joint Comprehensive Plan of Action (JCPOA) are reducing the time it would need to build nuclear weapons if it chose to do so. Having reacted slowly to the Trump administration's decision to exit the agreement in May 2018, Iranian restraint is now badly fraying. Following the killing of Iranian General Qasem Soleimani in January 2020, Iran has stated that it will manage its nuclear program according to its needs rather than the terms of the JCPOA but would return to compliance with the JCPOA if the United States does.

In early March 2020, the International Atomic Energy Agency (IAEA) reported that Iran's enriched uranium stockpile had surpassed 1,000 kilograms, demonstrating conclusively that Iran's nuclear program is moving closer to having the means to produce a nuclear weapon, even if there is no evidence Iran has chosen to do so. Beyond the obvious risks such moves pose, the approach adopted by the Trump administration has reduced the leverage of the United States over Iran, isolated the United States from its European partners, and made it harder to respond effectively to Iran's moves to break its commitments. By all measures, Iran is more dangerous and less constrained than when the Trump administration took office and remains capable of moving to produce nuclear weapons in a matter of months.

Current Nuclear Status

The IAEA is tasked with monitoring Iran's compliance with the JCPOA and the Nuclear Non-Proliferation Treaty (NPT). The IAEA reported until May 2019 that Iran was in compliance with its obligations under the JCPOA, the Iran-IAEA Comprehensive Safeguards Agreement (CSA), and the Additional Protocol (AP), the IAEA's most stringent inspection plan. The IAEA reported in 2016 that there were differences in interpretation with respect to Iran's heavy water stocks, en-

riched uranium stocks, and permissible activities with advanced centrifuges. However, the Joint Commission of the JCPOA, made up of the agreement's member states, released documentation in December 2016 that clarified these interpretation issues. Subsequent to that release, the IAEA reported no further interpretation or compliance issues until May 2019.

Consequently, prior to May 2019, Iran's nuclear program could be summarized in the following way:

- Iran had no more than 5,060 IR-1 centrifuges installed at the Natanz Fuel Enrichment Plant (FEP) and no more than 1,044 IR-1 centrifuges installed at the Fordow FEP;

- Iran's centrifuge research and development (R&D) activities remained consistent with the agreed research plan, provided to the IAEA in 2015 pursuant to the JCPOA;

- Iran kept its stocks of useable enriched uranium below 300 kilograms;

- The Arak Heavy Water Research Reactor (HWRR) continued to be in the process of transformation, and the reactor was incapable of producing weapons grade plutonium in normal operations; and

- The IAEA continued to have sufficient access to monitor not only Iran's operational nuclear facilities but also its centrifuge manufacturing, R&D, storage locations, and uranium mines and mills. The IAEA was also still in a position, either through the JCPOA or the AP, to request access to other sites where there may be undeclared nuclear-related activities.

Taken as a whole, these conditions meant that Iran was incapable of producing nuclear weapons using its known nuclear facilities in less than a year and would find it extremely difficult to establish a covert fissile material production capability without being detected in a timely fashion. Such warning would put the United States and the other members of the JCPOA in a strong position to both challenge Iran's actions and act, even with force if necessary, to prevent an Iranian nuclear breakout.

After May 2019, the IAEA reported that Iran had begun to stockpile uranium in excess of the JCPOA's 300-kilogram limit, enrich uranium beyond the JCPOA's 3.67% limit, and engage in

prohibited R&D and operational activities with advanced centrifuges. None of these developments were surprising; Iran announced each step in advance and made clear that further such erosion of Iranian commitments would be forthcoming every 60 days so long as the United States is out of compliance with the JCPOA. Issues also arose with respect to the IAEA's ability to investigate further information from the Israeli-acquired nuclear archive, particularly relating to undeclared nuclear material and equipment formerly held at the Turquzabad facility.

The killing of Qasem Soleimani by the United States in early January 2020 prompted Iran to escalate its nuclear activities dramatically. The IAEA reported in early March 2020 that Iran, which maintained its enriched uranium stockpile below 400 kilograms in November 2019, now possesses over 1,020 kilograms of less than 5-percent enriched uranium hexafluoride (Figure 1). Approximately 1,200-1,300 kilograms of less than 5-percent enriched uranium hexafluoride is sufficient for one nuclear weapon, and this level of enrichment constitutes around 75 percent of the work needed to create weapons-usable highly enriched uranium. Consequently, the IAEA's report indicates that Iran's breakout time has sharply dropped, perhaps to 6 months or less. The US Intelligence Community (IC) has yet to produce a reliable estimate of current breakout time, and efforts to politicize the US IC under President Donald Trump would lead some to question any figure it might produce. However, it now looks likely that, should Iran's leaders decide to produce nuclear weapons, they could produce a single nuclear weapon within 6 months. Likewise, Iran's installed centrifuges are both qualitatively better and more numerous than they were under the JCPOA.

Figure 1: Iran's Uranium Hexafluoride (UF6) Stocks

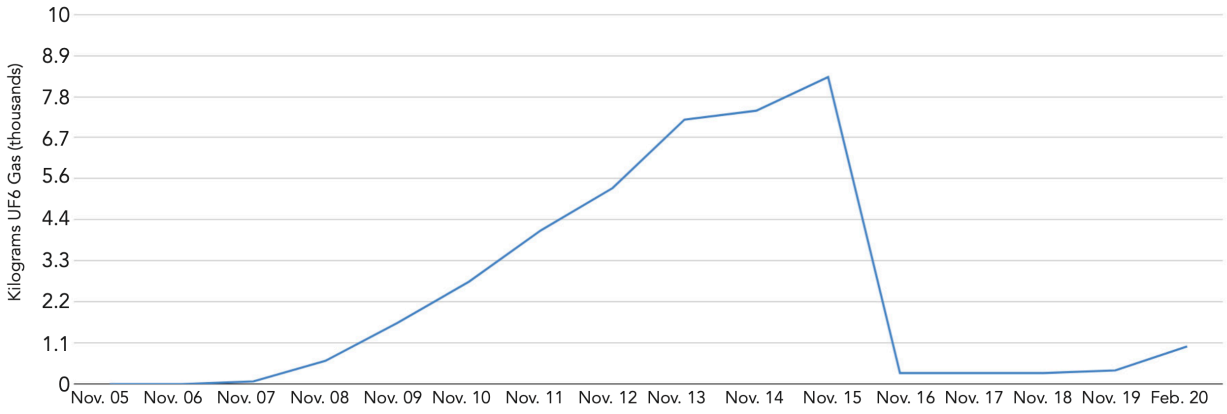

Figure 1 note: Based on data from IAEA reports.

On top of these problems, Iran is now refusing to allow the IAEA to access three undeclared sites judged to have some connection to Iran's past – and possibly its future – nuclear weapons program. Such moves are a violation not only of Iran's obligations under the JCPOA but also its safeguards agreement with the IAEA under the NPT itself.

Although US IC judgements dating back to 2007 assert that Iran's formal nuclear weapons program ended in 2003, the US IC has also readily admitted that Iran hasn't made a final decision about its nuclear program and wants to keep its options open. The presence of an archive of nuclear information in Tehran, allegedly containing all of Iran's documentation from its previous nuclear weapons program, is a troubling reminder of these conclusions. Though the JCPOA was able to constrain Iran's nuclear program, Iran's latent knowledge and capabilities are a permanent asset to its ability to produce nuclear weapons. The key judgements of the 2007 National Intelligence Estimate (NIE), for example, conclude clearly that "we assess with high confidence that Iran has the scientific, technical and industrial capacity eventually to produce nuclear weapons if it decides to do so."[1] But, perhaps a more important if sometimes overlooked assessment by the NIE is that Iranian political decision-making will be the key determinant of Iran's nuclear future:

> "We assess with moderate confidence that convincing the Iranian leadership to forgo the eventual development of nuclear weapons will be difficult given the linkage many within the leadership probably see between nuclear weapons development and Iran's key national security and foreign policy objectives, and given Iran's considerable effort from at least the late 1980s to 2003 to develop such weapons. In our judgment, only an Iranian political decision to abandon a nuclear weapons objective would plausibly keep Iran from eventually producing nuclear weapons – and such a decision is inherently reversible."[2]

Nothing in the latest threat assessments released by the Director of National Intelligence suggests that this fundamental US IC analytical judgment has changed. Importantly, though the Mossad-acquired nuclear archive from 2018 helps us to understand how far Iran got in its development of nuclear weapons technology prior to the program's halt in 2003, neither the United States nor the Israelis have found evidence in the archive to contradict this conclusion. Rather, the US IC maintains that Iran is not currently building nuclear weapons and that its decisions – including whether to adhere to the JCPOA – are based on a cost/benefit calculus.

Given this, it is reasonable to make the conjecture that how Iran's internal political situation develops and how Iran's leadership perceives the international community will shape its nuclear decision-making. This is one of the main reasons why the Obama administration supported the JCPOA, which, by delaying Iran's breakout nuclear weapons capability by upwards of 15 years, sought to allow for time to negotiate a longer-term arrangement with Iran that could make even more durable the nuclear restrictions contained in the JCPOA and also address broader regional issues.

Trump Policy

The Trump administration's current Iran policy has created the current dynamic in which Iran has been able to expand its nuclear capabilities and appears to be actively reconsidering its position on nuclear weapons. Having campaigned against the JCPOA, President Trump chafed at the reality of Iran's nuclear restraint and compliance with the JCPOA. After certifying as required by law that Iran was in compliance with the JCPOA in April 2017, President Trump ordered then-Secretary of State Rex Tillerson to identify options for no longer certifying Iranian compliance. While President Trump again certified Iranian compliance with the JCPOA in July 2017, by October 2017 the White House had decided that certifying Iran's compliance with the JCPOA was no longer in US national interests. Iranian compliance was considered an afterthought compared to the impediments allegedly created for US policy in countering Iran in Syria, Yemen, the Persian Gulf, and with respect to Iran's ballistic missile program. The president announced that he would give Congress and Europe an opportunity to "fix" the JCPOA; when neither was able to do so by January 2018, President Trump announced his intention to end the renewal of sanctions relief for Iran under the JCPOA. As the deadline for the next US sanctions relief renewal was May 2018, this created a de facto deadline for US participation in the JCPOA altogether. On 8 May 2018, the president announced US withdrawal from the JCPOA, and the Treasury Department then outlined a plan to reimpose sanctions against Iran in August and November 2018.

As of early 2020, the United States has reimposed all of the sanctions previously in place against Iran since November 2013. The Trump administration has added to those sanctions on the margins, largely as relates to designated banks, entities and individuals, but has yet to introduce any kind of meaningful expansion of the economic measures in legal terms. In May 2019, the United States announced that it would seek the reduction of Iran's oil sales to zero. This is more aggressive than previous sanctions, which were focused on reducing Iran's exports incrementally every

6 months. The lowest point for Iranian oil sales reached during the prior sanctions campaign was 700,000 barrels per day in August 2012; by comparison, Iran's estimated current exports hover between 300,000-500,000 barrels per day, mostly in the form of sanctions-evading oil sales to China.

At the same time, confronting Iran has become the centerpiece of US Middle East policy, at least in terms of rhetoric. Secretary Pompeo and other US officials frequently make speeches in which they identify Iranian policy as the root of all regional instability, echoing a similar rhetorical approach by the Israelis, Saudis, and Emiratis. Trump administration officials have also signaled a clear preference for regime change as a method of solving the problems created by Iran, even if officials say that their only intention is to secure a "better deal" than the JCPOA. Secretary Tillerson noted in 2017 that a goal of US policy was "to work toward support of those elements inside of Iran that would lead to a peaceful transition of that government. Those elements are there, certainly as we know."[3] When asked in September 2017 why the United States needed to prevent Iran from acquiring nuclear weapons in the first place, former US Ambassador to the United Nations Nikki Haley responded that "the answer has everything to do with the nature of the regime and the Islamic Revolutionary Guard Corps' determination to threaten Iran's neighbors and advance its revolution."[4] Former National Security Advisor John Bolton is on record not only for his consistent advocacy of regime change in Iran but also for using military force to achieve Iranian denuclearization; though he has left the administration, there is precious little public indication of a real shift in the administration's thinking on the whole.

Doubtless out of concern that regime change rhetoric was damaging its ability to galvanize international support for its policy, the Trump administration emphasized in 2018 that its intention is to use the same "dual-track" strategy used by the Bush and Obama administrations to obtain a better deal with Iran than the JCPOA. In May 2018, Pompeo outlined a 12-point framework for renegotiation with Iran, but this list included items that seem implausible in the context of Iranian government policy since the early 1980s, such as ending support for Hezbollah, an Iranian partner since the inception of the Islamic Republic.[5] Perhaps more problematic is the fact that Iranian officials look with skepticism at Trump administration offers to negotiate, not least because of the broad scale of desired concessions. As a case in point, Bolton himself suggested that an offer to negotiate with Iran ought to be conveyed merely to maintain cohesion with US partners in the service of a much more aggressive pressure approach.[6]

Taken in combination, these statements, positions, and actions all suggest meaningful pressure

on Iran to reconsider its nuclear forbearance. Iran is now operating within a far more constrained economic environment made worse by US sanctions. Simultaneously, the United States has raised the specter of regime change and is working with Iran's adversaries in the region to confront it. Iran has long expressed concern about US military sales to regional opponents like Saudi Arabia and the United Arab Emirates, relationships which the United States has prioritized under President Trump despite developments like the Yemeni famine and murder of Jamal Khashoggi in Istanbul in October 2018.

At the same time, Iranians have also witnessed a curious lack of follow-through in the administration's toughly worded public positions vis-à-vis Iran. In the region, the United States has long talked up its ability and desire to confront Iran, but its push-back on Iran has always been more restrained and – in the case of the Iraq War – the United States may have inadvertently improved Iranian regional security by eliminating its most significant enemy. With the significant exception of withdrawing from the JCPOA, the United States has taken a decidedly more measured approach in the region than Trump administration rhetoric would suggest. The United States has stopped providing direct support for Saudi and Emirati air operations in Yemen and reduced its operations in Syria with plans to scale them back farther. President Trump stated that "[Iranians] can do what they want" in Syria, manifestly lowering Iran's sense of risk in continuing activities in the country.[7] Further, the US failure to respond to attacks on Saudi, Emirati, and US assets in the region – including the Abqaiq oil processing facility – has badly eroded the credibility of US deterrence and the continued utility of the Carter Doctrine, the 1980 policy that the United States would use military force to defend its interests in the Persian Gulf. The killing of Qasem Soleimani might have been seen as a change in this posture, and Trump administration officials took pains after the killing to argue that they had restored deterrence. However, the US reaction to a missile attack on a base in Iraq housing US forces – in which over 100 were injured – was muted. This suggests that that the United States is not credibly committed to firming up its deterrence posture.

European officials have suggested that Iran's intention is to maintain compliance with the JCPOA, both to see how the Trump administration policy will develop further and in anticipation of a potentially more cooperative negotiating partner following the 2020 US presidential election. This is one reason why the Europeans have taken a very slow approach to using the dispute resolution mechanism in the JCPOA to challenge Iran's nuclear revisionism. Iran has also clearly decided to impose costs on the rest of the world that they believe are reasonable and proportional to the damage being done to Iran's interests by US sanctions. Of course, depending

on voluntary nuclear restraint from Iran is intrinsically risky, not the least because Iran itself will get to decide when and how to withdraw from its obligations. Moreover, if the Trump administration fails to make good on its promises to confront Iran in the region, Iran's activities are likely to escalate even if the Iranian government restrains itself in the nuclear arena.

Risks and Threats

The core risk of the current US approach to Iran is that Iran will lose patience or the political will to remain in the JCPOA framework – even minimally – while being subjected to intense sanctions pressure from the United States and without a US response to provocations in the region. As with Iran's nuclear weapons option, Iran's nuclear fuel cycle activities are therefore largely dependent on the decisions made the highest echelon of the Iranian political system; the decision to ramp up the production of enriched uranium demonstrates the waning patience of the regime's leaders.

All of this leaves aside the question of what a different approach – one designed to convince Iran to further restrict its future nuclear options pursued by the United States in closer coordination with its European allies – might have been able to achieve. Without a clear or effective strategy for constraining Iran through confrontation and sanctions, there is a clear opportunity cost to not pursuing a proven and multilateral approach that has at least as good a chance for success as the chosen path.

If Iran decides instead to weather the next year of the Trump administration in hope of finding a new US negotiating partner in 2021, an entirely different set of problems will need to be addressed. First and foremost, the time and space that the JCPOA was intended to afford the United States and Iran to work on the broader slate of policy differences that exist between them will instead have been wasted. Under the terms of the JCPOA, Iran's standing UN Security Council (UNSC) restrictions on conventional arms trade will expire in October 2020, and UNSC restrictions on missile activities are scheduled to end in October 2023. Iran's core nuclear restrictions and transparency obligations under the JCPOA have a longer shelf life and do not start to expire until 2025 and 2035 respectively. It is worth nothing that some core restrictions, including a permanent legal prohibition against building nuclear weapons or engaging in key weaponization activities, never expire. Still, precious time will have been lost.

Moreover, if Iran does manage to remain in the JCPOA until 2021, the ability of the United States

to negotiate with Iran after that point will be weakened. Although the ability to remove sanctions will provide powerful leverage – particularly if economic conditions continue to deteriorate in Iran – having endured nearly three years of US noncompliance, Iran is unlikely to be in the mood to accept steeper restrictions or more intrusive inspections absent substantial concessions on the part of the United States. Furthermore, US partners in Europe and elsewhere are unlikely to be willing to support the United States in demanding them. The base demands of the international community will instead be aimed at the United States: re-enter the JCPOA in full and cease undermining Iranian economic access globally. The United States might not accept these demands as appropriate or reasonable, and there would certainly be considerable debate on the virtues of re-entering an agreement with waning effectiveness. Depending on the constellation of political forces in power in 2021, this debate will be difficult to overcome even if the US administration changes and especially if the regional environment worsens. To this point, the United States will also find negotiations on non-nuclear issues quite difficult, especially if the Trump administration continues with its signaled intention to downsize the US presence and role in the Middle East.

Questions for Future Policy

The Trump administration's Iran policy is suited really only for one outcome: a dramatic, "all-in" victory in which Iran either concedes via negotiations or via government capitulation to US demands (possibly involving regime change). If this outcome is not achieved, then there is a significant risk of a far more complicated situation emerging for the United States.

Policy makers should therefore prioritize six questions to guide decisions being made now and in advance of 2021:

1. Assuming Iran remains in the JCPOA, what are the combinations of incentives, inducements, and disincentives that could be deployed to persuade the Iranians to negotiate with the United States after 2021?

2. If Iran withdraws from the JCPOA, how should the United States approach Iran and US partners on future negotiations and core demands?

3. Given Iran's latent nuclear capabilities, what are the core priorities for US policy on Iran's nuclear program? What are the key elements of the program that cause concern and how

should a future negotiation be constructed? Is the fuel cycle program the priority? Transparency and monitoring? Weaponization-related activities? Resolving historical questions prompted by the archive? If the United States fails to succeed in its present "all-in" strategy, what is its fallback position?

4. How should US deterrence policy be adapted to manage Iran's possible acquisition of nuclear weapons? The last four US presidential administrations have made clear that an Iranian nuclear capability is a red line justifying the use of US military force. If Iran moves closer to weaponization, how should the United States respond, both with respect to Iran directly and in managing its relationships with key US partners in the region?

5. How should the United States approach Europe, China, India and others on Iran issues? The priority at present is for maximum pressure on Iran, at least rhetorically, but that may complicate the broader US foreign policy agenda in other areas. What balance ought to be struck, and what trade-offs are possible and necessary?

6. How should the United States manage the non-nuclear aspects of Iranian behavior, particularly its threats to regional stability and development of ballistic missiles?

More than anything, it is imperative to begin thinking through these questions now.

Notes

1. National Intelligence Council, Iran: *Nuclear Intentions and Capabilities*, (Washington, DC, November 2007), https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/20071203_release.pdf.

2. Ibid.

3. Adrienne Mahsa Varkiani, "Tillerson calls for regime change in Iran." *ThinkProgress*, June 15, 2017, https://thinkprogress.org/tillerson-calls-for-regime-change-in-iran-ad2ded82f945/.

4. Nikki Haley, "Nikki Haley Address on Iran and the JCPOA," (speech, American Enterprise Institute, Washington, DC, September 5, 2017), https://www.aei.org/research-products/speech/nikki-haley-address-on-iran-and-the-jcpoa/.

5. Michael R. Pompeo, "After the Deal: A New Iran Strategy," (speech, The Heritage Founda-

The Trump Administration's Approach to North Korea's Nuclear Weapons Program

Kelsey Davenport

The Trump administration identified North Korea's advancing nuclear weapons and ballistic missile program as a key US foreign policy challenge. After initially increasing economic pressure and raising the risk of conflict in 2017 by responding to North Korean provocations with vague threats, President Donald Trump shifted the US approach and pursued an opportunity, which was created by South Korea's diplomatic outreach to North Korea, to engage in direct negotiations with North Korea in 2018. While President Trump declared that "there is no longer a nuclear threat" from North Korea after his historic summit meeting with North Korean leader Kim Jong Un in June 2018, negotiations between the two countries have yet to yield concrete steps toward denuclearization.[1] North Korea has continued to produce fissile material, and its military capabilities remain intact. The Trump administration's approach to diplomacy has been inconsistent and is often undermined by the president's own rhetoric. It remains unclear whether the administration can devise a viable strategy, maintain the discipline to adhere to it, and put together the team necessary to negotiate and enforce an agreement that would verifiably and effectively dismantle North Korea's nuclear weapons program.

North Korea's Nuclear and Missile Capabilities

US President Donald Trump took office amidst a rapid acceleration in North Korea's nuclear weapons program. In his annual New Year's address in 2017, North Korean leader Kim Jong Un heralded the progress of the prior year, noting that the country "achieved the status of a nuclear power," and said the country would continue to build its nuclear forces, including the "capability for preemptive strike," in the upcoming year.[2]

To meet this goal, North Korea accelerated long-range missile testing, introducing three new systems over the course of 2017: the Hwasong-12, an intermediate-range ballistic missile (IRBM) tested six times (three tests failed), the Hwasong-14, an intercontinental ballistic missile (ICBM) tested twice, and the Hwasong-15, an ICBM tested once.

North Korea tested its ICBMs on a lofted trajectory; however, based on the altitude and the flight times, the Hwasong-14 could deliver a 500-kilogram payload an estimated range of 8,000 kilometers on a standard trajectory, which puts Alaska, Hawaii, and parts of the West Coast of the United States within range.[3] The more powerful Hwasong-15 could deliver a 1,000-kilogram payload an estimated 13,000 kilometers, a range that covers the entirety of the United States.[4]

Despite achieving the necessary range to target the United States, there remains debate about whether North Korea has the capability to deliver a nuclear-tipped IRBM or ICBM to the United States or US territories such as Guam. Both nongovernmental experts and the US intelligence community estimate that North Korea can build a miniaturized warhead suitable for mounting on the tip of ballistic missile. However, after so few tests, none of which were conducted on a standard trajectory, it is unclear whether North Korea has mastered the necessary technologies for a warhead to reliably survive re-entry into the atmosphere. In January 2018, then-Central Intelligence Agency (CIA) Director Mike Pompeo stated that North Korea could have the "ability to deliver a nuclear weapon to the United States in a matter of a handful of months."[5] Presumably, that time frame assumed continued testing. The US military, however, operates under the assumption that North Korea has an operational ICBM capable of delivering nuclear weapons since North Korea has demonstrated the discrete capabilities before. The intelligence community and experts have assessed for several years that North Korea could deliver a nuclear warhead using its short or medium-range ballistic missiles. These systems are capable of targeting US allies South Korea and Japan, but they would be unable to reach Guam.

Since the Hwasong-15 test in November 2017, North Korea refrained from testing ballistic missiles for about 17 months, at which point it resumed testing short and medium-range missiles, including a new solid-fueled short-range ballistic missile in May 2019 and a new submarine-launched ballistic missile (SLBM) in October 2019.[6] In his January 2018 New Year's address, Chairman Kim declared that North Korea's nuclear-capable ballistic missiles could reach the continental United States and that the strategic objectives for the nuclear weapons program had been met. Chairman Kim said North Korea would shift its focus to mass production.[7] He later announced an official testing moratorium applicable to IRBMs and ICBMs in April 2018, saying that further tests were unnecessary as "the work for mounting nuclear warheads on ballistic rockets was finished."[8]

So long as the testing moratorium remains in place, the extent to which North Korea can qualitatively advance its long-range missiles remains limited. However, the country may still be pro-

ducing these systems and could return to testing in the future, given that the moratorium is voluntary and has not been codified during the negotiating process. After the most recent round of denuclearization talks in October 2019, North Korea threatened to resume long-range missile testing if the United States did not alter its negotiating position by the end of the year.

North Korea appears to be continuing to develop a sea-based leg of its nuclear deterrent. North Korea tested a new SLBM in October 2019, the Pukguksong-3, which has an estimated range of 1,900 kilometers. Satellite imagery also suggests that construction continues on North Korea's new Sinpo-class ballistic missile submarine.

Considerable uncertainly surrounds the size of North Korea's nuclear arsenal and its current stockpile of fissile material. North Korea produces and separates plutonium at its Yongbyon nuclear complex, which includes a 5MWe reactor that began operations in 1986. This reactor was disabled for nearly a decade as part of the 1994 Agreed Framework and for another seven years as a result of the Six-Party Talks. Estimates of plutonium production, based on observations of the 5MWe reactor's operating history and activities at the reprocessing plant, range from 30 to 60 kilograms; accounting for material consumed in nuclear tests, North Korea may currently possess about 20 to 40 kilograms of separated plutonium as of 2017.[9] North Korea could further expand its stockpile of weapons grade plutonium by separating spent fuel produced when its Experimental Light Water Reactor (ELWR) is operational. Satellite imagery suggests that North Korea began testing the ELWR in 2018, but as of April 2019 it does not appear to be operational.[10]

Even greater uncertainty surrounds the country's production of highly enriched uranium (HEU). North Korea is known to operate gas centrifuges for uranium enrichment at a plant in the Yongbyon nuclear complex; according to US intelligence officials, North Korea also likely operates additional clandestine centrifuge facilities. In addition to uncertainty surrounding the number of facilities, the operational histories of the centrifuge plants and the uranium enrichment levels remain unknown. Sig Hecker, a prominent nuclear physicist that visited the centrifuge facility at Yongbyon in 2010, estimated in 2017 that North Korea had produced 250-500 kilograms of HEU.[11] Leaked intelligence assessments from the United States and South Korea reportedly put that number close to 750 kilograms as of 2016.[12]

Taking into account estimated stockpiles of both separated plutonium and HEU, a leaked report from the DIA in 2017 assessed that North Korea may have enough fissile material for 60 warheads, a number consistent with open source estimates.[13] However, most experts assess that

North Korea has not weaponized all of its available fissile material, and its current nuclear arsenal may be comprised of approximately 10-20 nuclear warheads as of 2018.[14] North Korea's warhead designs include what is likely a two-stage hydrogen bomb with a yield of 200-250 kilotons, which experts assess North Korea tested in September 2017.[15]

In 2018, Chairman Kim set mass production of nuclear weapons as a goal for the year, and for the first six months North Korea's 5MWe reactor appeared to be operating. US Secretary of State Mike Pompeo confirmed that North Korea was producing fissile material during a July 2018 Senate Foreign Relations Committee Hearing.[16] Satellite imagery from the latter half of 2018, however, indicates that operations at the reactor have halted and do not appear to have resumed as of March 2019.[17]

It is highly likely that North Korea is continuing to produce HEU, but its production is difficult to determine with certainty given that uranium enrichment plants do not have the same discernable signs of operation that reactors do. Yukiya Amano, then-director-general of the International Atomic Energy Agency (IAEA), said in March 2019 that the agency observed "indications of the ongoing use of the reported centrifuge enrichment facility."[18]

In his 2019 New Year's Address, Chairman Kim referenced North Korea's committment to no longer "make" nuclear warheads.[19] It is unclear if Chairman Kim is referring to what may be a cessation of the production of fissile material or the actual fabrication of fuel for additional warheads.

North Korea does not appear to believe that it needs to validate its nuclear warhead designs with further testing. Along with the IRBM and ICBM testing moratorium in April 2018, North Korea announced it would cease nuclear testing and blew up testing tunnels at its Punggye-ri test site the following month. North Korea has not allowed experts to visit the site, so it is unclear if – or how quickly – the site and tunnels could be reconstituted or if another test site exists that could be used for future testing.

The Trump Administration's North Korea Policy

When President Trump took office in January 2017, outgoing President Barack Obama warned him that North Korea was the most urgent national security challenge facing the United States.[20] While President Trump has prioritized addressing North Korea's nuclear weapons program, his

policy has been muddled from the onset and often undermined by his own rhetoric and the inconsistencies in his administration's approach and messaging.

In April 2017, the Trump administration announced that its policy toward North Korea would be characterized by "maximum pressure and engagement."[21] This policy built off of the Obama administration's approach, which emphasized increasing sanctions and engaging in negotiations if North Korea took steps toward denuclearization. The Trump administration, however, described its approach as a significant departure from the "failed" Obama policy.

The "maximum pressure and engagement policy" operated on the assessment that the Kim regime was not yet ready to negotiate, but it left the door open for talks if North Korea indicated a serious interest in diplomacy. Given that assessment, the administration emphasized the "maximum pressure" component, which primarily focused on targeting North Korea with more powerful coercive measures and strengthening international support for sanctions. The Trump administration has relied heavily on sanctions in its foreign policy to attempt to change state behavior. The goal of this pressure-centric approach to North Korea may have been to push Chairman Kim to the point that the stability of his regime was at stake, leaving him with no choice but to pursue negotiations. Even once negotiations commenced, the Trump administration continued to pursue additional sanctions directed at North Korea, including in March 2019 during a stalemate in the talks.[22]

North Korea's more aggressive nuclear and missile testing provided the Trump administration with ample opportunities to pursue more aggressive UN sanctions. Even states that are generally reluctant to support sanctions, such as China, supported additional restrictions to increase pressure on North Korea. The United States was instrumental in pushing through three UN Security Council (UNSC) resolutions in the second half of 2017. The resolutions included sectoral sanctions on North Korean exports and caps on oil and petroleum imports. These UNSC resolutions also banned joint ventures and foreign labor, sources of income for North Korea, and isolated the country diplomatically. In addition to UNSC measures, the Trump administration and its allies pursued more aggressive unilateral sanctions and continued designating individuals and entities for violations.

On the engagement side, the Trump administration rejected diplomatic outreach prior to a large unilateral concession from North Korea as a down payment for negotiations towards rapid denuclearization. In April 2017, then-Acting Assistant Secretary of State for East Asia Susan

Thornton, said that the United States would wait for a "tangible signal" from North Korea before engaging in talks.[23] Later that month, then-US Secretary of State Rex Tillerson told the UNSC that North Korea must take "concrete steps to reduce the threat that its illegal nuclear weapons pose" before negotiations could begin.[24] He later emphasized a cessation in North Korea's nuclear and missile testing as necessary conditions for talks.

A central tenet of the Trump administration's approach appeared to be focused on gaining Chinese support for both the pressure and engagement prongs of the strategy. US officials sought the cooperation of China, North Korea's largest trading partner, to better enforce existing measures and to leverage China's diplomatic relationship with North Korea to convince the latter to return to talks. While China supported additional UNSC sanctions and took steps to better enforce some of those measures, the Trump administration overestimated China's influence on North Korea and misunderstood China's priorities.

The Trump administration's articulation of "maximum pressure and engagement" kept the option of military force open. However, President Trump's overt threats in response to North Korean rhetoric and its advancing missile program, particularly in the second half of 2017, called into question the US interest in negotiations, increasing speculation that the United States intended to pursue preventive military strikes to impede further advancement of North Korea's ICBM program. On August 8, 2017, President Trump promised "fire and fury like the world has never seen" if North Korea continued to threaten the United States.[25] Several days later, after North Korea threated to launch missiles toward Guam, President Trump stated that "military solutions are now fully in place, locked and loaded, should North Korea act unwisely."[26] The following month at the UN General Assembly, against the advice of his advisors, President Trump threatened to "totally destroy North Korea" if the United States were forced to defend itself.[27] These explicit references to military action contradicted Secretary Tillerson's prior assurances that the US pressure campaign did not seek to kinetically attack or topple the Kim regime and that military options would be pursued only if diplomacy failed. The vague nature of the threats also significantly increased the risk of conflict through escalation or miscalculation.

While President Trump credits his pressure-based strategy with pushing North Korea to negotiate, the "maximum pressure" approach does not appear to have been the deciding factor in Chairman Kim's decision to ultimately pursue talks, first with South Korea and then the United States. The Trump administration was successful in increasing economic pressure on North Korea, but by late 2017 the sanctions regime was nowhere near pushing the country to the breaking

point, nor were negotiations the only course open for Chairman Kim to preserve his regime. Over time, sanctions may have generated enough pressure to push North Korea's leaders to the table, but that conclusion is questionable given North Korea's success in evading sanctions and the regime's willingness to tolerate economic pain. However, in late 2017, before North Korea felt the full impact of the new UN sanctions, South Korean President Moon Jae In made diplomatic overtures to North Korea. President Trump's vague military threats and the fear of conflict likely contributed to President Moon's decision to pursue talks. At that point, however, Chairman Kim may have felt that he could engage in negotiations with the United States from a position of strength, having tested an ICBM capable of reaching the US mainland and declared the strategic objectives of North Korea's nuclear weapons program met.

President Moon's outreach and an agreement between President Moon and Chairman Kim to meet in April 2018 precipitated the Trump administration's sudden shift to diplomacy. While the Trump administration continued its pressure plus engagement strategy, it began de-emphasizing the pressure component publicly, putting more emphasis on negotiations. Despite this shift, the Trump administration struggled to articulate consistently its engagement strategy and the scope of the talks, weakening its credibility.

Before and after the Singapore summit, the Trump administration asserted that complete denuclearization would remain the goal of any negotiating process with North Korea and that the United States would not accept any freeze or partial dismantlement of the country's nuclear weapons program.

In the Singapore summit declaration, President Trump and Chairman Kim agreed to "establish new U.S.-DPRK relations;" the "denuclearization of the Korean peninsula" was a constituent part of that progress, along with building a "lasting and stable peace regime on the Korean peninsula."[28] This document situated denuclearization within the context of a broader transformation of the US-North Korean relationship. The Trump administration may have decided to begin negotiations with a head-of-state level summit to demonstrate its recognition that denuclearization would only take place within a broader "more for more" deal that addressed a broad range of issues beyond the nuclear weapons program, but in all likelihood President Trump's ego and preference for summitry played into the decision.

Despite the language agreed to in Singapore, the Trump administration has not clearly articulated how establishing better US-North Korean relations as the overarching aim for negotia-

tions would impact the US approach to denuclearization and affect US alliances in the region. The Trump administration does not appear to be regularly consulting with allies on US actions that affect building peace and security in the region. President Trump, for instance, announced modifications to US-South Korean military exercises after the Singapore summit without first discussing such steps with President Moon.[29] Actions like this, along with President Trump's demands that allies pay a greater share for basing US troops, place strain on US alliances.

Post-Singapore, despite modifying US-South Korean exercises that North Korea views as provocative, the Trump administration appears to retain a singular focus on denuclearization as the US goal of the process. In contrast, North Korea interpreted the Singapore results as a commitment by the two countries to pursue simultaneous steps that address both denuclearization and peace and security on the peninsula. While the Trump administration has repeatedly stated that its focus is denuclearization, it has failed to articulate consistently what denuclearization constitutes and the timeframe for achieving it. In the lead-up to the Singapore summit, Secretary Pompeo reiterated that the long-standing US policy of "complete, irreversible, verifiable, dismantlement" (CVID) of North Korea's nuclear program remained the US objective. In August 2018, the Trump administration appeared to shift its language to "final, fully verified denuclearization" (FFVD) of North Korea and set the expectation that FFVD could be largely accomplished before the end of President Trump's first term.

In both the CVID and FFVD constructs, it is unclear what categories of ballistic missiles would be included as part of the denuclearization process and if North Korea would be allowed to retain a civil nuclear program. After the Hanoi summit, then-US National Security Advisor John Bolton further complicated the definition by stating that "complete denuclearization" encompasses North Korea's entire ballistic missile program and its chemical and biological weapons.[30]

It also became clear post-Singapore that President Trump and Chairman Kim did not agree on what constitutes "denuclearization of the Korean peninsula." In testimony to the Senate Foreign Relations Committee in July 2018, US Secretary of State Mike Pompeo acknowledged that there was no agreement on a definition of the term.[31] At the Hanoi summit, the Trump administration presented North Korea with its definition of denuclearization based on Bolton's requirement that it include all weapons of mass destruction (WMD) programs.[32]

North Korea, however, has given no indication that it will include chemical and biological weapons in the definition of denuclearization. Further, North Korea interprets denuclearization

more broadly to include a prohibition of US nuclear weapons in the region, the removal of US personnel trained on nuclear weapons from South Korea, and an end to threats of nuclear use.[33]

The first summit also failed to establish an agreed-upon process for achieving the Singapore declaration's goals, which contributed to the stalemate in negotiations post-Singapore and again post-Hanoi. Initially, the Trump administration insisted on the complete denuclearization of North Korea prior to lifting any sanctions or addressing North Korea's security concerns. After Secretary Pompeo's visit to North Korea from July 5 through 7, 2018 —the first meeting of US and North Korean officials after the Singapore summit—the North Korean foreign ministry described him as making "unilateral and robber like denuclearization demands" that "go against the spirit of the North-U.S. summit meeting."[34]

There are some indications that the Trump administration began shifting away from its previous approach in late 2018, appearing more willing to put inducements on the table early in the talks in return for more modest, but still meaningful, steps by North Korea to halt and roll back its nuclear weapons program. In January 2019, US Special Envoy to North Korea Steve Biegun said that the United States is "prepared to discuss many actions that could help build trust between our two countries."[35] Biegun also indicated that the Trump administration was moving away from requiring a full declaration of North Korea's nuclear activities as a first step towards denuclearization (reportedly Secretary Pompeo's demand at the July 2018 meeting in North Korea), saying instead that "at some point" the process would require a comprehensive declaration.

Ahead of working-level meetings in Stockholm in October 2019, the Trump administration appeared to signal its willingness to show more flexibility on the timing of sanctions relief. President Trump said he was open to a "new method" for negotiations, and reports indicated that the US negotiating team intended to put time-bound relief from select UN sectoral sanctions on the table in return for steps on denuclearization, including the verifiable closure of Yongbyon.[36]

President Trump's willingness to take incremental steps, however, appears to be contingent on a more detailed agreement outlining the end-state of denuclearization. This position became clearer after the Hanoi summit in February 2019, when President Trump said the United States is prioritizing a "big deal."[37] The "big deal" President Trump is demanding does not appear to be a comprehensive agreement that addresses the broader US-North Korean relationship but rather a detailed understanding of the final outcome of the denuclearization process. With such an agreement in place, the Trump administration would then take parallel steps addressing North

Korea's security concerns as North Korea took steps to denuclearize. South Korean Foreign Minister Kang Kyung-wha confirmed in May 2019 that the "basic approach" agreed to by the United States and South Korea on US-North Korean negotiations was to pursue a "comprehensive agreement with phased, simultaneous and parallel implementation."[38] President Trump has not articulated if or when the United States would seek to address other issues that fall under the broad goals agreed to in Singapore, including conventional and sub-conventional threats to the United States and its allies.

North Korea has rejected President Trump's approach and wants to pursue a step-by-step process that addresses the Singapore's summit's goals simultaneously and includes early relief from economic sanctions. After the Hanoi summit, North Korean Foreign Minister Ri Yong Ho said that North Korea asked for relief from UN sanctions that "hamper the civilian economy and the livelihood of our people" in return for dismantlement of Yongbyon under US inspections and a permanent halt to nuclear and ballistic missile testing.[39] Chairman Kim told the Supreme People's Assembly on April 12 that he will continue to engage in negotiations with the United States, but he also said that the Trump administration has to have the "right stance" and "methodology."[40]

The limited sanctions relief reportedly offered by the Trump administration in Stockholm in October 2019 does not appear to have been enough of a concession from North Korea's perspective. North Korea's lead negotiator said the US proposals "greatly disappointed [the North Korean delegation] and sapped our appetite for negotiations," reiterating the threat to resume nuclear and missile testing if the US did not change its approach by the end of the year.[41]

Opportunities and Risks

The current negotiations offer an opportunity to reduce the threat posed by North Korea's nuclear weapons program and the risk of conflict in the region. Given the timelines required, the Trump administration's goal for completing verifiable denuclearization by the end of the first term is not a realistic prospect. The ongoing talks could produce concrete steps that reduce risk and make progress toward denuclearization by 2021, but the window for progress is rapidly closing given the 2020 US presidential election. While Chairman Kim's intention to fully and verifiably dismantle North Korea's nuclear weapons program remains unknown, he did put dismantlement of Yongbyon and codification of the nuclear and long-range missile testing moratorium on the table at Hanoi in return for relief from UNSC sanctions. Chairman Kim's offer was

imbalanced in North Korea's favor, but it does indicate his willingness to take concrete steps toward denuclearization if the Trump administration adopts a more flexible approach. The ouster of John Bolton as National Security Advisor in September 2019 may create space for greater flexibility in the Trump administration's approach since Bolton was a strong proponent of requiring North Korea to denuclearize before the United States offered any sanctions relief.

Even if the United States is more flexible on the sequence of sanctions relief, President Trump's insistence on reaching agreement on a "big deal" first and the failure to transition the negotiations from a top-down, head-of-state process to one that empowers negotiating teams increase the risk that the talks will not resume or will fail to make meaningful progress. Beginning negotiations with a Trump-Kim summit may have been necessary to convince North Korea that the United States was serious about negotiations and willing to address North Korea's interest in a new relationship with the United States — the US intelligence community has long assessed that North Korea is unlikely to give up its WMDs absent a transformation in the US-North Korean relationship — but such a summit was ill-suited to the detailed, highly-technical discussions necessary to advance denuclearization. President Trump appears to have given Biegun space to negotiate, but President Trump's history of undercutting his negotiators raises questions about Biegun's credibility and authority in North Korea.

Chairman Kim also appears unwilling to empower his negotiators to discuss in detail the steps North Korea is willing to take to roll back its nuclear weapons program. Additionally, North Korean statements following the Singapore and Hanoi summits, which blamed Secretary Pompeo and Bolton for preventing progress, appear to be aimed at convincing President Trump that negotiations will advance only with the direct leadership of President Trump himself. North Korea may be playing to President Trump's ego and desire to demonstrate success by repeatedly asserting that only President Trump has the vision and courage to conclude a deal.[42] Chairman Kim's preference for engaging directly with President Trump may also be driven by the perception that the US negotiating team does not have sufficient credibility or decision-making authority, particularly given the President Trump administration's mixed messages on North Korea policy. President Trump's decision to attend a second summit and meet Chairman Kim at the demilitarized zone (DMZ) in June 2019 despite the absence of tangible progress on denuclearization indicates that North Korea's strategy may be working. Continuing to negotiate at a head-of-state level increases the risk that President Trump will continue to pursue maximalist demands for a "big deal" that are unacceptable to North Korea or that he will accept cosmetic commitments or half-measures from North Korea that leave the core of North Korea's nuclear weapons program

in place.

President Trump's inflexible demand for a "big deal" also increases the risk that negotiations will collapse or fail to produce tangible results. Chairman Kim is threatening to resume testing if the United States does not modify its approach to negotiations by the end of 2019. North Korea's decision to resume short-range ballistic missile launches in May 2019, after about 17 months of not testing ballistic missile systems, was likely motivated in part to demonstrate Chairman Kim's resolve.[43] President Trump's failure to condemn these tests as violations of UNSC resolutions that jeopardize future negotiations risks normalizing North Korea's illicit ballistic missile activities.

While President Trump has downplayed these initial tests, any resumption of long-range missile or nuclear testing increases the risk of negotiations collapsing and of a US preventive military strike. Shortly before his appointment as National Security Advisor, Bolton argued that North Korea's nuclear weapons program and advancing ICBM capabilities legally justified what he described as preemptive military strikes. Bolton stated that, "given the gaps in U.S. intelligence about North Korea, we should not wait until the very last minute. That would risk striking after the North has deliverable nuclear weapons, a much more dangerous situation."[44]

Despite its threats to recommence testing, North Korea may not want to risk any scenario that increases the likelihood of a military strike or reconstituted pressure campaign, especially given Chairman Kim's assessment that North Korea's nuclear weapons program meets its strategic needs and is currently benefiting from relaxed sanctions enforcement. US officials have identified a decrease in enforcement of US and UN sanctions against North Korea since the Singapore summit that has benefited North Korea's economy.[45] The decline in sanctions implementation may be driven by President Trump saying that there is "no longer a nuclear threat from North Korea" after the Singapore meeting and by North Korea's moratorium on long-range missile and nuclear testing. As such, Chairman Kim may choose to continue quietly expanding North Korea's nuclear arsenal without engaging in provocations that would likely lead to the resumption of more stringent sanctions enforcement and give the Trump administration an excuse to launch a military strike.

Another possible scenario is that North Korea draws out the talks by continuing to make limited, more cosmetic concessions that allow President Trump to claim progress but do not meaningfully reduce the threat posed by North Korea's nuclear weapons program. North Korea's par-

tial dismantlement of missile tests sites, which President Trump has held up as a success in the talks, falls into the category of actions with symbolic resonance in the United States that have little impact on North Korea's nuclear weapons capabilities. This strategy plays in North Korea's favor, allowing the country to retain its nuclear weapons, continue the quantitative and qualitative expansion of its arsenal, and benefit from the appearance of engaging in meaningful diplomacy.

Notes

1. Donald Trump, Twitter post, June 13, 2018, 5:56 a.m., https://twitter.com/realDonaldTrump/status/1006837823469735936.

2. Kim Jong Un, "Kim Jong Un's 2017 New Year's Address," (speech, Pyongyang, North Korea, January 2, 2017), https://www.ncnk.org/sites/default/files/KJU_2017_New_Years_Address.pdf.

3. Michael Elleman, "North Korea's Hwasong-14 ICBM: New Data Indicates Shorter Range Than Many Thought." *38 North*, November 29, 2018, https://www.38north.org/2018/11/melleman112918/.

4. Michael Elleman, "The New Hwasong-15 ICBM: A Significant Improvement That May be Ready as Early as 2018," *38 North*, November 30, 2017, https://www.38north.org/2017/11/melleman113017/.

5. Paul Sonne, "U.S. can destroy 'most' of N. Korea's nuclear missile infrastructure, top general says," *The Washington Post*, January 30, 2018, https://www.washingtonpost.com/world/national-security/us-can-destroy-most-of-n-koreas-nuclear-missile-infrastructure-top-general-says/2018/01/30/c6a9e9c4-05f1-11e8-b48c-b07fea957bd5_story.html.

6. Michael Elleman, "North Korea's Newest Ballistic Missile: A Preliminary Assessment," *38 North*, May 8, 2019, https://www.38north.org/2019/05/melleman050819/.

7. Kim Jong Un, "Kim Jong Un's 2018 New Year's Address," (speech, Pyongyang, North Korea, January 1, 2018), https://www.ncnk.org/node/1427.

8. "North Korea 'halts missile and nuclear tests', says Kim Jong Un," *BBC*, April 21, 2018, https://www.bbc.com/news/world-asia-43846488.

9. Siegfried S. Hecker, "What We Really Know About North Korea's Nuclear Weapons: And What We Don't Yet Know for Sure," *Foreign Affairs*, December 4, 2017, https://www.foreignaffairs.com/articles/north-korea/2017-12-04/what-we-really-know-about-north-koreas-nu-

clear-weapons.

10. Allison Puccoini and Elliot Serbin, "North Korean ELWR makes progress towards operations," IHS Markit, January 4, 2018, https://ihsmarkit.com/research-analysis/north-korean-elwr-makes-progress-towards-operations.html; Frank V. Pabian and Jack Liu, "North Korea's Yongbyon Nuclear Scientific Research Center: Crane Seen at the Experimental Light Water Reactor," *38 North*, April 5, 2019, https://www.38north.org/2019/04/yongbyon040519/.

11. Hecker, "What We Really Know."

12. Jeong Yong-Soo, Lee chul-Jae, and Sarah Kim, "North could have 60 nuclear warheads," *Joongang Daily*, February 10, 2017, http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=3029648&ref=mobile/.

13. Joby Warrick, Ellen Nakashima, and Anna Fifield, "North Korea now making missile-ready nuclear weapons, U.S. analysts say," *The Washington Post*, August 8, 2017, https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html.

14. Hans M. Kristensen and Robert S. Norris, "North Korean nuclear capabilities, 2018," *Bulletin of the Atomic Scientists*, 4, no. 1 (January 2018).

15. Hecker, "What We Really Know."

16. Daniel Brunnstrom, "North Korea making bomb fuel despite denuclearization pledge: Pompeo." Reuters, July 25, 2018, https://www.reuters.com/article/us-northkorea-usa/north-korea-making-bomb-fuel-despite-denuclearization-pledge-pompeo-idUSKBN1KF2QT.

17. Frank V. Pabian and Jack Liu, "North Korea's Yongbyon Nuclear Facilities: Well Maintained but Showing Limited Operations," *38 North*, January 9, 2019, https://www.38north.org/2019/01/yongbyon010919/; Frank V. Pabian and Jack Liu, "North Korea's Yongbyong Nuclear Complex: No Sign of Operations," *38 North*, March 15, 2019, https://www.38north.org/2019/03/yongbyon031519/.

18. Yukiya Amano, "IAEA Director General's Introductory Statement to the Board of Governors," International Atomic Energy Agency, March 4, 2019, https://www.iaea.org/newscenter/statements/iaea-director-generals-introductory-statement-to-the-board-of-governors-4-March-2019.

19. Kim Jong Un, "Kim Jong Un's 2019 New Year Address," (speech, Pyongyang, North Korea, January 1, 2019), https://www.ncnk.org/resources/publications/kimjongun_2019_newyearaddress.pdf/file_view.

report-obama-told-trump-north-korea-was-most-urgent-problem-hed-face.

21. Matthew Pennington. 2017. "Trump strategy on NKorea: 'Maximum pressure and engagement." Associated Press, April 14, 2019. https://apnews.com/86626d21ea2b-45c79457a873a747c452/Trump-strategy-on-NKorea:-'Maximum-pressure-and-engagement'.

22. Alan Rappeport, "Administration Imposes North Korea Sanctions Amid Stalled Talks." The New York Times, March 21, 2019, https://www.nytimes.com/2019/03/21/us/politics/trump-north-korea-china-sanctions.html.

23. Susan A. Thornton. 2017. "Briefing on the Situation on the Korean Peninsula." U.S. Department of State, April 17, 2017. https://www.state.gov/briefing-on-the-situation-on-the-korean-peninsula/.

24. Somini Sengupta and Gardiner Harris, "Tillerson Keeping 'All Options' Open if Diplomacy With North Korea Fails," *The New York Times*, April 28, 2017, https://www.nytimes.com/2017/04/28/world/asia/tillerson-north-korea.html.

25. Peter Baker and Choe Sang-Hun, "Trump Threatens 'Fire and Fury' Against North Korea if It Endangers U.S.," *The New York Times*, Aug. 8, 2017, https://www.nytimes.com/2017/08/08/

26. Peter Baker, "Trump Says Military Is 'Locked and Loaded' and North Korea Will 'Regret' Threats," *The New York Times*, Aug. 11, 2017, https://www.nytimes.com/2017/08/11/world/asia/trump-north-korea-locked-and-loaded.html.

27. Donald Trump, "Remarks by President Trump to the 72nd Session of the United Nations General Assembly," (speech, United Nations General Assembly, New York, NY, September 19, 2017), https://www.whitehouse.gov/briefings-statements/remarks-president-trump-72nd-session-united-nations-general-assembly/.

28. The White House, "Joint Statement of President Donald J. Trump of the United States of America and Chairman Kim Jong Un of the Democratic People's Republic of Korea at the Singapore Summit." (Washington, DC, June 12, 2018), https://www.whitehouse.gov/briefings-statements/joint-statement-president-donald-j-trump-united-states-america-chairman-kim-jong-un-democratic-peoples-republic-korea-singapore-summit/.

29. Eric Schmidt, "Pentagon and Seoul Surprised by Trump Pledge to Halt Military Exercises." *The New York Times*, June 12, 2018, https://www.nytimes.com/2018/06/12/world/asia/trump-military-exercises-north-south-korea.html.

30. "This Week' Transcript 3-10-19: White House National Security Adviser John Bolton," *ABC News*, March 10, 2018, https://abcnews.go.com/amp/Politics/week-transcript-10-19-white-house-national-security/story?id=61588173.

31. Michael R. Pompeo, "An Update on American Diplomacy to Advance our National Security Strategy" (speech, US Senate Foreign Relations Committee, Washington, DC, July 25, 2018), https://www.state.gov/an-update-on-american-diplomacy-to-advance-our-national-security-strategy/.

32. Chad O'Carroll, "Kim Jong Un received an expanded U.S. definition of 'denuclearization': Bolton," *NK News*, March 11, 2019, https://www.nknews.org/2019/03/kim-jong-un-received-expanded-u-s-definition-of-denuclearization-bolton/.

33. Kelsey Davenport, "Stakes Grow for Possible Trump-Kim Summit," *Arms Control Today*, January/February 2019, https://www.armscontrol.org/act/2019-01/news/stakes-grow-possible-trump-kim-summit.

34. Samantha Raphelson, "North Korean Slams U.S. Talks As 'Regrettable' After Pompeo Called Them 'Productive,'" *NPR*, July 7, 2018, https://www.npr.org/2018/07/07/626828951/north-korea-slams-u-s-talks-as-regrettable-after-pompeo-called-them-productive.

35. Stephen Biegun, "Remarks on DPRK at Stanford University," (speech, Stanford University, Palo Alto, California, January 31, 2019), https://www.state.gov/p/eap/rls/rm/2019/01/288702.htm.

36. Choe Sang-Hun. 2019. "North Korean Envoy Hails Bolton's Ouster and Trump's Talk of a New Approach." The New York Times, September 20, 2019. https://www.nytimes.com/2019/09/20/world/asia/north-korea-us-nuclear-talks.html; Alex Ward, "Exclusive: Here's the nuclear proposal the US plans to offer North Korea this weekend," Vox, October 2, 2019, https://www.vox.com/world/2019/10/2/20894979/north-korea-trump-nuclear-talks-deal.

37. Interview with Donald Trump and Moon Jae In, "Remarks by President Trump and President Moon Jae-in of the Republic of Korea Before Bilateral Meeting," Oval Office, White House, April 11, 2019, https://www.whitehouse.gov/briefings-statements/remarks-president-trump-president-moon-jae-republic-korea-bilateral-meeting/.

38. Dagyum Ji, "Foreign minister admits to differences between U.S., ROK over North Korea policy." *NK News*, May 2, 2019, https://www.nknews.org/2019/05/foreign-minister-admits-to-differences-between-u-s-rok-over-north-korea-policy/.

39. "Trump-Kim summit: North Korea says country seeks partial relief," *BBC News*, March 1, 2019, https://www.bbc.com/news/world-asia-47408696.

40. Dagyum Ji, "Kim Jong Un open to third summit with Trump, but wants "fair" deal: KCNA," *NK News*, April 12, 2019. https://www.nknews.org/2019/04/kim-jong-un-open-to-third-summit-with-trump-but-wants-fair-deal-kcna/.

41. William Gallo, "After North Korea Walks Away From Talks, Experts See Familiar Tactic," Voice of America, October 6, 2019, https://www.voanews.com/east-asia-pacific/after-north-korea-walks-away-talks-experts-see-familiar-tactic.

42. "DPRK-U.S. Ties Can Never Become Victim of Political Scramble in U.S.," KCNA, August 18, 2019. https://kcnawatch.org/newstream/292844/dprk-u-s-ties-can-never-become-victim-of-political-scramble-in-u-s/; Philip Rucker and Josh Dawsey, "'We fell in love': Trump and Kim shower praise, stroke egos on path to nuclear negotiations," *The Washington Post*, February 25, 2019, https://www.washingtonpost.com/politics/we-fell-in-love-trump-and-kim-shower-praise-stroke-egos-on-path-to-nuclear-negotiations/2019/02/24/46875188-3777-11e9-854a-7a14d7fec96a_story.html.

43. Choe Sang-hun, "North Korea Threatens to Scuttle Talks with the U.S. and Resume Tests," *The New York Times*, March 15, 2019, https://www.nytimes.com/2019/03/15/world/asia/north-korea-kim-jong-un-nuclear.html; Kim, "Kim Jong Un's 2019 New Year Address."

44. John Bolton, "The Legal Case for Striking North Korea First." *The Wall Street Journal*, February 28, 2018, https://www.wsj.com/articles/the-legal-case-for-striking-north-korea-first-1519862374.

45. U.S.-China Economic and Security Review Commission, "2018 Report to Congress of the U.S.-China Economic and Security Review Commission: Executive Summary and Recommendations," (November 2018), https://www.uscc.gov/sites/default/files/annual_reports/Executive%20Summary%202018%20Annual%20Report%20to%20Congress.pdf.

The Trump Administration and the Global Nonproliferation Regime

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Seventy years ago, the number of nuclear weapons states in the world went from one to two. From that moment on, reducing the risk of nuclear war became the most pressing and important matter on every US president's desk. Fortunately for President Donald Trump, his predecessors took many steps to control the spread of the deadliest weapons ever created.

By the late 1960s, five nations had acquired nuclear weapons, and many feared that dozens more would follow suit. Faced with that danger, world leaders created the Treaty on the Non-Proliferation of Nuclear Weapons, also known as the Non-Proliferation Treaty or NPT.

Upon signing the NPT on behalf of the United States, President Lyndon B. Johnson noted that the creation of the agreement was proof that "reason and sanity" had prevailed over "danger and fear." Indeed, as he said, it was the "quiet works of diplomacy" and "patient and painstaking negotiation" that brought the world back from the nuclear brink. He knew the road ahead would not be easy – and he was right – but, nevertheless, he believed that we could "still shape [our] destiny in the nuclear age."[1]

The NPT, despite its flaws, has served the international community well. Now fifty years later, it is hard to imagine where the world would be without it.

Fifty years, however, is long enough for any agreement to fray, and the NPT is no exception. The problem now is that the very fabric of the landmark agreement is starting to tear at the seams. A tattered and torn NPT affects every other treaty, agreement, and cooperative measure we have created to control the nuclear threat. Repairing the damage would be a tall order for any US leader, but it is proving especially difficult for President Trump and his administration.

The nuclear challenges facing the Trump administration fall into three broad categories: the relationship between US nuclear policies and the NPT; the regional conflicts that affect nuclear nonproliferation; and the growing impatience with the lack of progress on disarmament. Many of these challenges existed long before President Trump took office and will remain long after he leaves. Cognizant of the multi-layered nature of the problems, the administration has under-

taken some positive efforts, including a focus on how conflicts exacerbate nuclear proliferation and continued efforts to expand the verification tools available for the future. Many officials and nuclear experts are indeed working to support and sustain the structures that have slowed and rolled back nuclear weapons stockpiles and related technologies. Unfortunately, because nothing happens in a vacuum, the implementation of these policies has proven more difficult.

As we approach the 2020 NPT Review Conference (RevCon), the next conference in the NPT's five-year review cycle, the Trump administration's actions are often at odds with stated support for the global arms control and nonproliferation architecture. For example, it is hard for the United States to champion multilateral nonproliferation agreements when it has violated its own commitment to the Joint Comprehensive Plan of Action (JCPOA) against the advice of allies and experts. It is difficult for other states to believe that the United States is committed to its international obligations when the Trump administration abandons treaties and agreements at a dizzying clip. It is almost impossible for US diplomats to be taken seriously in a negotiation when their president says he is "the only one that matters."[2]

There are steps that the administration can take to help stabilize the global nonproliferation regime; however, over two years into his term, it is President Trump himself who could derail even the best laid plans to reduce nuclear threats.

US Nuclear Policies and the NPT

In its 2018 Nuclear Posture Review (NPR), the Trump administration affirmed that "the Nuclear Non-Proliferation Treaty (NPT) is a cornerstone of the nuclear non-proliferation regime."[3] The treaty, the administration argued, "plays a positive role in building consensus for non-proliferation and enhances international efforts to impose costs on those that would pursue nuclear weapons outside the Treaty." While general support for the NPT was welcome, even if it seemed like an afterthought in the document, the lack of emphasis on the disarmament commitments laid out in Article VI of the NPT was not lost on any outside observers or nuclear weapons states. Rather, the approach to arms control and disarmament laid out in the NPR was passive and conditional. Phrases like "prepared to consider" and "remain receptive to" future agreements were paired with demands for agreements to be "enforceable" without an explanation of what that would entail. The message seemed clear: nonproliferation is more important than effective measures relating to cessation of the nuclear arms race. There is nothing that precludes the Trump administration from making nonproliferation a priority, but abrogating a leadership role

on disarmament will have consequences.

The NPR did reiterate the negative security assurances outlined in the Obama administration's 2010 Nuclear Posture Review, pledging not to use nuclear weapons on "non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations."[4] However, these assurances were followed by a new, major caveat. The Trump administration reserved "the right to make any adjustment in the assurance that may be warranted by the evolution and proliferation of non-nuclear strategic attack technologies and U.S. capabilities to counter that threat."[5] This caveat and its lack of specific definition of "non-nuclear strategic attack" devalues the assurance to non-nuclear weapons states.

The most problematic part of the Trump administration nuclear policy plan was the call for "supplemental" nuclear capabilities designed to deal with supposed gaps in the US ability to deter adversaries. The 2018 NPR stated that the United States will "modify a small number of existing SLBM warheads to provide a low-yield option, and in the longer term, pursue a modern nuclear-armed sea-launched cruise missile (SLCM)."[6] Among many non-nuclear weapons states, any new nuclear capabilities, coupled with a nuclear modernization budget that continues to balloon, demonstrate a direct turn away from the drive to reduce the role of nuclear weapons in the US defense strategy.[7]

Still, the Trump administration has taken public steps to support the NPT, including by hosting a day-long conference to mark the 50th anniversary of the treaty's opening for signature in June 2018.[8] Official statements delivered at multilateral events in the Conference on Disarmament in Geneva and at NPT meetings in New York and Vienna offered standard positive lines about the NPT, though more recent statements have focused more on what the United States thinks is wrong with the global nonproliferation regime rather than on what it hopes to see and will work to achieve.[9]

On a positive note, the Department of State continues to work with international partners on the International Partnership for Nuclear Disarmament Verification (IPNDV). This initiative, which began during the Obama administration, focuses on "identifying challenges associated with nuclear disarmament verification and developing potential procedures and technologies to address those challenges."[10] Interested states have formed working groups to enable deeper dives on the subject matter, including monitoring and verification, on-site inspections, and technical challenges and solutions. The Nuclear Threat Initiative, a non-governmental organization,

has been helping to facilitate this effort, and the general plan has been to expand the IPNDV's scope of work in the future.[11] In a blow to the initiative, Russia and China announced that they will no longer participate, but that should not be allowed to disrupt the progress made or the plans ahead.[12] The next generation of nuclear arms-control agreements will require better verification tools, so support for and participation in the initiative is directly related to the long-term health of the NPT and must be continued.

The Trump administration has also continued to participate in disarmament-focused meetings with the other four NPT-recognized nuclear weapons states: China, France, Russia, and the United Kingdom. These meetings, often referred to as the P5 process, were initiated just before the 2010 NPT Review Conference and focus on disarmament commitments outlined in the NPT. The P5 process meeting that took place in Beijing in January 2019 was marred by the impending US announcement of its withdrawal from the Intermediate-Range Nuclear Forces (INF) Treaty. Russia and China pointed to the Trump administration's 2019 Missile Defense Review as the harbinger of a potential arms race, conveniently ignoring their own investments in new nuclear and conventional delivery systems and Russia's violation of the INF Treaty. Russia and China also spoke of closer Russia-China strategic stability ties.[13] While the P5 process continues, it is clear that the discord among the NPT nuclear weapons states is real and growing.

Regional Challenges

The Trump administration credits discord among states for the lack of progress on fulfilling disarmament commitments as laid out in Article VI of the NPT. Nuclear disarmament, they contend, cannot be divorced from threats presented by the larger geopolitical environment. They favor a conditions-based or "conditions-focused" approach that emphasizes the need to reduce regional tensions in advance of any further nuclear reductions.[14] That nuclear arms control is affected by conventional threats is not debatable. However, to what extent is this contention just an excuse to forgo disarmament efforts?

The testing ground for this question will be the Creating the Environment for Nuclear Disarmament (CEND) initiative.[15] Still in its early stages, the CEND process will include working groups focused on specific topics relating to security situations that affect progress on arms control and nonproliferation. The Trump administration hopes to show progress on this initiative before the 2020 NPT RevCon, but it is unclear if the effort will produce timely results that will sate critics. More than a few observers are skeptical of this initiative given the extremely high bar initially

set by the administration's 2018 working paper on the necessary conditions for disarmament.[16] That said, given this administration's seeming distaste for international cooperation, the CEND represents a small hope that the United States is not completely ignoring its NPT Article VI commitments.

Of course, even if the CEND produces results, there are regional issues that have and will continue to threaten the health of the NPT, including the elusive Middle East Weapons of Mass Destruction Free Zone (MEWMDFZ). Attempts to create such a zone have been ongoing for over two decades, and the effort actually derailed consensus at the 2015 NPT RevCon.[17] At the United Nations First Committee meeting in the fall of 2018, multiple nations in the Middle East backed a resolution to convene a MEWMDFZ conference in 2019 without an agenda approved by all relevant parties (specifically Israel) in the region.[18] The United States voted against that resolution despite its stated support for the zone in principle.[19]

A MEWMDFZ conference was convened in 2019 without the participation of the United States or Israel. It is not clear how the Trump administration plans to deal with this issue in the lead up to the 2020 RevCon. Suggestions for progress abound, including proposals for a regional nuclear explosive testing moratorium or Track 1.5 and Track 2 dialogues.[20] Some recommend moving the effort to achieve a conference outside of but concurrent to the NPT review process.[21] No matter the nature of the approach, the United States has to do more than vote "no" on resolutions. In fact, the Trump administration should use its unusually strong relationships in the region to encourage states to salvage consensus points and begin a dialogue on a conference agenda that would suit all parties. At the very least, the United States should counsel these close partners against using this issue to completely derail the RevCon proceedings in 2020.

If zero progress is made in dealing with the MEWMDFZ, the weight of the challenges facing the NPT might again crush consensus and drive more non-nuclear weapons states to doubt the continued effectiveness of the treaty.

Growing Impatience with Disarmament

In all fairness, the working-level leaders and experts in the Trump administration are trying to make the best of a situation that existed before they entered office. The NPT has been under duress for some time. In 1995, after a hard-fought process, the NPT was extended indefinitely.[22] To secure that indefinite extension, a lot of disarmament commitments were put on the table.

Nearly a quarter century later, the patience of non-nuclear weapons states is wearing thin in the face of unmet expectations. The Comprehensive Nuclear-Test-Ban Treaty has yet to enter into force, a treaty to end weapons-grade fissile material production has stalled, and US-Russian strategic stability is at its lowest point in over thirty years. There is more than one president or country responsible for the lack of progress. However, the bulk of the blame rests with the United States and Russia for the simple fact that the two countries still possess over 90% of the world's nuclear weapons.

Some now see the NPT as fundamentally flawed and a tool for simply maintaining the status quo. Indeed, the lack of progress on disarmament has created a divide in the NPT that parties will simply have to manage, rather than mend, at least for the time being.

Of course, the lack of progress also spurred support for the nuclear ban movement, which ultimately resulted in the negotiation of the Treaty on the Prohibition of Nuclear Weapons (TPNW). Following the adoption of the TPNW at the United Nations in July 2017, the United States, France, and the United Kingdom issued a statement declaring that the nuclear ban "disregards the realities of the international security environment."[23] Ironically, then-US Ambassador to the UN Nikki Haley also asserted that no one would believe "that North Korea would agree to a ban on nuclear weapons" as one of the reasons the TPNW was a bad treaty.[24] A nuclear-free North Korea ostensibly remains a top priority for President Trump.

While the Obama administration also opposed the TPNW, the amount of dismissive language used by US officials towards the TPNW has increased under the Trump administration. For example, various official speeches throughout 2018 included the following terms: "willfully blind," "snake-oil cure," "empty and divisive virtue signaling," "conditions-blind absolutism," "sterile crusade," and the oft-repeated "magical thinking."[25] Objecting to the TPNW and even believing it could be a danger to the NPT do not require the use of condescending language. That type of needless derision makes a constructive dialogue extremely difficult.

The TPNW might enter into force before or shortly after the 2020 RevCon. The Trump administration needs to discourage the slight but dangerous possibility of "forum shopping," in which ban-supporting countries might decide to choose to be a part of the TPNW while shirking their obligations to the NPT. Despite its flaws, the NPT remains the most important nuclear-weapons treaty, and its devaluation will not help to reduce nuclear risks. At the same time, the Trump administration should not exclusively focus on the argument that the TPNW will undermine the

existing arms-control and nonproliferation regime. The Trump administration, through its own words and deeds, has itself undermined that regime and will not find many sympathetic ears at the 2020 RevCon. US officials should place narrative emphasis on US goals, actions, and deliverables rather than on policies with which it disagrees. In the end, if there is a real concern that TPNW advocates are undermining the NPT, then the administration needs to be talking with them, not about them.

The Road to the 2020 RevCon

While some issues were beyond the control of the Trump administration and a few efforts over the past two and a half years have been positive, the overall prospects for a positive RevCon in 2020 are low. The United States cannot assume that focusing on nonproliferation or the peaceful uses of nuclear energy will be enough to avert a disaster. If the United States values the NPT, then it needs to respect that all of the commitments in the treaty are equally important. There are steps that could demonstrate US support for that concept.

First, messages must be consistent throughout the government and at the White House. Indeed, this goes for any nuclear weapons state: mixed messages and world-ending weaponry are two things that should never be combined. That is easier said than done, particularly when the bulk of mixed messages from the US come directly from President Trump himself.

A firm tone is appropriate given the challenges facing the NPT, but there is no reason to engage in patronizing, angry, or dismissive quips. No amount of scorn will make the TPNW disappear. Its most ardent supporters want to see prompt and complete disarmament, and they are not likely to waiver in their pursuit. The plan should not be to change hearts and minds but to create the space for discussion on shared goals.

Second, the Trump administration should be prepared to be questioned about its inconsistent approach to nonproliferation problems. Two dangerous rips in the NPT fabric are the nuclear programs of North Korea and Iran. The Trump administration is dealing with these two challenges in completely different ways.

After hurling out destabilizing threats of "fire and fury" in 2017, President Trump completely changed course with regard to North Korea. Breaking with the longstanding idea that a direct meeting with North Korea should be a closely guarded bargaining chip, President Trump met

with North Korean leader Kim Jong Un in June 2018. The second meeting between the leaders happened in February 2019, though it was widely considered a failure. Months then passed, and, despite a Trump-Kim handshake at the demilitarized zone (DMZ) and another round of working-level talks, there have been no substantive steps towards North Korean denuclearization. Even so, a sustained diplomatic effort will surely be welcomed by NPT signatories.

Iran, on the other hand, has been afforded no such patience. The US decision to abandon its commitments to the JCPOA defies basic logic and reason. By all objective measures, the JCPOA was working. That assessment was backed by the US intelligence community and the International Atomic Energy Agency well into 2019.[26] Unfortunately, the maximum pressure campaign pushed by the Trump administration has undermined the agreement to the point that it now nears total collapse. No matter what the future holds, the specious reasons for US withdrawal from the agreement will find little support at the 2020 RevCon. When it comes to the Trump administration's dealings with North Korea and Iran, the inconsistency in approaches is sure to be exploited by those intent on making the United States look like the "bad guy."

Third, the Trump administration must consider qualitative arms-control measures when opportunities for quantitative arms-control measures are in short supply. For example, the White House could push the Senate to provide its advice and consent to the three nuclear-weapons-free zone protocols that are currently idling in the Senate Foreign Relations Committee. The Trump administration could also put more effort into new ideas and projects for the P5, perhaps focusing on transparency and confidence-building measures relating to emerging technologies. The Trump administration could also push the P5 to reiterate shared understandings about various nuclear issues, like the futility of nuclear war or the need to maintain a global moratorium on nuclear testing.

Fourth, it is important for the administration to maintain a competent and complete leadership team. The Special Representative of the President for Nuclear Non-proliferation, who has the rank of Ambassador and is often called the NPT Ambassador, only received confirmation in the summer of 2019. That left the Ambassador with less than a year to build relationships with other leaders at the 2020 NPT RevCon. At the same time, the State Department now lacks a confirmed Under Secretary for Arms Control and International Security and an Assistant Secretary for Arms Control, Verification and Compliance. Those positions should be filled without delay.

While these steps can help to better manage what is likely to be a contentious review conference

of the NPT, the biggest elephant in the room will be the deteriorating security relationship between the United States and Russia. The INF Treaty met an ignominious end in August 2019. Attempts to engage in broad-based strategic stability conversations have been unsuccessful.

In addition, the United States is trying to tie formal talks about extension of the New Strategic Arms Reduction Treaty (New START) to broader talks about strategic stability with both Russia and China.[27] This move is yet another development that could lead to the further unravelling of the NPT. New START, strongly endorsed by US intelligence and military communities, is working and represents the last bulwark against a renewed US-Russian arms race. Leaders in the United States and Russia would be foolish to abandon a useful, functioning treaty that serves the national security interests of each country. It would be doubly foolish to assume that other parties to the NPT would see the lack of extension as anything but an affront to Article VI.

The Trump administration is actually under pressure from the US Congress to slow the deterioration of US leadership on arms control and nonproliferation issues.[28] Under the leadership of its new chairman, Adam Smith, the House Armed Services Committee is asking serious questions about US nuclear force posture, perhaps demonstrating to NPT parties that US views are not monolithic. Unfortunately, no amount of action from congressional leaders will distract from the Trump administration's nuclear policy choices.

The Future of the NPT

A half-century ago, the world overcame decades of hostility and fear to weave together the NPT. Despite flaws in its construction, the NPT has largely held back the spread of nuclear weapons while pressuring nuclear weapons states to reduce their arsenals. A quarter-century ago, the parties to the NPT took a leap of faith, extending the agreement indefinitely. Promises were broken or remain unfulfilled, and today the future of the NPT looks bleak. At the same time, US leadership on reducing global nuclear threats is faltering.

It is not too late to change course. There are rational, reasonable choices that the Trump administration can make to support and strengthen the NPT.

However, if the United States decides that it cannot or will not prevent apathy, anger, and arrogance from permeating the 2020 NPT RevCon proceedings, the world may witness the shredding of the world's most important nuclear agreement.

Notes

1. Lyndon B. Johnson, "Remarks on Signing the Nuclear Nonproliferation Treaty," (speech, Washington, DC, July 1, 1968), https://millercenter.org/the-presidency/presidential-speeches/july-1-1968-remarks-signing-nuclear-nonproliferation-treaty.

2. Bill Chappell, "'I'm The Only One That Matters,' Trump Says Of State Dept. Job Vacancies," *NPR*, November 3, 2017, https://www.npr.org/sections/thetwo-way/2017/11/03/561797675/im-the-only-one-that-matters-trump-says-of-state-dept-job-vacancies.

3. US Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review* (Arlington, VA, 2018), https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

4. US Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review* (Arlington, VA, 2010), https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

5. Ibid., 21.

6. Ibid., XII.

7. US Congress, House of Representatives, House Armed Services Committee News Service, *Smith Statement on $94 Billion Increase in the Estimated Cost of Nuclear Weapons Upgrades*, 116th. Cong., 1st sess., January 24, 2019, https://armedservices.house.gov/2019/1/smith-statement-on-94-billion-increase-in-the-estimated-cost-of-nuclear-weapons-upgrades.

8. US Department of State, *Preserving the Legacy: NPT Depository Conference on the 50th Anniversary of the Opening for Signature of the Treaty on the Non-Proliferation of Nuclear Weapons*, (June 28, 2018), https://www.state.gov/wp-content/uploads/2019/03/NPT-50th-Agenda.pdf.

9. Robert Wood, *U.S. Statement by Ambassador Wood at the 2019 Session of the Conference on Disarmament*, (speech, Conference on Disarmament, Geneva, Switzerland, January 21, 2019), https://geneva.usmission.gov/2019/01/22/u-s-statement-by-ambassador-wood-at-the-2019-session-of-the-conference-on-disarmament/.

10. "About IPVND," International Partnership for Nuclear Disarmament Verification (IPVND), https://www.ipndv.org/about/.

11. "International Partnership for Nuclear Disarmament Verification: Engaging a Diverse Group of States to Develop Innovative Monitoring and Verification Solutions," Nuclear Threat Initiative (NTI), https://www.nti.org/about/projects/international-partnership-nuclear-disarmament-verification/.

12. Alicia Sanders-Zakre, "Verification Group Moves to Second Phase," *Arms Control Today*, January/February 2018, https://www.armscontrol.org/act/2018-01/news/verification-group-moves-second-phase.

13. "Russia to consolidate cooperation with China on strategic stability," TASS, January 30, 2019, https://tass.com/politics/1042391.

14. Christopher Ashley Ford, "The P5 Process and Approaches to Nuclear Disarmament: A New Structured Dialogue," (speech, Wiston House, Wilton Park, United Kingdom, December 10, 2018), https://www.state.gov/the-p5-process-and-approaches-to-nuclear-disarmament-a-new-structured-dialogue/.

15. US Department of State, *United States Hosts the Creating an Environment for Nuclear Disarmament Working Group Kick-off Plenary Meeting*, (July 2, 2019), https://www.state.gov/united-states-hosts-the-creating-an-environment-for-nuclear-disarmament-working-group-kick-off-plenary-meeting/.

16. United States Mission to the United Nations, *Creating the conditions for nuclear disarmament: Working paper submitted by the United States of America*, Preparatory Committee for the 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, April 18, 2018, https://s3.amazonaws.com/unoda-web/wp-content/uploads/2018/04/1806176E.pdf.

17. Andrey Baklitskiy, "The 2015 NPT Review Conference and the Future of the Nonproliferation Regime," *Arms Control Today*, July/August 2015, https://www.armscontrol.org/act/2015-07/features/2015-npt-review-conference-future-nonproliferation-regime.

18. *The risk of nuclear proliferation in the Middle East*, United Nations General Assembly, A/C.1/73/L.22/Rev.1 (18 October 2018), available from http://reachingcriticalwill.org/images/documents/Disarmament-fora/1com/1com18/resolutions/L22Rev1.pdf.

19. Christopher Ashley Ford, "Whither A Middle East WMD-Free Zone?," (speech, James Martin Center for Nonproliferation Studies, Washington, DC, August 2, 2019), https://www.state.gov/whither-a-middle-east-wmd-free-zone/.

20. Pierre Goldschmidt, *A Realistic Approach Toward a Middle East Free of WMD*, Carnegie Endowment for International Peace, July 7, 2016, https://carnegieendowment.org/2016/07/07/realistic-approach-toward-middle-east-free-of-wmd-pub-64039; Chen Kane, "The role of civil society in promoting a WMDFZ in the Middle East," *Disarmament Forum*, UNIDIR, no. 2, 2011, https://www.academia.edu/935995/The_role_of_civil_society_in_promoting_a_WMD-FZ_in_the_Middle_East.

21. *Cooperative Ideas: Overcoming the Stalemate on a WMD Free Zone in the Middle East*, Vienna Center for Disarmament and Non-Proliferation, November 26, 2018, https://vcdnp.org/coop-

erative-ideas-overcoming-the-stalemate-on-a-wmd-free-zone-in-the-middle-east/.

22. *The 1995 NPT Review and Extension Conference*, The Wilson Center, https://digitalarchive.wilsoncenter.org/collection/496/the-1995-npt-review-and-extension-conference.

23. US Mission to the United Nations, "Joint Press Statement from the Permanent Representatives to the United Nations of th, United States, United Kingdom, and France Following the Adoption," July 7, 2017, https://usun.usmission.gov/joint-press-statement-from-the-permanent-representatives-to-the-united-nations-of-the-united-states-united-kingdom-and-france-following-the-adoption/.

24. Nolan D. McCaskill, "U.N. ambassador Haley opposes international ban on nukes," *Politico*, March 27, 2017, https://www.politico.com/story/2017/03/nikki-haley-united-nations-nuclear-weapons-ban-236544.

25. Christopher Ashley Ford, "Nonproliferation Policy and Priorities: A United States Perspective," (speech, European Union Nonproliferation and Disarmament Conference, Brussels, Belgium, December 18, 2018), https://www.state.gov/nonproliferation-policy-and-priorities-a-united-states-perspective/; Christopher Ashley Ford. 2018. "The P5 Process and Approaches to Nuclear Disarmament: A New Structured Dialogue."

26. Eileen Sullivan, "Trump Calls Intelligence Officials 'Naive' After They Contradict Him," *The New York Times*, January 30, 2019, https://www.nytimes.com/2019/01/30/us/politics/trump-intelligence.html; Yukiya Amano, "IAEA Director General's Introductory Statement to the Board of Governors," (speech, International Atomic Energy Agency, Vienna, Austria, March 4, 2019), https://www.iaea.org/newscenter/statements/iaea-director-generals-introductory-statement-to-the-board-of-governors-4-March-2019.

27. PBS NewsHour, Twitter Post, February 7, 2019, 6:59 p.m., https://twitter.com/NewsHour/status/1093660506915651585.

28. US Congress, Senate, *Prevention of Arms Race Act of 2019*, S 312, 116th Cong., 1st sess., introduced in Senate January 31, 2019, https://www.congress.gov/bill/116th-congress/senate-bill/312/text; Kirsten Gillibrand, Jeffrey A. Merkley, Elizabeth Warren, Edward J. Market, Dianne Feinstein, Amy Klobuchar, Thomas R. Carper, Tammy Baldwin, Tina Smith, Sherrod Brown, Bernard Sanders, Kamala D. Harris, Benjamin L. Cardin, Brian Schatz, Chris Van Hollen, Richard J. Durbin, Cory A. Booker, Patty Murray, Christopher S. Murphy, Ron Wyden, Sheldon Whitehouse, Gary C. Peters, Patrick Leahy, Mazie K. Hirono, Richard Blumenthal, and Debbie Stabenow to Donald J. Trump, December 12, 2018, https://www.warren.senate.gov/imo/media/doc/2018-12-13%20Arms%20Control%20Letter.pdf; Kingston Reif, "Republican Senators Back New START," *Arms Control Association*, October, 2018, https://www.armscontrol.org/act/2018-10/news/republican-senators-back-new-start.

The Trump Administration on Preventing Nuclear Terrorism

Nickolas Roth

An act of nuclear terrorism anywhere in the world would be a humanitarian, economic, and political catastrophe.[1] This is why reducing the risk of nuclear terrorism has been a priority for every US president for more than two decades. The most effective strategy for reducing this risk is to keep weapons-usable nuclear material out of the hands of terrorists by strengthening security at nuclear facilities around the globe. While the Trump administration continues to move forward with this mission, it has decreased the US focus on the most effective strategies for accomplishing it.[2] Greater resources and political attention to international initiatives are needed to ensure that nuclear terrorism risks continue to decline. This paper reviews the key factors impacting nuclear terrorism risks and analyzes how much progress the Trump administration has made reducing that risk.

Defending Against Evolving Threats

Nuclear threats from major terrorist groups seeking nuclear weapons appear to have diminished in recent years as some of the most dangerous groups – well-funded, sophisticated organizations with apocalyptic beliefs like the Islamic State and al-Qaeda – have faced major defeats. This is a positive development, but serious risks remain. The number of incidents involving rapid radicalization of violent insiders appears to be increasing. There are large areas of ungoverned land where terrorists could hide throughout the world. Nuclear security incidents in which adversaries employ emerging technologies like drones and cyber tools are becoming increasingly common and increasingly dangerous. This is not a time to be complacent.

Unfortunately, nuclear facilities in many countries remain dangerously vulnerable to serious threats. Not all nuclear facilities are protected against all plausible threats, especially emerging threats; many do not have comprehensive, multilayered defenses against insiders; some nuclear security systems are not exposed regularly to rigorous vulnerability assessments and testing; the culture within many nuclear organizations is still not focused sufficiently on security; and nuclear materials remain in far too many locations.

In addition, the regime underpinning global nuclear security efforts has major weaknesses.

Elements of the five action plans agreed to at the 2016 Nuclear Security Summit are being implemented, but international organizations and multilateral groups are doing little to expand their nuclear security-focused work. Many of the joint commitments that countries endorsed during nuclear security summits have been preserved as International Atomic Energy Agency (IAEA) Information Circulars, but few additional countries have endorsed them. Finally, existing forums for discussing nuclear security have not filled the gap left by the end of the summits. Hardly any countries are reporting their progress in strengthening nuclear security or announcing new commitments.

The combination of persistent threats and evidence of nuclear security weaknesses means that the risk of nuclear terrorism remains unnecessarily high.

Trump Administration Nuclear Terrorism Rhetoric

The Trump administration has made several statements about the importance of strengthening nuclear security. Speaking in Fort Myer, Virginia, in August 2017, President Trump declared that the United States "must prevent nuclear weapons and materials from coming into the hands of terrorists and being used against us or anywhere in the world."[3] It was unclear whether the statement, which came in the middle of a speech about US strategy in Afghanistan and South Asia, referred only to Pakistan, which faces significant terrorism threats. Later that year, Trump administration officials expanded on that initial statement, emphasizing that security of nuclear and radiological materials worldwide was the "key to the prevention of weapons of mass destruction (WMD) terrorism."[4]

The first formal policy document providing details about how the Trump administration would achieve that goal was its 2018 Nuclear Posture Review (NPR). The 2018 NPR states that "nuclear terrorism remains among the most significant threats to the security of the United States, allies, and partners." It prescribes a "multilayered" approach, focused on "securing nuclear weapons, materials, related technology, and knowledge to prevent their malicious use" and enhancing "cooperation with allies, partners, and international institutions to prevent nuclear terrorism."[5]

In December 2018, the Trump administration elaborated further in its National Strategy for Countering WMD Terrorism (WMD-T), which calls securing nuclear stockpiles "among the most urgent security requirements of our age."[6] The WMD-T strategy supports the consolidation of unneeded materials "to locations for permanent disposition in forms that are unusable

in a weapon." It endorses prioritizing nuclear materials that pose the highest risk; working with partners to improve storage and transport security; converting research reactors and isotope production facilities from highly enriched uranium (HEU) to low enriched uranium (LEU); incentivizing participation in a strong nuclear security regime; and improving the ability of countries to guard nuclear material in storage, use, and transport against insider and outsider threats.

These policy statements are largely consistent with those of previous presidential administrations. Both the NPR and the WMD-T strategy contain statements that appropriately emphasize the threat of nuclear terrorism and endorse effective strategies for mitigating that threat. President Barack Obama, who said "the danger of a terrorist group obtaining and using a nuclear weapon is one of the greatest threats to global security," made securing vulnerable nuclear material around the world one of his signature policy priorities.[7] President George W. Bush issued a joint statement with Russian President Vladimir Putin stating that "the United States of America and Russia are committed to combating the threat of nuclear terrorism, which is one of the most dangerous international security challenges we face" and that nuclear security must be "constantly enhanced to counter evolving terrorist threats."[8]

The Trump administration's stated policy prescriptions are also consistent with long-standing strategies for reducing nuclear terrorism risks. Bilateral cooperation and engagement with other countries through multilateral institutions have been effective tools for helping other countries improve security at their own facilities, strengthening international norms, and bolstering international legal architecture around nuclear security. All of these strategies are part of existing US government nuclear security programs.

One major difference between the Trump administration and its predecessors is its prioritization of nuclear security. The Obama administration's 2010 NPR made preventing nuclear terrorism the first of its five key nuclear policy objectives.[9] While the Trump administration discusses the risk of nuclear terrorism in its NPR, its principal emphasis is on great power competition. Supporting stronger nuclear security around the globe does not appear to be a top priority.

Budgets for US Nuclear Security Programs

Despite some strong statements in support of nuclear security, the Trump administration's budgets for US programs to secure nuclear material around the world have been declining. For Fiscal Year (FY) 2019, the Trump administration proposed large cuts to the National Nuclear Se-

curity Administration (NNSA) nonproliferation programs, which play a critical role in reducing nuclear terrorism risks around the world.[10] The Trump administration proposed cutting nuclear security spending by $115 million in 2019, a 26 percent reduction from the previous year.[11] Congress rejected most of this proposed cut (Figure 1).

Figure 1: Requested and Allocated Funding for U.S. Department of Energy Nuclear Theft Prevention Programs

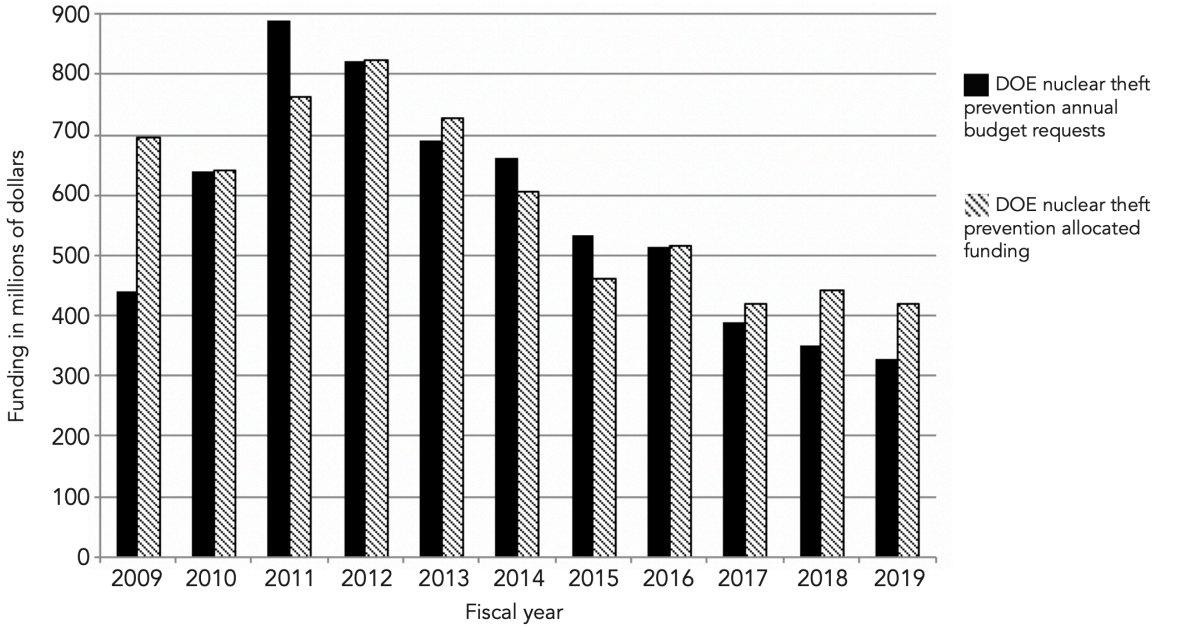

Figure 1 note: based on data from Department of Energy budget requests FY 2009-FY 2019. From 2009 to 2015, the programs counted as Nuclear Theft Prevention Programs include the Global Threat Reduction Initiative, International Material Protection and Cooperation (excluding Second Line of Defense, which focused on stopping nuclear smuggling rather than improving security for nuclear materials and facilities), and International Nuclear Security. As a result of the 2016 reorganization of NNSA nonproliferation programs, several of these programs were renamed, but the underlying programs remain largely the same, making it possible to come very close to apples-to-apples comparisons. After fiscal year 2015, the programs counted as Nuclear Threat Prevention Programs include Material Management and Minimization (excluding plutonium and HEU disposition) and Global Material Security (excluding Nuclear Smuggling Detection and Deterrence, the successor to Second Line of Defense.)

Program managers within the US government initially sought to achieve much more ambitious nuclear security objectives. As recently as 2016, the United States planned to spend $200 million more on nuclear theft prevention programs in FY 2019 than the Trump administration requested and $150 million more than is now planned for FY 2020. Between FY 2019 and FY 2021, the Trump administration proposed cutting programs to increase security at nuclear facilities by 60 percent, from $355 million estimated in 2016 (the last time the executive branch produced five-

year nuclear security budgets) to $143 million. The administration also proposed cutting the amount of money the United States planned to spend on removing nuclear weapons-usable material by 64 percent between FY 2019 and FY 2021, from an estimated $410 million in 2016 to $146 million (Figure 2).[12]

Figure 2: Projected Department of Energy Nuclear Theft Prevention Spending

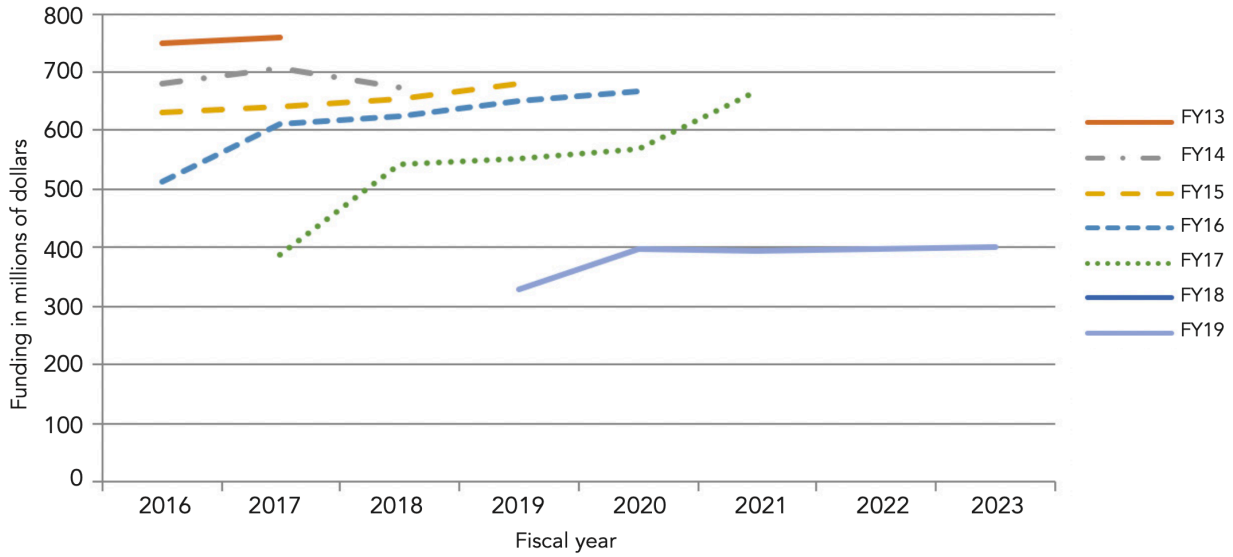

Figure 2 note: Based on data from Department of Energy budget requests FY 2013–FY 2019. There were no outyear budget projections in the FY 2018 budget request.

These cuts did not begin during the Trump administration. Budgets for nuclear security programs have been declining for nearly a decade. From 2012 through 2018, US funding for such efforts has dropped by nearly 50 percent, reducing some programs to their lowest funding levels in more than 20 years. However, unlike its predecessors, the Trump administration envisions a long-term reduction in funding for nuclear security programs. In the past, when the Obama administration cut funding for its nuclear security programs, it still planned major nuclear security projects involving expanded budgets in the future. For example, the United States has spent years trying to convince Belarus and South Africa, which both possess more than enough HEU for a nuclear bomb, to remove the material from their territory. Projected US budgets once included money to help remove this material in the hope that agreements would be reached in the future. The Trump administration's long-term nuclear security budgets no longer include funding for these removals. Similarly, current five-year budgets no longer include funds for the disposition of weapons-usable separated plutonium the United States shipped abroad, more than a ton of which still exists in foreign countries.

There are several reasons why the United States has been reducing its nuclear security programs. First, many high-profile and expensive projects involving the installation of nuclear security systems in foreign countries (mainly in the former Soviet Union) were completed. Second, turmoil between the United States and Russia, the two largest nuclear powers, has resulted in the suspension of almost all nuclear security cooperation between the two countries. In most cases, funding for Russian cooperation is no longer planned. Third, political impediments with other countries, such as India, China, and Pakistan, limit the scope of what NNSA nuclear security programs currently hope to achieve. Fourth, many research reactors are waiting for higher-density fuels to become available, and the development of those fuels is taking much longer than originally anticipated. Fifth, the cost of nuclear weapons programs is growing. Because both nonproliferation programs and modernization of US nuclear weapons are funded from the same pool of money within the NNSA, nonproliferation programs are losing out in the budget process. Over the next decade, NNSA plans to spend more than $100 billion on modernization of the US nuclear weapon stockpile.[13] There is no public ten-year budget for NNSA non proliferation programs, but over the next five years it plans to spend less than $10 billion, most of which will not go to nuclear security programs.[14]

Some Trump administration officials argue that nuclear security funding is adequate for their plans to reduce the risk of nuclear terrorism, but these proposed budgets are for programs of limited ambition. Increased funding would be needed for a more comprehensive effort that pursues a broad range of nuclear security improvements with as many of the countries with nuclear weapons or materials as possible.[15] This point was emphasized when NNSA Administrator Lisa Gordon-Hagerty called for more funding for nuclear security programs during a 2019 House Armed Services hearing, stating "I'll take $80 million to secure more nuclear materials around the world because that's nuclear materials that are less likely to fall in the hands of terrorists or adversaries....We can do additional training around the world. We can encourage others and help them with security installations. There are a number of different things we can do around the world."[16]

International Nuclear Security Engagement

As nuclear security budgets have declined, US programs to secure nuclear materials around the world have become more limited. Since the beginning of the Trump administration, the United States has not succeeded in strengthening nuclear security cooperation bilaterally with other countries, particularly those that have the largest stocks of weapons-usable material, or improv-

ing engagement on nuclear security within international organizations and multilateral groups.

There is virtually no nuclear security cooperation between the United States and Russia, the world's two largest nuclear powers. In late 2014, the United States imposed sanctions on Russia for its intervention in Ukraine. As a result, Russia suspended most of its nuclear security cooperation with the United States. Russia declined to participate in the 2016 Nuclear Security Summit hosted by the United States, suspended its participation in the Plutonium Management and Disposition Agreement, and terminated US-Russian cooperation to convert six Russian research reactors to LEU fuel. Russians officials have indicated that they would be willing to resume nuclear security cooperation as part of a broader package of cooperation that included nuclear energy and other issues, but political tensions between the two countries have made it difficult for the US government to agree to this approach.

In addition to the fraught bilateral relationship of the United States with Russia, there is limited engagement in strengthening nuclear security cooperation in other important countries that have large quantities of weapons-usable nuclear material. This is especially true for India, whose engagement with the United States is limited largely to discussions and workshops. There has been more substantial cooperation between China and the United States through China's nuclear security Center of Excellence. In both cases, however, cooperation with these countries is largely limited and does not include more extensive collaboration. Political tension between the United States and Pakistan has threatened ongoing cooperation, and the relationship has continued to decline throughout the Trump administration. Existing cooperation proceeds almost entirely in secret, however, making a full evaluation of its benefits difficult.

US engagement with most wealthy countries has been more limited. But US nuclear security programs are shifting from a strategy where the United States pays to install major equipment and finance major training programs – work that is largely completed where it is politically possible – to a focus on convincing other countries to do more themselves and advising them on how to do it. That approach is as applicable to wealthy countries as it is to poor ones. It is in US interests to engage with countries that have significant nuclear infrastructures regardless of their gross domestic product.

The Trump administration has not managed to build approaches to multilateral nuclear security engagement that fill the gap left by the end of the nuclear security summits. The nuclear security summit process that took place from 2010 to 2016 elevated the issue of nuclear security to the

highest levels of governments, providing a forum where leaders could announce major nuclear security progress, coordinate activities, and agree to further action. Participants at the final summit agreed to "action plans" for five international organizations: the International Atomic Energy Agency (IAEA), the United Nations, the Global Initiative to Combat Nuclear Terrorism, Interpol, and the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction. The track record for implementing these plans is mixed. The Trump administration made some effort to strengthen the Nuclear Security Contact Group, which evolved from the last summit to fill part of the gap left by the absence of the summits, but the results remain to be seen.

In February 2020, the Trump administration's international leadership on nuclear security faced an important test during the IAEA-hosted ministerial-level nuclear security meeting. While some countries shared information about steps they made to strengthen security at their nuclear sites, the meeting did not ultimately result in any significant new nuclear security commitments or initiatives. The next major international nuclear security event will be the review conference for the amended Convention on the Physical Protection of Nuclear Material – a key legally binding nuclear security agreement – in 2021. Thus far, however, the Trump administration has not pushed for constructive outcomes like subsequent review conferences – instead, preferring to "play it by ear."[17]

Finally, as stated above, nuclear security was a significant priority for the Obama administration. Both President Obama and Vice President Joe Biden engaged directly with their counterparts in other countries on this issue.[18] There is no evidence that President Trump or Vice President Mike Pence have done the same. Rather, the Trump administration has, in some cases, undermined its relationships with other countries, making cooperation on issues like nuclear security more difficult.

Some Continued Progress

Despite the relatively narrow scope and slow progress of US nuclear security efforts in recent years, the Trump administration continues to make some progress strengthening nuclear security around the world.[19] One area of modest continued progress has been on the repatriation of weapons-usable nuclear material. One of the most effective strategies for reducing the risk of nuclear theft is to consolidate nuclear weapons and nuclear weapons-usable material to fewer sites. Every facility that eliminates its weapons-usable nuclear material is one less potential tar-

get that needs to be protected against theft.

Eliminating weapons-usable nuclear material from countries around the world was a major priority for the Obama administration: 18 of the 32 countries, plus Taiwan, that have eliminated all of their weapons-usable nuclear material did so during the Obama administration.[20] Other countries with weapons-usable material also significantly reduced their stocks over this period. The Obama administration helped to completely clean out 33 facilities of their HEU over eight years, a pace of just over four facilities per year.[21]

This work has continued at a slower pace during the Trump administration. Two countries have eliminated their weapons-usable nuclear material during the Trump administration, but in both cases the amount of material removed was very small.[22] The Trump administration has supported the disposition or removal of approximately 1,011 kilograms of HEU and helped to completely clean out four facilities of their HEU in two years, an average of two facilities per year.[23] The level of risk reduction achieved through the Trump administration's support for consolidating nuclear materials appears to be, thus far, less than what was achieved during the Obama administration.

The Trump administration has continued to support reducing the number of research reactors that use HEU, albeit also at a very slow pace. During the Trump administration, the United States has supported the conversion of two reactors from HEU to LEU and continued to finance development of high-density fuels that will allow the reactors using the largest quantities of HEU to be converted in the future.

One area of significant progress, however, has been eliminating HEU in the production of medical isotopes. The isotope molybdenum-99 (Mo-99) is often produced from HEU targets and, in some cases, at facilities powered by HEU fuel. Almost all of the major suppliers of Mo-99 – Australia, Belgium, the Netherlands, and South Africa – have converted to using LEU fuel. Belgium is expected to complete its switch to LEU targets in 2020, though its reactor will continue to be fueled with HEU until the high-density fuels become available or until it is shut down and replaced with a new LEU-fueled facility. The United States has supported this effort around the world. It has also helped develop domestic Mo-99 production without using HEU targets, though the University of Missouri reactor that is providing the irradiation services is still fueled with HEU. Domestic production of Mo-99 using LEU will ramp up over the next five years. This is important progress. As these efforts have already reduced the global annual traffic of HEU for

medical isotopes to about 10 kilograms per year, the additional risk reduction as this is completed over the next few years will be real but modest.[24]

Nuclear Security Within the Trump Bureaucracy

There is also evidence that nuclear security is less of a priority within the Trump administration than it was within the Obama administration. The Obama administration assigned a Senior Director within the National Security Council (NSC) to focus primarily on preventing nuclear, chemical, and biological terrorism, with a focus on upgrading nuclear security around the world. This position continued at the beginning of the Trump administration, but it is now focused on a much broader policy portfolio that covers arms control and nonproliferation issues. In addition, there is concern that issue experts – like those that focus on nuclear terrorism – are less influential within the Trump NSC than regional experts.[25]

Within the Department of Energy, Secretary Rick Perry did not appear to be as focused on nonproliferation and nuclear security issues as his immediate predecessor, Secretary Ernie Moniz. Additionally, the Trump administration did not have a Senate-confirmed official in charge of NNSA nonproliferation and nuclear security programs for more than a year.

Revitalizing US Nuclear Security Programs

Many of the challenges facing US nuclear security policy are not directly attributable to the Trump administration. Much of the low-hanging nuclear security fruit had already been plucked prior to President Trump's term. The end of the security summit process was likely to result in diminished focus on preventing nuclear terrorism regardless of who was president. In contrast to many other areas of public policy, the Trump administration's approach to nuclear security has been primarily to continue existing policies, neither reversing past policies nor launching major new initiatives. Unfortunately, this has resulted in the continued decline of US focus on preventing nuclear terrorism around the world.

More ambitious work is needed to keep up with evolving threats. The United States needs a plan to strengthen global nuclear security. The plan should focus on working with as many countries as possible with dangerous nuclear stocks or facilities, either ensuring that they have effective and sustainable nuclear security or developing steps to mitigate risks when cooperation is not feasible. In particular, the plan should focus on strategies for working with countries that face

the biggest risks, even if there are political barriers to that cooperation. The president should identify a leader whose full-time job is carrying out this plan and allocate the resources to support it. Meanwhile, Congress needs to devote sustained attention to the nuclear terrorism threat and support steps to reduce risks.

Notes

1. Matthew Bunn and Nickolas Roth. 2017. "The Effects of a Single Terrorist Nuclear Bomb." Bulletin of the Atomic Scientists, September 28, 2017. https://thebulletin.org/effects-single-terrorist-nuclear-bomb111150.

2. This paper draws upon findings and recommendations in Matthew Bunn, Nickolas Roth, and William H. Tobey, "Revitalizing Nuclear Security in an Era of Uncertainty." Belfer Center for Science and International Affairs, Harvard Kennedy School, January 2019. https://www.belfercenter.org/sites/default/files/2019-01/RevitalizingNuclearSecurity.pdf.

3. Donald J. Trump. 2017. "Remarks by President Trump on the Strategy in Afghanistan and South Asia" (speech, Fort Myer, Arlington, Virginia, August 21, 2017). https://www.whitehouse.gov/briefings-statements/remarks-president-trump-strategy-afghanistan-south-asia/.

4. Christopher Ford. 2017. "Christopher Ford's Remarks: Countering Nuclear Terrorism and the Trump Administration's Agenda" (speech, Hudson Institute, November 14, 2017). https://www.hudson.org/research/14009-christopher-ford-s-remarks-countering-nuclear-terrorism-and-the-trump-administration-s-agenda.

5. US Department of Defense, Office of the Secretary of Defense, *Nuclear posture review report* (Arlington, VA, 2018), III, https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF.

6. The White House, *National Strategy for Countering Weapons of Mass Destruction Terrorism* (December 2018), https://www.whitehouse.gov/wp-content/uploads/2018/12/20181210_National-Strategy-for-Countering-WMD-Terrorism.pdf.

7. Barack Obama and Mark Rutte, "Remarks by President Obama and Prime Minister Rutte at Opening Session of the Nuclear Security Summit," Nuclear Security Summit 2016 (Washington, DC) April 6, 2016, https://obamawhitehouse.archives.gov/the-press-office/2016/04/01/remarks-president-obama-and-prime-minister-rutte-opening-session-nuclear.

8. The White House, *Joint Statement by U.S. President George Bush and Russian Federation President V.V. Putin Announcing the Global Initiative to Combat Nuclear Terrorism* (July 15, 2006), https://georgewbush-whitehouse.archives.gov/news/releases/2006/07/20060715-2.html.

9. US Department of Defense, Office of the Secretary of Defense, *Nuclear Posture Review* (Arlington, VA, 2010), vii, https://dod.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf.

10. The Cooperative Threat Reduction program of the Department of Defense and the Bureau of International Security and Nonproliferation of the Department of State also support initiatives to strengthen global nuclear security, but these programs represent a small fraction of US nuclear security work.

11. US Department of Energy, *Department of Energy FY 2019 Congressional Budget Request: National Nuclear Security Administration* (February 2018), https://www.energy.gov/sites/prod/files/2018/03/f49/FY-2019-Volume-1.pdf.

12. Bunn, Roth, and Tobey, "Revitalizing Nuclear Security," 146-152.

13. US Congressional Budget Office, *Projected Costs of U.S. Nuclear Forces, 2019 to 2028* (January 2019), https://www.cbo.gov/system/files?file=2019-01/54914-NuclearForces.pdf.

14. US Department of Energy, *Department of Energy FY 2020 Congressional Budget Request: National Nuclear Security Administration* (March 2019), https://www.energy.gov/sites/prod/files/2019/04/f62/doe-fy2020-budget-volume-1.pdf.

15. Bunn, Roth, and Tobey, "Revitalizing Nuclear Security," 197-202.

16. US Congress, House of Representatives, House Armed Services Committee, *FY20 Priorities: Atomic Energy Defense, Nonproliferation, Safety & Environmental Management*, 116th Cong., 1st sess., April 9, 2019, https://armedservices.house.gov/hearings?ID=D0024E51-C44F-4E91-8A3D-BDB219CDED79.

17. "Christopher Ford on Nuclear Policy," C-SPAN, December 2, 2019, https://www.c-span.org/video/?466878-1/christopher-ford-nuclear-security-policy.

18. Barack Obama to Jacob Zuma, December 12, 2013, https://www.washingtonpost.com/r/2010-2019/WashingtonPost/2015/03/13/Foreign/Graphics/Obama-Zuma-letter-2013.pdf; Obama administration officials, personal communication with author.

19. Bunn, Roth, and Tobey, "Revitalizing Nuclear Security," 45-154.

20. The countries are Iraq, Colombia, Spain, Denmark, Thailand, Slovenia, Brazil, Philippines, Greece, South Korea, Latvia, Bulgaria, Portugal, Libya, Romania, Taiwan, Chile, Serbia, Mexico, Ukraine, Sweden, Austria, Czech Republic, Vietnam, Hungary, Jamaica, Uzbekistan, Georgia, Argentina, Indonesia, Poland, Ghana, and Nigeria. Turkey does not have any HEU or separated plutonium under its control. It reportedly does, however, host US nuclear weapons.

Making America's Nuclear Energy Great Again

Sharon Squassoni

The Trump administration intends to make US nuclear energy great again. Exporting nuclear reactors is a key element of the plan, along with sustaining existing nuclear plants in the United States, investing in research and development of advanced and small reactors, and some fuel cycle work. These initiatives go far beyond previous administrations' efforts to revitalize US nuclear energy in the last two decades. Unfortunately, they may also contribute to increasing the risks of proliferation. Overall, nuclear cooperation policy three years into the Trump administration reflects the same characteristics evident in other policy areas: a failure to see value in policy continuity, in multilateral approaches, and in US leadership by example.

Background

The United States has some of the most stringent requirements for significant nuclear trade in the world. Some legal requirements arose out of the Atomic Energy Act, but other policy and technology preferences have developed over time. To ensure that nuclear trade meets legal requirements, the executive branch incorporates them into framework nuclear cooperation agreements (NCA), which are then subject to congressional review and approval. Congressional review is skewed towards approval, which is automatic after 60 days unless Congress acts to block, condition, or disapprove agreements. The United States has more than two dozen nuclear cooperation agreements in force, many of those with the thirty-one countries (plus Taiwan) that have commercial nuclear power reactors.

US nuclear cooperation agreements provide a window into how the United States balances nuclear business, trade, and economic interests against security, nonproliferation, and strategic partnership interests. Usually, these windows are opened briefly when a new agreement is negotiated or an old one is renewed. However, there are some cases where ongoing implementation can provide insights.

Current Partners

Under the Trump administration, implementation of existing agreements has been fairly

routine with a few exceptions. The agreement with Japan automatically rolled over in 2018 with little controversy, punctuated by a helpful statement by the Japan Atomic Energy Commission on Japan's intention to reduce its plutonium surplus. Japan's agreement is one of two that have indefinite duration (the other is the more recently negotiated agreement with Taiwan). The agreement with South Korea is likewise proceeding with little fanfare, although US domestic efforts on fuel cycle capabilities, including the desire for a new domestic enrichment plant for national security purposes and a renewed US interest in developing capabilities to condition spent fuel, could upset the proverbial apple cart before the joint US-South Korean study on pyroprocessing is completed in 2021.

China, however, is another matter. The Obama administration renegotiated an NCA with China in 2015 that features a version of fast-track authorization for exports. During congressional hearings on the agreement, some concerns surfaced about China's use of US nuclear power reactor pump technology in its military submarine program. Just a year later, Allen Ho, a naturalized US citizen working for China General Nuclear Power Company, was indicted for violations of the Atomic Energy Act. The Trump administration reviewed US nuclear cooperation with China, and the Department of Energy subsequently announced a new policy in October 2018 on exports of nuclear technology, equipment, components, and material to China that overturned the fast-track approach.[1] First and foremost, any transfers to China General Nuclear would be denied. Technology related to light water small modular reactors (SMRs) and non-light water advanced reactors would also be denied, as would US components supporting China's reactors that compete with US designs (Hualong One and CAP-1400). The new policy, however, will authorize equipment and components necessary for Westinghouse's AP-1000 contracts.

At the time, Secretary of Energy Rick Perry stated that the United States could not ignore the national security implications of Chinese efforts to acquire nuclear technology "outside of established processes." This was a much milder interpretation than the one coming from the Department of State. In July 2018, Assistant Secretary of State Christopher Ford told US naval academy cadets that China's policy of military-civil fusion would "eliminate all barriers between its civilian and defense industrial sectors to promote the free flow" of technology and expertise.[2]

It is difficult to know how other issues affected the decision to halt export licenses, such as the trade war with China, demonization of China as an opponent in the new "Great Power Competition" narrative developed by the Trump administration, or simply the administration's rejection of Obama-era policies. The new policy leaves an opening for the resumption of export licenses

once the US is "satisfied with CGN engagement on its indictment with the U.S. legal system."[3]

Future Partners

The Trump administration inherited ongoing negotiations for new agreements, including those with Saudi Arabia and Jordan. Both negotiations have encountered resistance for similar reasons: Jordan and Saudi Arabia chafe against US insistence that they forswear domestic uranium enrichment and spent fuel reprocessing and sign Additional Protocol agreements (INFCIRC/540), which grants the International Atomic Energy Agency (IAEA) additional information, inspection tools, and access. These two conditions are not statutorily required but now are crucial components of what the Trump administration is calling "responsible nuclear supply." For decades, US policy has been to limit the spread of enrichment and reprocessing capabilities, largely through supplier controls. Few US NCAs completed after 1978 allow countries to domestically enrich or reprocess US-origin material, and only the NCA with Australia allows for the transfer of sensitive nuclear technology (from Australia to the US).

In the Middle East, US negotiators went a step further and sought commitments, either politically or legally binding, not to domestically enrich uranium or reprocess spent nuclear fuel.[4] Saudi Arabia was reportedly willing to sign a memorandum of understanding to that effect but not willing to put such language into a binding agreement. It is not entirely clear where the Trump administration would have drawn the line for Saudi Arabia before the political disaster of the Jamal Khashoggi murder in October 2018. A 2019 investigation into the White House's consideration of a "Middle East Marshall Plan" that involved the potential sale of 45 nuclear reactors to the Middle East (see text box) had little political impact during a year that also included impeachment proceedings.[5] Presumably, Congress would continue to closely scrutinize any plans by the Trump administration to revisit nuclear cooperation with Saudi Arabia even in a second Trump term.

A New Strategic Approach

On February 26, 2019, Assistant Secretary Ford announced a new strategic approach to nuclear cooperation agreements.[6] Key elements of the plan include rejecting a "business as usual" approach by cutting off exports to China, encouraging other suppliers to adopt US standards of supply like the Additional Protocol, placing limits on recipient countries' ability to enrich or reprocess, and criticizing "destabilizing and predatory behaviors" by Russian and Chinese supp-

liers. In addition, Assistant Secretary Ford proposed new Nuclear Cooperation MOUs to enable US suppliers to develop strategic partnerships with potential new recipients.

In the past, some advocates of civil nuclear exports operated with an implicit assumption that promoting US nuclear exports was synonymous with nonproliferation because US export controls and atomic energy laws laid the groundwork for multilateral export control regimes like the Nuclear Suppliers Group. The 2019 Trump administration strategy makes that assumption explicit despite historical evidence that US nuclear cooperation has actually made nuclear weapons programs in countries like Taiwan and South Korea possible. In fact, some cases may simply involve greater proliferation risks regardless of what the United States does. South Korea, for example, had a strong alliance with the United States and a nuclear cooperation agreement, but decided nonetheless to pursue nuclear weapons when it appeared that the US-South Korean strategic alliance was weakening because of troop withdrawals in the mid-1970s.

A second problem with the new administration's approach is the assumption that NCAs can help forge strategic relationships. This overestimates the ability of NCAs to accomplish practical tasks while underestimating the symbolic value in legitimizing a recipient country's nuclear program. Even where a country has made an NCA the prerequisite for a strategic partnership, such as India, the outcome is not guaranteed. The US-India nuclear deal may be an extreme example, but it demonstrates how prioritizing the development of a strategic relationship overturned decades of nonproliferation policy with few results. There has been no success story for the United States to balance out the negative nonproliferation impact – not for the nuclear industry, jobs, or diplomatic influence. By viewing NCAs as instruments to help forge strategic relationships, the US government increases pressure on industry to win nuclear contracts. Yet those suppliers, at least for the last ten years, have already been operating in a buyers' market that forces them to compete on low costs, better technology, or more confidence in new nuclear reactors.

The new strategic approach largely does not make clear how the US government intends to make US technology and vendors more appealing. Leaving aside formal nuclear cooperation agreements, MOUs are supposed to allow recipient countries to

> "...build strategic ties with the United States, its experts, industry, and cutting-edge researchers about how best to tailor future opportunities to its specific needs. We would use these ties to help states build their own infrastructure for the

> responsible use of nuclear energy and technology and adopt best practices in nuclear safety, security, and nonproliferation, including independent regulatory oversight."[7]

This strategy ignores the real culprit of reduced US competitiveness: cost. Russia and China may indeed use nuclear trade for strategic purposes, but they also understand that nuclear energy is too expensive for most recipients. With lower demand, Russia and China are providing significant financial and other incentives, such as promises to take back spent fuel, in exchange for uncertain influence. Without financial or other incentives to support recipients' interest in nuclear trade with the United States, what is the Trump administration willing to offer? The underlying assumption in the new strategic approach is that something besides defraying the cost of exorbitantly expensive reactors will attract potential new recipients. Ford's speech suggests that moral superiority is more attractive than affordability – that it feels better to do business with a country like the United States that upholds the highest standards of safety, security, and nonproliferation. Technology is another possibility, which is exactly what the United States fears its competitors will share and what the United States (at least with China) has not done a good job of protecting.

Fitting nuclear cooperation policy into the "one-size-fits-all" narrative of great-power competition risks mistaking cause for effect and losing all nuance. For example, Assistant Secretary Ford suggested in his February 2019 speech that "no longer should suppliers be able to use proliferation irresponsibility as a marketing tool," but this is clearly never the case among traditional suppliers. If anything, France and Korea are just as guilty as China and Russia with respect to not advocating enrichment and reprocessing restrictions.

National Security as the Basis for Supporting Nuclear Energy

A Department of Energy spokesperson earlier this year described the Trump administration as "committed to reviving and revitalizing the nuclear industry in America." Reportedly, the Trump administration began a full-scale review of nuclear energy policy in mid-2017 with the aim of keeping current plants open, supporting technology and innovation, reviewing US policy on the fuel cycle, and encouraging international exports.[8]

While no broad policy initiative has been released, the administration has been promoting specific actions in each of these areas, including plans to subsidize utilities generating nuclear

electricity with power purchase agreements, new R&D programs, building a fast reactor to test fuels, subsidies for the nuclear fuel supply chain, and the new strategic approach for nuclear cooperation.

One former White House aide suggested that "the president is a student of power politics. He views our civil nuclear program as a strategic asset and has expressed a willingness to directly preserve those assets."[9] A slightly different interpretation is that long-time advocates of propping up domestic nuclear power in the United States have a willing ear in the current White House. E&E News published what appears to be a memo for an NSC meeting in May 2018 that contained familiar, recycled arguments:

> Without a strong domestic nuclear power industry, the U.S. will not only lose these energy security and grid resilience benefits, but will also lose its technical expertise, supply chain and ability to influence international policy. It is in the Nation's strategic interest to preserve these assets in order to maintain and enhance American leadership and influence in the global nuclear market, including in the export of commercial nuclear technologies and systems. The entire U.S. nuclear enterprise – weapons, naval propulsion, non-proliferation, enrichment, and section 123 negotiations with the Kingdom of Saudi Arabia and other countries – depends on a robust civilian nuclear industry.
>
> Nuclear power, coal infrastructure and pipeline infrastructure are all basic components of the nation's domestic industrial base, which is necessary for national defense and furthers the national security strategy's priority goals of energy security through diverse supply and energy abundance."

These arguments are quite similar to those found in background documents released as part of the House Committee on Oversight and Reform's interim report detailing the so-called Middle East Marshall Plan.[10] Secretary of the Interior David Bernhardt made similar claims in a Washington Times op-ed in September 2019.[11] In July 2019, President Trump linked nuclear energy to national security when he put aside the Commerce Department's finding under a Section 232 investigation that national security was impaired by dependence on foreign uranium, creating the US Nuclear Fuel Working Group to make recommendations on how to revitalize the US nuclear fuel supply chain.[12] That group's findings have so far been delayed.

The Middle East Marshall Plan

The so-called Middle East Marshall Plan, described in detail in the House Committee on Oversight and Reform's interim report, reportedly sought to bring peace, prosperity and power (P3) to the Middle East through nuclear energy cooperation. It pre-dates the Trump administration and has had different forms and partners but with little substantive support before 2017. The plan was marketed as a way to make America great again in nuclear energy; reposition the US as the preeminent partner in the Middle East; secure US nonproliferation objectives; and boost US jobs and national security.

The plan assumed that:

- The Middle East is going nuclear.
- Middle Eastern countries, upset by Iranian nuclear capabilities, seek to acquire the same capabilities.
- Russia and China are aggressively pursuing exports in the region and the US industry is not equipped to compete against them.

It is true that a declining domestic nuclear power industry has significant implications for retaining and developing expertise and technologies. Nevertheless, a push for exports without addressing the decline of the US domestic industrial base would be futile. Worse, the assertion that nuclear power is necessary for national defense is far-fetched and misplaced. The US military nuclear establishment, including weapons and naval reactors, has developed along a different path with specific supply chains than the civilian nuclear power industry. For civilian nuclear energy, diverse, reliable, and cost-effective supply contribute more to energy security than developing purely domestic suppliers.

Overall, a push for exports at the expense of nonproliferation could impair national security. The best example of this risk is pursuit of nuclear cooperation with Saudi Arabia despite multiple threatening statements by Saudi officials regarding their intention to match Iran's capabilities. What's more, Saudi officials echo US rhetoric about the importance of civilian nuclear energy for national defense and nuclear weapons programs, and other countries may also follow suit. Any cooperation with Saudi Arabia that does not include a ban on enrichment and reprocessing should be viewed with deep concern. Lastly, US national security is not improved if the US pursues fuel-cycle capabilities to improve export competitiveness. Such an approach

would overturn longstanding US goals and objectives and damage US leadership rather than enhance it.

Finally, there appears to be little sensitivity within the Trump administration to the possibility that some US actions may be interpreted as the antithesis of modeling good nonproliferation behavior by allies and adversaries alike. Pursuing export markets as a zero-sum game decreases the kind of collaboration that is necessary to combat proliferation. Moreover, pursuing bilateral approaches at the potential expense of multilateral approaches and using national security arguments to prop up uneconomic civilian nuclear energy may ultimately increase proliferation risks.

Notes

1. US Department of Energy, *U.S. Policy Framework on Civil Nuclear Cooperation With China* (Washington, DC, 2018), https://www.energy.gov/sites/prod/files/2018/10/f56/US_Policy_Framework_on_Civil_Nuclear_Cooperation_with_China.pdf.

2. Christopher Ford, "Why China Technology-Transfer Threats Matter," (speech, US Naval Academy, Annapolis, MD, October 24, 2018), https://www.state.gov/remarks-and-releases-bureau-of-international-security-and-nonproliferation/why-china-technology-transfer-threats-matter/.

3. US Department of Energy, *Civil Nuclear Cooperation With China*.

4. The most recent agreement with the United Arab Emirates (UAE) contained specific language on the UAE's commitment to rely on market mechanisms for enrichment and reprocessing rather than pursuing domestic enrichment and reprocessing. The earlier US agreement with Egypt contained a commitment from Egypt not to conduct reprocessing on its soil with a promise to renegotiate if another country in the region got a "better" deal.

5. US Congress, US House of Representatives, House Committee on Oversight and Reform, *Whistleblowers Raise Grave Concerns with Trump Administration's Efforts to Transfer Sensitive Nuclear Technology to Saudi Arabia*, 116th Cong., 1st sess., February 2019, https://oversight.house.gov/sites/democrats.oversight.house.gov/files/Trump%20Saudi%20Nuclear%20Report%20-%202-19-2019.pdf.

6. Christopher Ford, "A New Approach to Civil Nuclear Cooperation Policy" (speech, Hudson Institute, Washington, DC, February 26, 2019), https://www.state.gov/a-new-approach-to-civil-nuclear-cooperation-policy/.

7. Ibid.

8. Hannah Northey and Jeremy Dillon, "Trump's Nuclear Revival? It's a black box," *E&E News*, January 15, 2019, https://www.eenews.net/stories/1060113675.

9. Ibid.

10. House Committee on Oversight and Reform, "Whistleblowers Raise Grave Concerns."

11. David L. Bernhardt, "Energy security is national security," *The Washington Times*, September 9, 2019, https://m.washingtontimes.com/news/2019/sep/9/energy-security-is-national-security/.

12. Donald J. Trump, "Memorandum on the Effect of Uranium Imports on the National Security and Establishment of the United States Nuclear Fuel Working Group," The White House, July 12, 2019, https://www.whitehouse.gov/presidential-actions/memorandum-effect-uranium-imports-national-security-establishment-united-states-nuclear-fuel-working-group/.

Author Biographies

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Jon Wolfsthal is Director of the Nuclear Crisis Group, an independent nonpartisan group of globally-recognized former military officials, diplomats, and security experts dedicated to preventing crises from escalating to the use of nuclear weapons, and senior advisor at Global Zero. From 2014 to 2017, he served as special assistant to former US President Barack Obama and as Senior Director for Arms Control and Nonproliferation at the National Security Council. In that post, he was the most senior White House official, setting and implementing US government policy on all aspects of arms control, nonproliferation, and nuclear policy. Prior to that, he served as the Deputy Director of the James Martin Center for Nonproliferation Studies at the Monterey Institute for International Studies. From 2009 to 2012, Wolfsthal served as the special adviser to US Vice President Joe Biden for nuclear security and nonproliferation, and as Director for Nonproliferation on the National Security Council. He supported the Obama administration's negotiation and ratification of the New START arms reduction agreement with Russia and helped support the development of nuclear policy, including the 2010 Nuclear Posture Review.